



PROJECT MANUAL FOR:

CALCUTT MIDDLE SCHOOL

112 WASHINGTON STREET
CENTRAL FALLS, RI 02863



100% CONSTRUCTION DOCUMENTS BID PACKAGE #2

PREPARED BY:



Ai3 ARCHITECTS, LLC
111 Speen Street, Suite 300
Framingham, MA 01701

June 22, 2023
Project #: 2202.04

PROJECT DIRECTORY

OWNER

City of Central Falls
Central Falls School District
949 Dexter Street, Lower Level
Central Falls, Rhode Island 02863-1715

OWNER'S PROJECT MANAGER

Peregrine Group, LLC
20 Newman Avenue, Suite 1005
Rumford, Rhode Island, 02916

ARCHITECT

Ai3 Architects, LLC
111 Speen Street, Suite 300
Framingham, Massachusetts 01701

CONSULTANTS

**MECHANICAL, ELECTRICAL, AND
PLUMBING ENGINEERING**

Griffith & Vary, Inc.
Wareham Industrial Park
12 Kendrick Road
Wareham, Massachusetts 02571

STRUCTURAL ENGINEER

Pare Corporation.
10 Lincoln Road, Suite 210
Foxboro, Massachusetts 02035

CODE CONSULTANT

Cosentini Associates, Inc.
101 Federal Street, Suite 600
Boston, Massachusetts 02110

COST ESTIMATING CONSULTANT

PM&C LLC
20 Downer Avenue, Suite 1C
Hingham, Massachusetts 02043

ACCESSIBILITY CONSULTANT

Kessler-McGuinness Associates, Inc.
1 Bridge Street, Suite A102
Newton, Massachusetts 02458

DOOR HARDWARE CONSULTANT

Spec Consultants, LLC
16 N. Mark Drive
Oxford, Connecticut 067478

SPECIFICATIONS CONSULTANT

Wil-Spec LLC
375 Main Street
Boxford, Massachusetts 01921

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ADVERTISEMENT FOR BIDS

The Central Falls School Department hereinafter called the "CFSD" will receive sealed bids for the following:

**Calcutt Middle School: Facility Equity Initiative Projects
Bid Package #2**

Sealed Bids shall be received at the City of Central Falls City Clerk's Office, no later than 1:00 PM on **Monday, July 17, 2023** for the "Calcutt Middle School: Facility Equity Initiative Projects" where they will be read aloud in person at 4:45pm at City Hall, 580 Broad Street, Central Falls, RI 02863.

Bids received after the stipulated time shall not be accepted and will be returned unopened.

All Bids must be submitted in sealed envelopes addressed to Alberto DeBurgo Deputy Clerk, City Clerk's Office, City Hall, 580 Broad St, Central Falls, RI 02863, and must be plainly marked in the lower left hand corner, "**Calcutt Middle School: Facility Equity Initiative Projects – Bid Package #2**". Please provide two (2) hard copies and one (1) electronic copy on USB with your submittal.

A **Non- Mandatory** Pre-Bid on site conference is scheduled for **Thursday June 29, 2023 @ 1:00 pm** at Calcutt Middle School, 112 Washington St, Central Falls, RI 02863. Copies of the bid documents may be downloaded from the City Hall website starting **Thursday, June 22, 2023**.

No Bids may be withdrawn for a period of 60 calendar days subsequent to the date of the bid opening.

Any Questions & Responses will be included in an **Addendum to be issued on June 30, 2023 and July 10, 2023**, on the City Website.

The Central Falls School Department reserves the right to waive any informality and to reject any and all bids or to accept any bids deemed to be in the best interest of the School Department.

Under requirements of Rhode Island General Law 37-13, this project is a prevailing wage project and requires a 5% Bid Bond. The project requires 15% MBE/WBE Participation with a goal of 25%. The successful bidder will be required to furnish 100% Payment and Performance Bonds at the time of award.

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INSTRUCTIONS TO BIDDERS

1.1 THE OFFERING

- A. The City of Central Falls Rhode Island, through the Central Falls School District ("Awarding Authority," "City") seeks qualified contractors ("Respondent") for the Project "Calcutt Middle School - FEI" ("Site") Bid Package #2, located at the 112 Washington Street, Central Falls, RI.
1. The Work includes sitework, selective demolition, general construction, renovation work, and temporary facilities and controls to protect the existing building. The Owner intends to award a single stipulated sum Contract for performance of all Work required by the Contract Documents.
 2. Respondents may only propose to complete the project in its entirety; segregated bids will not be accepted.

1.2 DESCRIPTION OF WORK

- A. The project involves the following scope and as may be additionally indicated on the Drawings, dated June 22, 2023.
1. General Upgrades:
 - a. Cafeteria/Student Commons Renovation.
 2. On-Site Work to occur only during scheduled school vacation dates, as defined in the documents.
 3. All work will be completed in a workmanlike manner, subject to inspection and approval by the City. No bid shall include elements beyond the scope of work identified.
- B. Type of Bid: Stipulated Sum.
- C. Availability of Documents: Copies of the bid documents may be downloaded from the City Hall website starting June 22, 2023.
- D. Time of Completion: The Project shall be Substantially Completed by prior to school occupancy on August 25, 2024.
- E. Performance and Payment Bonds: A one hundred percent (100%) Performance Bond and a one hundred percent (100%) Labor and Materials Payment Bond will be required from the successful bidder.
1. Bonding Firms and Insurers providing required bonds and insurance shall be,
 - a. Licensed to do business in the state of Rhode Island,
 - b. Rated in current edition Best's Insurance Guide and,
 - c. Approved by Owner before work is begun.
 2. Contractor's failure to provide required bonds and Certificates of Insurance in accordance with Contract Documents and acceptable to Owner will be considered a contract violation.
 - a. Attorneys in fact signing Bid or Contract Bonds shall file with said bond(s) a certified copy of their Power of Attorney to sign said bond(s).

INSTRUCTIONS TO BIDDERS

00 21 13-1

Construction Documents – Bid Package #2 / 06.22.2023

F. Wage Requirements: Prospective bidders are hereby informed that this Contract in accordance with Rhode Island General Law 37-13, and Rhode Island Department of Labor, will be subject to Federal Davis- Bacon Act Wage Rates. Contractors must refer to the applicable Davis Bacon Wage Determination rate schedule bound herewith. The prevailing wage rates to be applied are those that are effective as of the date of the awarding of the contract to the General Contractor. Contractors must also adjust employees' hourly wage rates (if applicable) every July 1st, in accordance with any updated Davis Bacon Wage Determination rates. All contractors and subcontractors will be subject to and monitored for conformance with the Federal Prevailing Wage Rates. Prevailing wage rates are included in the Contract Documents as well as available online at <https://sam.gov/content/wage-determinations>

1. Trainee Provisions shall not apply to this Contract. The training hour requirement is zero, and the goal is zero.

1.3 PERMITS, FEES AND TAXES

- A. Building Permits and Fees: Permits are required for the commencing and completion of the work.
- B. Rhode Island Sales Tax: The City is exempt from the payment of the Rhode Island Sales Tax under the 1956 General Laws of the State of Rhode Island, 44-18-30, Paragraph 1, as amended.
- C. Federal Excise Taxes: The City is exempt from the payment of any excise tax or federal transportation taxes. The price bid must be exclusive of taxes and will be so construed.

1.4 EXAMINATION AND PROCUREMENT OF DOCUMENTS:

- A. Hard copies of plans, specifications, and all other bidding documents for the above-named project can be examined in the Office of the City of Central Falls Purchasing Department, City Hall, 580 Broad Street, Central Falls, RI, 02863 between the hours of 9:00 a.m. and 3:00 p.m.. Digital (.pdf) copies of the documents may be downloaded through the City of Central Falls website, www.centralfallsri.us, by following the "Invitations to Bid" link on the home page. Full documents will be available to all bidders. Any Bidder or concerned parties who need further assistance in locating or retrieving the documents may contact the Deputy City Clerk, Alberto DeBurgo, at (401) 616-2414 or Adeburgo@centralfallsri.us for assistance. Arrangements for hard copies of bidding documentation can also be made by contacting the City Clerk's office. Documents will be available at bidder's cost of printing as a means of assuring that all appropriate materials are provided.
- B. Site Examination / Pre-bid Conference: Calcutt Middle School (located at 112 Washington Street, Central Falls, RI) on Thursday June 29, 2023 @ 1:00 pm.
1. Purpose:
- Assist Bidders in understanding the intent of the Bidding Documents,
 - Review with the Architect/Engineer ambiguities, inconsistencies, errors or omissions discovered in the Bidding Documents,
 - Provide for identification and discussion of potential problems that may arise during the administration of any subsequent contract,

- d. Provide an opportunity for an examination of the existing structure to the extent reasonably discoverable by nondestructive means,
 - e. Permit bidders an opportunity to visit the site for determining extent of work, and quantities of materials required for the Work
2. Attendance:
- a. General Contract Bidders are strongly encouraged to attend.
 - b. All potential subcontractors, sub-subcontractors, and product vendors are openly invited to attend the Pre-bid Conference, attendance is not mandatory.
 - c. Random visits to the site and any contact with building staff or students by potential bidders is strictly prohibited.

1.5 INSTRUCTIONS TO BIDDERS AND SUBMISSION OF BIDS

- A. Respondents to this request for bids must submit their proposals no later than specified date and time. An official authorized to bind the Respondent to the provisions of its response must sign the Response Form. The City will review all responses and reserves the right to accept or reject any and all responses.
1. All bids must be received by 2:00 PM. in the Office of the City Clerk on Monday, July 17, 2023. NO BIDS WILL BE ACCEPTED AFTER 2:00 PM.
- B. Sealed bids will be accepted in the office of the City Clerk to the attention of Alberto DeBurgo, City Hall, Central Falls, Rhode Island, until the time indicated, for the commodities, equipment or services listed in the specifications, and will be then publicly opened and read aloud in person at 4:45pm at City Hall, 580 Broad Street, Central Falls, RI 02863.
- C. Bid must be submitted in a sealed envelope and addressed to:
- City of Central Falls
Alberto DeBurgo
Deputy City Clerk
580 Broad St.
Central Falls, RI 02863
1. Lower left corner of envelope must contain the following identification:

"SEALED BID, Calcutt Middle School: Facility Equity Initiative Projects, Bid Package 2".
- D. Bids received prior to the time opening will be securely kept, unopened. No responsibility will be attached to an officer or person for the premature opening of a bid not properly addressed and identified.
- E. Any deviation from the specifications must be noted in writing and attached as a part of the bid. The bidder shall indicate the item or part with the deviation and indicate how the bid will deviate from specifications.
- F. Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it has been opened.
- G. Any bidder may withdraw their bid by written request at any time prior to the advertised time for opening. Telephone bids, amendments, or withdrawals will not be accepted.

- H. No Bidder shall modify, withdraw or cancel his proposal or any part thereof for a period of sixty (60) calendar days after date for receipt of proposals.

1.6 BIDDER'S CONTENT

- A. Bids shall be submitted as two hardcopies and one electronic copy on a USB stick.
- B. All bids shall include the following content:
 - 1. Cover letter: The cover letter should introduce the Respondent and address their interest for the project. The cover letter should include a narrative describing the contractor: the type of services provided, the location of its operations, the number and location of employees, etc. The cover letter should describe major upcoming projects and likely availability to complete additional projects in the next six (6) months.
 - 2. Bid Form: Bidders shall completely fill-in the Bid Form bound herewith. Modify Bid form only as specified by Written Addendum.
 - a. All blank spaces on Bid Form shall be filled in; numbers shall be stated in both writing and numerals.
 - b. Bidders shall acknowledge all alternates, allowances and addenda where indicated on the Bid Form.
 - c. Proposals shall include cost breakdowns and all attachments indicated on the sample Bid Form and as required in these Instructions to Bidders.
 - d. Proposals shall be completed without interlineation, alterations or erasures.
 - e. Completed Proposals shall be signed with legal signature of Bidder.
 - 3. Bid Security: Bid proposals shall be accompanied by a bid security deposit. Bids are to be secured for a period of thirty (60) days following the closing date for receiving Bids, in the amount of five percent (5%). Bid security may be provided by any of the following: Bid Bond, Treasurer's Check, or Certified check, made payable to "City of Central Falls". Cash and company checks are not acceptable
 - 4. Bonding Eligibility Notarized assurance of Bidder's bonding eligibility for Performance and Payment Bonds, written on surety company's own letterhead.
 - 5. Contractor's Qualification Statement (AIA FORM A305), which is in addition to the cover letter described above.

1.7 BIDDERS REPRESENTATIONS

- A. The Bidder by making a Proposal represents the following:
 - 1. The Bidder has read and understands the Bidding Documents and the Bid is made in accordance with them.
 - 2. The Bidder has visited the site, become familiar with location conditions under which the Work is to be performed and has carefully examined the Bidding Documents, together with all Addenda issued, received and acknowledged below, and familiarized himself or herself with the legal requirements (federal, state, and local laws, ordinances, rules and regulations) and other conditions which may affect the cost, progress or performance of Work.
 - 3. The Bid is based upon the materials, equipment and systems required by the Bid Documents without exceptions.

4. The Bidder acknowledges that his or her failure to acquaint himself or herself with the existing conditions and Contract Documents shall in no way relieve the Bidder from any obligations with respect to his or her bid.

1.8 QUALIFICATIONS OF BIDDERS

- A. The City may make such investigations as it deems necessary to determine the ability of the bidder to perform the work. The bidder shall furnish the City with all such information and date for the purpose as may be requested.

1.9 INDEMNIFICATION AND HOLD HARMLESS

- A. Any Questions and Responses will be included in Addenda to be issued on Addendum to be issued on June 30, 2023 and July 10, 2023, on the City Website.
- B. No interpretation on the meaning of the plans, specifications or other contract document will be made to any bidder orally. Every request for such interpretations should be in writing addressed to Ai3 Architects, Inc., 111 Speen Street, Suite 300 Framingham, MA 01701 and to be given consideration must be received prior to 3:00pm on Thursday, July 6, 2023.

1.10 PROPERTY LOST, DAMAGED OR DESTROYED

- A. Any property or work to be provided by bidder will remain at the bidder's risk until written acceptance by the City of Central Falls and the bidder will replace, at bidder's expense, all property or work lost, damaged or destroyed by any cause whatsoever.

1.11 EVIDENCE OF INSURANCE

- A. A policy of auto, general liability and property damage insurance shall be attached hereto, covering any and all work performed under a contract between the City and bidder, naming the City and the State of Rhode Island as an additional insured shall be made part of any contract between the City and bidder in an amount of not less than \$1,000,000 for projects in excess of \$500,000. A policy of professional liability or errors and omissions insurance covering any and all work performed under any contract between the City and bidder naming said bidder shall be attached hereto. A copy of workers compensation insurance policy shall be attached, if required by Rhode Island law for this bid and covering all work to be performed under any contract between the City and bidder naming the bidder as insured shall be attached hereto. The City, upon award of bid, will request verification from the insurance company to ensure that the agent has properly notified the company and that coverage has been bound.

1.12 DISADVANTAGED BUSINESS ENTERPRISES (DBE) GOAL

- A. The bidder shall include a plan for meeting the goal that a minimum of 10% of the value of the bid will be completed by State-of-Rhode-Island-certified Disadvantaged Business Enterprises (DBE's). The successful bidder must indicate the DBE's it intends to utilize to achieve the above-stated percentage prior to award of the contract.

1.13 GENERAL CONDITIONS, TERMS AND LIMITATIONS

- A. The issuance of this request for bids, the submission of a response by any Respondent, or acceptance of such response by the City do not individually or collectively obligate the City in any manner. The City reserves the right (1) to amend, modify, or withdraw this request for bids, (2) to revise any requirements of the request for bids, (3) to require supplemental statements or information from any Respondent, (4) to accept or reject any or all responses, (5) to extend the deadline for submission of responses, (6) to negotiate or hold discussions with any Respondent and to waive defects and allow corrections of deficient responses, and (7) to cancel this request for bids, in whole or in part, if the City deems it in their best interest to do so. The City may exercise these rights at any time without notice and without liability to any Respondent for their expenses incurred in the preparation of the responses. The City does not assume any liability for any pre-contractual activity and/or costs incurred by the Respondents to this request for bids and reserves all its rights in law and equity with respect to this request for bids.
- B. All submissions become the property of the City. The City shall be entitled to retain and use for the project without compensation to any Respondent any information submitted, including, but not limited to, any concept, element or idea (including financial structures) disclosed in or evident in the submission or meetings or interviews with Respondents. The City believes the information in this request for bids is accurate, but the City makes no warranties to such accuracy and assumes no responsibility for errors or omissions contained herein.
- C. The City shall be the sole decision maker of whether a response complies with the requirements of the request for bids and whether responses have merit. Nothing contained in this request for bids shall limit the City in its selection of entities to be invited to respond to future solicitations for this project or future projects, nor limit the City's discretion in any way in formulating and adopting a development plan for the site. Submission of a response to this request for bids by any Respondent constitutes Respondent's permission and consent to inquiries by the City concerning the Respondent and its ability to undertake the development project, including checking references, credit checks, and similar investigations.
- D. It is the policy of the City to comply with all municipal, state and federal laws, policies, orders, rules and regulations, which prohibit unlawful discrimination.

End of Document

Document 00 41 13

FORM FOR GENERAL BID
(BID PACKAGE 2)

BID OF: _____

(Name of Bidder)

TO: City of Central Falls, Central Falls School District herein called the Owner, per the attention of:

City of Central Falls
Purchasing Department
580 Broad St.
Central Falls, RI 02863

- A. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents, to complete all Work as specified and indicated in the Bidding Documents for the stipulated Contract Price stated herein, and within the time limit indicated in this Bid and in compliance with the Contract Documents and all applicable legal requirements.
- B. The undersigned Bidder hereby declares that he or she has visited the site and the conditions present and has carefully examined the Bidding Documents, together with all Addenda issued, received and acknowledged below, and has familiarized himself or herself with the legal requirements (federal, state, and local laws, ordinances, rules and regulations) and other conditions which may affect the cost, progress or performance of Work, and has made independent investigations, deemed necessary by the Bidder.
- C. The undersigned Bidder hereby offers and agrees to provide all labor, services, products, and materials required in the performance of Work to complete the following named project:

Calcutt Middle School - FEI
Bid Package #2
112 Washington Street
Central Falls, Rhode Island 02863

to the satisfaction of the Owner and the Architect and in accordance with the accompanying Bidding and Contract Documents, dated: June 22, 2023, as prepared by: Ai3 Architects, LLC., Framingham, Massachusetts, for the Contract price specified below, subject to additions and deductions according to the terms of the Contract Documents.

D. The proposed total contract price is: (Base Bid - NOT INCLUDING ALTERNATES)

..... Dollars
(total contact price amount in words, which governs)

(\$)
(total contract price amount in numbers)

BID PACKAGE #2

E. Addenda: The Bidder acknowledges receipt of the following addenda, and has taken them into consideration in the preparation of this Bid:

Addenda N°. ____, dated: _____. Addenda N°. ____, dated: _____.

Addenda N°. ____, dated: _____. Addenda N°. ____, dated: _____.

Addenda N°. ____, dated: _____. Addenda N°. ____, dated: _____.

F. Accompanying this proposal is a bid surety in the form of: (Bid bond) (Certified check) (Treasurer's check) (Cashier's check), payable to City of Central Falls in the amount of

\$
(bond amount in numbers)

G. Cost Breakdown of total contract price:
(Sum of breakdown equals Proposed Bid Price).

- 1. Insurance \$.....
2. Overhead and Profit \$.....
3. General Conditions & Miscellaneous \$.....
4. Shop Drawings, Product Data, Samples, and Other Specified Submittals \$.....
5. Selective Demolition, Shoring and Support \$.....
6. Masonry \$.....
7. Structural Steel, and Metal Fabrications \$.....
8. Rough Carpentry, Finish Carpentry \$.....
9. Fireproofing, Firestopping and Joint Sealants \$.....
10. Door Hardware \$.....
11. Non-Load Bearing Framing, and Gypsum Board \$.....
12. Acoustical Ceilings \$.....
13. Resilient Base and Resilient Tile Flooring \$.....
14. Painting And Coatings \$.....
15. Signage \$.....
16. Casework \$.....
17. Food Service \$.....
18. Fire Protection \$.....
19. Plumbing \$.....
20. Heating, Ventilating & Air Conditioning \$.....
21. Electrical \$.....

Total (Items 1 through 21)

Total should equal amount of base bid.

\$.....

BID PACKAGE #2

- H. Changes to the Contract: The undersigned Bidder proposes the following maximum mark-up percentages for Contractor's fee, overhead, profit and taxes, computed on the total of labor and materials only, which apply to ADDITIONAL WORK authorized by the Owner during the performance of the Work.
1. For subcontractors, allow 10 percent (10%) on their own work.
 2. For the Contractor, allow 5 percent (5%) on the Work of subcontractors.
 3. For the Contractor, allow 10 percent (10%) on Work of his/her own employees.
- I. The Bidder hereby agrees to commence work within 7 days from Date of Agreement, to pursue the Work with diligence, and bring the Project to Substantial Completion, or Owner acceptance for occupancy prior to August 25, 2024.
- J. The undersigned agrees that, if he is selected as the Contractor, he will within 30 calendar days, after presentation thereof by the Owner, execute a contract in accordance with the terms of this Proposal and furnish a Performance Bond and also a Labor and Material or Payment Bond, each of a surety company qualified to do business under the laws of the State of Rhode Island and satisfactory to the Owner and each in the sum of the contract price, the premiums for which are to be paid by the Contractor and are included in the contract price.
- K. The undersigned Bidder agrees to provide, as an integral part of this Bid, a separate attachment, entitled "CONTRACTOR'S QUALIFICATION STATEMENT".
- L. Labor: The undersigned hereby certifies that he/she is able to furnish labor and services that can work in harmony with all other elements of labor employed or to be employed on the Work.
- M. The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receipt of bids.
- N. The Bidder understands the Owner's right to reject any and all bids.
- O. The undersigned further certifies under the penalties of perjury that this bid is an all respects bona fide, fair, and made without collusion, or fraud with any other person.

As used in this document, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

Date of Bid:

.....
(Name of Bidder - Company Name)

BY
(Name of person signing Bid & Title)

.....
(Business Mailing Address)

.....
(City/Town, State and Zip Code)

Corporate Seal
(Business Telephone Number)

Note: If the bidder is a corporation, indicate state of incorporation under signature and affix corporate seal; if partnership, give full names and residential address of all partners; and if an individual give residential address if different from business address.

End of Document

Bid Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

BOND AMOUNT: \$**PROJECT:**

(Name, location or address, and Project number, if any)

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

Signed and sealed this day of ,

(Contractor as Principal) *(Seal)*

(Witness)

(Title)

(Surety) *(Seal)*

(Witness)

(Title)

Init.

DBE SPECIAL PROVISION

**DISADVANTAGED BUSINESS ENTERPRISE AFFIRMATIVE ACTION CERTIFICATION FOR
CONTRACTORS AND CONSULTANTS**

With respect to the above numbered project, I hereby certify that I am the _____
and duly authorized representative of _____ whose address is _____
_____.

I do hereby certify that it is the intention of the above organization to affirmatively seek out and consider Disadvantaged Business Enterprises to participate in this contract as contractors, subcontractors and/or suppliers of materials and services. I agree to comply with the requirements of the U.S. Department of Transportation's regulations 49 CFR Part 26.

I understand and agree that any and all contracting in connection with this contract, whether undertaken prior to or subsequently to award of contract, will be in accordance with this provision. I also understand and agree that no contracting will be approved until the State Department of Transportation has reviewed and approved the affirmative actions taken by the above organization.

DEFINITIONS:

A "Broker," for purposes of this provision, is a DBE that has entered into a legally binding relationship to provide goods or services delivered or performed by a third party.

A "DBE Contractor" or "DBE Subcontractor," for purposes of this provision, is a DBE that has entered into a legally binding relationship with an obligation to furnish services, including the materials necessary to complete such services.

"Disadvantaged Business Enterprise" or "DBE," for purposes of this provision, means a for-profit small business concern certified by the Rhode Island Department of Administration, under U.S. Department of Transportation certification guidelines (a) that is at least 51 percent owned by one or more socially and economically disadvantaged individuals or, in the case of any corporation, in which 51 percent of the stock is owned by one or more such individuals; and (b) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

A "Joint Venture," for purposes of this provision, is an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

A "Manufacturer," for purposes of this provision, is a DBE that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles or equipment required under the contract and of the general character described by the specifications.

A "Regular Dealer" is a DBE that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the

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public in the usual course of business. In the sale of bulk items, such as cement, asphalt, steel and stone, a DBE firm may be considered a "regular dealer" if it owns and operates the distribution equipment used to deliver its products. Any additional equipment used by a regular dealer shall be through long-term lease agreements rather than on an ad hoc or contract-by-contract basis.

"Race conscious" measures (goals) or programs are those that are focused specifically on assisting DBEs.

"Race neutral" measures (goals) or programs are those that are, or can be, used to assist all small businesses, including DBEs.

"Small Business Concern" means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to Section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121), and that does not also exceed the cap on average annual gross receipts specified in 49 CFR 26.65(b).

"Socially and economically disadvantaged individual" means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who has been subjected to racial or ethnic prejudice or cultural bias within American society because of his or her identity as a member of a group and without regard to his or her individual qualities. The social disadvantage must stem from circumstances beyond the individual's control.

1. Any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis.
2. Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
 - a. "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;
 - b. "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South America, or other Spanish or Portuguese culture or origin, regardless of race;
 - c. "Native Americans," which includes persons who are enrolled members of a federally or State recognized Indian Tribe¹, Alaska Natives, or Native Hawaiians;
 - d. "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), Republic of Northern Marianas Islands, Macao, Fiji, Tonga, Kirbati, Tuvalu, Nauru, Federated States of Micronesia, or Hong Kong;
 - e. "Subcontinent Asian Americans," this includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal, or Sri Lanka;
 - f. Women; and
 - g. Any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration (SBA), at such as time as the SBA designation becomes effective.
3. Being born in a particular country does not, standing alone, mean that a person is necessarily a member of one of the groups listed in this definition.

¹ A "tribally-owned concern" means any concern at least 51 percent (51%) owned by an Indian tribe as defined in 49 CFR 26.5.

I. GENERAL REQUIREMENTS AND SANCTIONS:

- A. Failure by the Contractor to demonstrate every good faith effort in fulfilling its DBE commitment during the construction period will result in the reduction in contract payments by the amount determined by multiplying the awarded contract value by the established DBE percentage (listed in Section II. A. below), and subtracting the dollar value of the work actually performed by DBE contractors. This action will not preclude RIDOT from imposing sanctions or other remedies available as specified in paragraphs below.
- B. Contractors and subcontractors are advised that failure to carry out the requirements of this provision shall constitute a breach of contract and, after notification by the Department, may result in termination of the agreement or contract by the Department, or such remedy as the Department deems appropriate. Greater detail of the rules and regulations regarding DBE utilization can be found in the Rules and Regulations for RIDOT DBE Program.
- C. Brokering of work by DBEs is not allowed and is a contract violation unless DBE is a certified DBE broker. A DBE firm involved in brokering of work may have their certification removed or suspended and shall be subject to the sanctions stated herein. Any firm that engages in willful falsification, distortion or misrepresentation with respect to any facts related to the project shall be subject to sanctions described in paragraph (B) above and referred to the U.S. Department of Transportation's Office of the Inspector General for prosecution under Title 18, USC Section 1001.
- D. The Disadvantaged Business Enterprises Directory or other available resources may be obtained at the Rhode Island Department of Transportation Office of Civil Rights (OCR), 2 Capitol Hill, Providence, RI 02903, or at <http://odeo.ri.gov/>.
- E. The utilization of Disadvantaged Business Enterprises is in addition to all other equal opportunity requirements of this contract. The Contractor shall keep such records as are necessary to determine compliance with its Disadvantaged Business Enterprises Utilization obligations. The records kept by the Contractor shall include:
 - 1. The number of DBE contractors, subcontractors and suppliers; and the type of work, materials or services being performed on or incorporated in this project.
 - 2. The progress and efforts being made in seeking out DBE contractor organizations and individual DBE contractors for work on this project.
 - 3. Documentation of all correspondence, contacts, telephone calls, etc. necessary to obtain the services of DBEs on this project.
 - 4. Copies of canceled checks or other documentation that substantiates payments to DBE firms.
 - 5. All such records must be maintained for a period of three (3) years following acceptance of final payment and will be available for inspection by RIDOT and the Federal Highway Administration.
- F. A contractor for a construction contract will not be eligible for award of contract under this invitation for bids unless such contractor has submitted, at the time of the Bid Opening, this Certification. A Consultant will be required to sign this Certification at the time of the contract execution or the award of contract will be nullified.

II. PRE-AWARD REQUIREMENTS:

- A. Prior to contract award and within five (5) days from the opening of bids, the contractor/consultant shall, at a minimum, take the following actions to meet the race-conscious goal established by OCR, hereinafter referred to as the 'contract goal':
 - 1. Appoint an EEO Officer to administer the Contractor's DBE obligations.
 - 2. Submit to the RIDOT Construction Section for approval any subcontractor and/or supplier, and submit executed subcontract agreement(s)/purchase orders, including a detailed description of the

- work and price, between the contractor and the qualified DBE to be utilized during the performance of work. In the case of consultant contracts, the consultant shall submit the above DBE obligation as stated in the Scope of Work. This DBE obligation shall be included in the proposal submission to the Design Section, and include the name of the DBE, scope of work, and the actual dollar value.
3. Each construction subcontract submitted shall be accompanied by a completed "DBE Utilization Plan" that specifies the items of work to be performed and the contractor's commitment to complete each subcontract entered into with a DBE pursuant to meeting the contract goal stated herein.
 4. Any subcontract for materials or supplies provided by a DBE broker, or for other services not provided directly by a DBE firm, shall be accompanied by the RIDOT Broker Affidavit form.
- B. In the event that the cumulative percentages submitted do not equal or exceed the contract goal, RIDOT will conduct a good faith effort (GFE) review to determine the extent of the prime contractor's efforts to seek out DBEs and afford adequate subcontracting opportunities to meet the contract goal. Evidence in support of the prime's actions must be submitted using RIDOT's Good Faith Effort Form (GFEF). This form contains examples of the types of evidence set forth in 49 CFR Part 26, Appendix A. RIDOT will consider this and other relevant evidence in making its GFE determination.
1. Where RIDOT has determined that the prime contractor made every good faith effort to meet the contract goal, the contract shall be awarded.
 2. Where RIDOT has determined that the prime contractor failed to make every good faith effort in meeting the contract goal, the contract shall not be awarded, and an opportunity for administrative reconsideration shall be provided.

III. CONSTRUCTION PERIOD REQUIREMENTS:

A. Counting of Participation and Commercially Useful Function (CUF)

The total dollar value of a prime contract awarded to a DBE will be counted toward the DBE requirement. Likewise, all subcontract work performed by a DBE will count toward the DBE requirement.

The allowable value of a subcontract with DBE participation will be treated as the commitment of the prime contractor toward meeting the contract goal. The specific rules for crediting DBE participation toward contract goals are as follows:

1. When a DBE participates in a contract, RIDOT will consider only the value of the work actually performed by the DBE toward DBE goals. RIDOT includes the entire amount of that portion of a construction contract (or other contract not covered by paragraph (3) of this section) that is performed by the DBE's own forces. RIDOT credits the cost of supplies and materials purchased or leased by the DBE subcontractor for the work of the contract. However, supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate are not counted toward participation.
2. RIDOT credits the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a USDOT-assisted contract, toward DBE goals, provided the fee is determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.
3. When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.
4. When a DBE performs as a participant in a *joint venture*, RIDOT will count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.

RIDOT will count expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function (CUF) on that contract.

1. A DBE performs a CUF when it is responsible for execution of the work of the contract, and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, RIDOT evaluates the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors. Even if a DBE is performing pursuant to normal industry practices, if those practices, in fact, erode the ability of the DBE to control its work and remain independent, the practice may affect how much can be credited toward the DBE goal and may raise questions about the DBE eligibility.
2. Suppliers: A supplier is considered to perform a CUF when it packages, i.e. takes quotes from several manufacturers, and/or sells from its own inventory in order to provide one or more items to a contractor. A supplier may own a franchise and/or may be a factory representative to one or more manufacturers. Consistent with a contractor's probable needs, a supplier, not a contractor, may place orders for production with manufacturers.
3. "Pass through" supply operations occur when the contractor decides what items shall be bought from what sources and/or agrees directly with the manufacturer, or other non-DBE party, to schedule delivery and/or directs adjustments and/or routes payments and purchase orders through the DBE. Pass through operations are not commercially useful functions and will not be counted toward contract goals.
4. Management: The DBE must manage the work that has been contracted to its firm. The DBE owner must supervise daily operations, either personally, or with a full-time, skilled and knowledgeable superintendent employed by and paid wages by the DBE. The superintendent must be present on the job site and under the DBE owner's direct supervision. The DBE owner must make all operational and managerial decisions for the firm. Mere performance of administrative duties is not considered supervision of daily operations.
5. Workforce: In order to be considered an independent business, a DBE must keep a regular workforce. DBEs cannot "share" employees with non-DBE contractors, particularly the prime contractor. The DBE shall perform its work with employees normally employed by and under the DBE's control, see paragraph 9 of this section. The DBE must be responsible for payroll and labor compliance requirements for all employees performing on the contract and is expected to prepare and finance the payrolls. Direct or indirect payments by any other contractor are not allowed.
6. Trucking: RIDOT will consider the following factors in determining whether a DBE trucking company is performing a CUF. The DBE must manage and supervise the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.
 - a. The DBE itself must own and operate at least one fully licensed, insured, and operational vehicle being used on the contract.
 - b. The DBE must receive compensation for the total value of the services it provides on the contract using vehicles it owns, insures, and which are operated by drivers it employs.
 - c. The DBE may lease vehicles from another DBE firm, including an owner-operator who is certified as a DBE. The DBE which leases vehicles from another DBE shall receive credit for the total value of the services the lessee DBE provides on the contract.
 - d. The DBE may also lease vehicles from a non-DBE firm, including from an owner-operator. The DBE which leases vehicles from a non-DBE is entitled to credit for the total value of

services provided by non-DBE lessees not to exceed the value of services provided by DBE-owned vehicles on the contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement.

Example to this subsection (6) (d): DBE firm X uses two of its own trucks on a contract. It leases two trucks from DBE firm Y and six trucks from non-DBE firm Z. DBE credit would be awarded for the total value of transportation services provided by firm X and firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by firm Z. In all, full credit would be allowed for the participation of eight trucks. With respect to the other two trucks provided by firm Z, DBE credit could be awarded only for the fees or commission pertaining to those trucks firm X receives as a result of the lease with firm Z.

- e. For purposes of this subsection, a lease must indicate that the DBE has exclusive use of and control over vehicles used on the project. This does not preclude vehicles from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for the use of the leased vehicle. Leased vehicles must display the name and identification number of the DBE.
7. All expenditures with manufacturers and suppliers must be properly documented in writing in order to count toward a DBE obligation. RIDOT will count expenditures with DBEs for materials or supplies toward DBE goals as follows:
- a. For a DBE contractor (furnish and install) to receive credit for supplying materials, the DBE must perform the following four functions: (1) negotiate price; (2) determine quality and quantity; (3) order the materials; and (4) pay for the material itself. If the DBE does not perform all of these functions, it has not performed a CUF with respect to obtaining the materials, and the cost of the materials may not be counted toward the DBE goal. Invoices for the material should show the payor as the DBE.
 - b. If the materials or supplies are purchased from a DBE manufacturer, RIDOT will count 100 percent of the cost of the materials or supplies.
 - c. If the materials or supplies are purchased from a DBE regular dealer, RIDOT will count 60 percent of the cost of the materials or supplies toward DBE goals.
 - d. With respect to flaggers, when flaggers are provided, RIDOT will count 60 percent of the labor. When traffic signs are included with flaggers, the work will be counted as 100 percent.
 - e. With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, RIDOT will count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials and supplies required on a job site, toward DBE goals, provided RIDOT determines the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. The fees will be evaluated by RIDOT after receiving the Broker's Affidavit Form from the DBE. RIDOT will not count any portion of the cost of the materials and supplies themselves toward DBE goals.
8. Subcontractor: A subcontractor arrangement exists when a person or firm has a contractual obligation to perform a defined portion of the contract work and the following conditions are present:
- a. Compensation is determined by the amount of work accomplished, rather than being paid on an hourly basis.
 - b. The subcontractor exercises control over work methods (except as limited by project specifications), while furnishing and managing its own labor and equipment with only minimal, general supervision being exercised by the prime contractor.

- c. The personnel involved in the DBE subcontractor's portion of the project are both under the subcontractor's direct supervision and identified on its payroll records. When warranted by unique circumstances of a project, a DBE subcontractor may be permitted to employ on a limited basis specialty trades personnel who are not normally employed by the DBE subcontractor.
 - d. Second tier DBE subcontracting will be approved only in accordance with normal industry practice and when the type of work differs from work which the DBE usually performs.
9. All factors pertaining to the unique conditions of a project shall be considered in determining whether a DBE subcontractor relationship actually exists on the project. A DBE subcontractor may need to lease/rent equipment, other than over-the-road trucks, and/or augment its workforce with additional skilled personnel in order to perform certain project-related work. The DBE subcontractor is required to arrange for the necessary equipment through rental/leasing agreements, as necessary. (Off-the-road equipment, such as "Euclids," may be rented/leased from the prime contractor even though the CUF guidelines prohibit rental/lease of over-the-road trucks from the prime contractor.) Likewise, in limited instances, the prime contractor may provide some, but not all, personnel to the DBE subcontractor when the following conditions are present:
- a. A DBE must perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force.
 - b. The DBE must not subcontract a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved.
 - c. The personnel must have a specialized expertise which has not been mastered by the DBE's own skilled/supervising/managerial personnel.
 - d. Such personnel must be placed on the DBE's payroll and come under the direct supervision of the DBE for the performance of the particular subcontract work.
 - e. The deployment of such personnel must be accomplished within the framework of a mentor-protégé agreement; or for emergency purposes, by contract change order. All instances of combining personnel must be for developmental purposes in which teaching/demonstration/consulting to the DBE must occur.
 - f. Long term, continual (e.g. from one contract to another) or chronic use by a DBE firm, of personnel normally employed by another specific firm, lacking a mentor-protégé agreement which is being carried out in good faith, is not consistent with the CUF guidelines.
 - g. To place entire work crews on DBE's payrolls when such personnel are normally employed by another specific firm is not consistent with the CUF guidelines.
 - h. A DBE may need to lease/rent equipment, except for over-the-road trucks, in order to be properly equipped to execute the work of a mentor-protégé agreement. In such cases where the DBE has investigated several possible sources of such equipment within a reasonable geographical area to the project, the DBE may find the best offer was made by the prime contractor or another subcontractor on the project. In such cases, the DBE may rent/lease such equipment from the prime or another subcontractor, provided that the use of such equipment is material to demonstrating/teaching objectives set forth in the mentor-protégé agreement. Thus, the DBE's regular employees, not those temporarily furnished by the prime contractor, or another subcontractor, shall operate such equipment for the majority of the time during which the equipment is used in the work of the DBE subcontractor under the mentor-protégé agreement.
 - i. A DBE's use of equipment owned by a prime contractor or another subcontractor or without an appropriate mentor/protégé program is inconsistent with the CUF guidelines and will result in noncompliance.
10. If a contractor or subcontractor is not certified as a DBE by the Minority Business Enterprise Compliance Office under the specific NAICS code of line items identified in the contract, at the

time of the execution of the contract or issuance of the purchase order, RIDOT will not count that firm's participation toward any DBE goals, except as provided in 49 CFR 26.87(i).

11. RIDOT will not count toward the contract goal the dollar value of work performed by a contractor or subcontractor after it has ceased to be a certified DBE.
12. RIDOT will not count the participation of a DBE subcontractor toward a contractor's final compliance with its DBE obligations on a contract until all payments being credited have been fully paid to the DBE.

B. DBE Replacement and Termination:

The contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains RIDOT's written consent as provided in this section; and unless RIDOT's consent is provided under this paragraph, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

1. Good Cause for Replacement or Termination

The prime contractor must provide the Department's OCR with a copy of its "Intent to Substitute /Terminate" notice to the DBE setting forth the reasons for the request. This notice must advise the DBE that it has five (5) days to respond (to prime and State) with objections and why the State should not approve the prime's proposed action.

After adequate notice by the Contractor, if any DBE is unable to perform work committed toward the goal, the DBE shall provide to the OCR a signed statement stating why it is unable to complete the work. The Contractor shall document its efforts to have another DBE perform the item or to have a DBE perform other items to replace the original DBE commitment amounts. In the event the Contractor is not able to find replacement DBE work, the Contractor must provide the OCR with documentation clearly evidencing its good faith efforts. Contractors are prohibited from terminating for convenience any DBE firm used to fulfill a commitment pursuant to meeting the contract goal stated herein.

Prior to substitution or termination of a DBE subcontractor, the contractor shall demonstrate good cause and obtain written approval from the OCR.

In accordance with 49 CFR Part 26.53 good cause includes the following circumstances:

- a. The listed DBE subcontractor fails or refuses to execute a written contract;
- b. The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
- c. The listed DBE subcontractor fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond requirements;
- d. The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- e. The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law;
- f. RIDOT determines that the listed DBE subcontractor is not a responsible contractor;
- g. The listed DBE subcontractor voluntarily withdraws from the project and provides to RIDOT written notice of its withdrawal;
- h. The listed DBE is ineligible to receive DBE credit for the type of work required;

- i. A DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract;
- j. Other documented good cause that RIDOT determines compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime contractor can self-perform the work for which the DBE contractor was engaged or so that the prime contractor can substitute another DBE or non-DBE contractor after contract award.

In addition to post-award terminations, the provisions of this section apply to pre-award deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

Failure by the contractor to carry out the requirements of this part is a material breach of the contract and may result in the termination of the contract or such other remedies that RIDOT deems appropriate.

2. Good Faith Efforts to Replace

When a DBE subcontractor is terminated as provided in paragraph (1) of this section, or fails to complete its work on the contract for any reason, RIDOT requires the prime contractor to make good faith efforts to find another DBE subcontractor to substitute for the original DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal RIDOT established for the procurement. The good faith efforts shall be documented by the contractor. If RIDOT requests documentation under this provision, the contractor shall submit the documentation within 7 days, which may be extended for an additional 7 days if necessary at the request of the contractor, and RIDOT shall provide a written determination to the contractor stating whether or not good faith efforts have been demonstrated. The determination shall be made by the DBELO, under the criteria established below.

If there is a change order to a contract on which there is a DBE contract goal, then that contract goal applies to the change order as well as to the original contract. In the event of significant change orders, good faith efforts are required dependent upon the type of change order; RIDOT determines on a case-by-case basis what constitutes good faith efforts in the context of a particular change order. This could include modifying the contract goal amount applicable to the change order if circumstances warrant. When a change order decreases work, i.e. RIDOT determines specific line items are no longer necessary on a contract or there is a quantity change on an item, no good faith effort must be shown. However, when an increase of work occurs or there is a termination of a DBE, good faith efforts must be shown in accordance with the preceding requirements.

C. Monthly Payment Certifications:

All contractors on RIDOT projects are required to certify their payments to subcontractors by use of RIDOT's contractor compliance software on a minimum of a monthly basis (which, at time of publishing, is Prism). A project may not proceed to finalization without the input of this information. RIDOT's Prompt Payment Clause applies to both DBE and non-DBE subcontracts. The Contractor is responsible for the subcontractors' compliance with the submission of their payment reporting by way of this software.

D. Joint Check Procedure for DBEs:

A prime contractor must receive written approval by the Department's DBELO before using a joint check for materials/supplies called for under a subcontract with a DBE. Joint check requests shall be submitted by the prime contractor to the Department's OCR in writing along with a Joint Check Affidavit and the subcontract agreement. The following are general conditions that must be met regarding joint check use:

1. The use of the joint check shall only be allowed by exception and shall not compromise the independence of the DBE;
2. The second party (typically the prime contractor) acts solely as a guarantor;
3. The DBE must release the check to the supplier;
4. The subcontract agreement must reflect the total contract value, including the cost of materials and installation; actual payments for work performed by the DBE may reflect labor only; and
5. The DBE remains responsible for negotiation of price, determining quality and quantity, ordering materials and installing (where applicable) and paying for the material itself.

IV. FINAL SUBCONTRACTOR PAYMENTS AND RELEASE OF RETAINAGE

Prior to receiving final payment, the Contractor shall provide to the Resident Engineer certification of the dollars paid to each DBE firm using Form "DBE Request for Verification Payment." The certification shall be dated and signed by a responsible officer of the Contractor and by the DBE. Falsification of this certification will result in sanctions listed in Sections I. of this provision.

If this contract contains a DBE goal, the Contract Compliance Officer with the OCR will verify that the Contractor has attained the DBE goal specified on said project or has provided adequate documentation justifying a lesser amount. The final estimate will not be paid to the Contractor until proper certifications have been made.

When a subcontractor's work is satisfactorily complete (i.e., all the tasks called for in the subcontract have been accomplished and documented), and the Department has partially accepted the work and all payments have been certified by the Contractor and subcontractor on the "Certification of Progress Payment" form, the Prime Contractor shall release all retainage held by the Prime Contractor within thirty (30) days of satisfactory completion of the subcontractor's work. The subcontractor shall submit to the Prime Contractor the final executed form within ten (10) days of receipt of payment.

Signature of Contractor or Consultant

Date

AIA[®] Document A305[™] – 2020

Contractor's Qualification Statement

THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.

SUBMITTED BY:

(Organization name and address.)

SUBMITTED TO:

(Organization name and address.)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

TYPE OF WORK TYPICALLY PERFORMED

(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)

THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:

(Check all that apply.)

- Exhibit A – General Information
- Exhibit B – Financial and Performance Information
- Exhibit C – Project-Specific Information
- Exhibit D – Past Project Experience
- Exhibit E – Past Project Experience (Continued)

CONTRACTOR CERTIFICATION

The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

Organization's Authorized Representative Signature Date

Printed Name and Title

NOTARY

State of:

County of:

Signed and sworn to before me this day of

Notary Signature

My commission expires:



AIA Document A305™ – 2020 Exhibit A

General Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by
and dated the day of in the year
(In words, indicate day, month and year.)

§ A.1 ORGANIZATION

§ A.1.1 Name and Location

§ A.1.1.1 Identify the full legal name of your organization.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

§ A.1.1.4 Identify the address of your organization’s principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

§ A.1.2 Legal Status

§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

- .1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.
- .2 If your organization is a partnership, identify its partners and its date of organization.
- .3 If your organization is individually owned, identify its owner and date of organization.
- .4 If the form of your organization is other than those listed above, describe it and identify its individual leaders:

§ A.1.2.2 Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

§ A.1.3 Other Information

§ A.1.3.1 How many years has your organization been in business?

§ A.1.3.2 How many full-time employees work for your organization?

§ A.1.3.3 List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.

§ A.1.3.4 Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.

§ A.2 EXPERIENCE

§ A.2.1 Complete Exhibit D to describe up to four projects, either completed or in progress, that are representative of your organization's experience and capabilities.

§ A.2.2 State your organization's total dollar value of work currently under contract.

§ A.2.3 Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:

§ A.2.4 State your organization's average annual dollar value of construction work performed during the last five years.

§ A.3 CAPABILITIES

§ A.3.1 List the categories of work that your organization typically self-performs.

§ A.3.2 Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.

§ A.3.3 Does your organization provide design collaboration or pre-construction services? If so, describe those services.

§ A.3.4 Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses.

§ A.3.5 Does your organization use a project management information system? If so, identify that system.

§ A.4 REFERENCES

§ A.4.1 Identify three client references:

(Insert name, organization, and contact information)

§ A.4.2 Identify three architect references:

(Insert name, organization, and contact information)

§ A.4.3 Identify one bank reference:

(Insert name, organization, and contact information)

§ A.4.4 Identify three subcontractor or other trade references:

(Insert name, organization, and contact information)

Sample



AIA Document A305™ – 2020 Exhibit B

Financial and Performance Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by and dated the day of in the year
(In words, indicate day, month and year.)

§ B.1 FINANCIAL

§ B.1.1 Federal tax identification number:

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

§ B.1.2 Attach financial statements for the last three years prepared in accordance with Generally Accepted Accounting Principles, including your organization's latest balance sheet and income statement. Also, indicate the name and contact information of the firm that prepared each financial statement.

§ B.1.3 Has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, been the subject of any bankruptcy proceeding within the last ten years?

§ B.1.4 Identify your organization’s preferred credit rating agency and identification information.
(Identify rating agency, such as Dun and Bradstreet or Equifax, and insert your organization’s identification number or other method of searching your organization’s credit rating with such agency.)

§ B.2 DISPUTES AND DISCIPLINARY ACTIONS

§ B.2.1 Are there any pending or outstanding judgments, arbitration proceedings, bond claims, or lawsuits against your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A, Section 1.2, in which the amount in dispute is more than \$75,000?
(If the answer is yes, provide an explanation.)

§ B.2.2 In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management:
(If the answer to any of the questions below is yes, provide an explanation.)

- .1 failed to complete work awarded to it?
- .2 been terminated for any reason except for an owners’ convenience?
- .3 had any judgments, settlements, or awards pertaining to a construction project in which your organization was responsible for more than \$75,000?

- .4 filed any lawsuits or requested arbitration regarding a construction project?

§ B.2.3 In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management; or any of the individuals listed in Exhibit A Section 1.2:

(If the answer to any of the questions below is yes, provide an explanation.)

- .1 been convicted of, or indicted for, a business-related crime?
- .2 had any business or professional license subjected to disciplinary action?
- .3 been penalized or fined by a state or federal environmental agency?

Sample



AIA Document A305™ – 2020 Exhibit C

Project Specific Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by and dated the day of in the year
(In words, indicate day, month and year.)

PROJECT:

(Name and location or address.)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

CONTRACTOR’S PROJECT OFFICE:

(Identify the office out of which the contractor proposes to perform the work for the Project.)

TYPE OF WORK SOUGHT

(Indicate the type of work you are seeking for this Project, such as general contracting, construction manager as constructor, design-build, HVAC subcontracting, electrical subcontracting, plumbing subcontracting, etc.)

CONFLICT OF INTEREST

Describe any conflict of interest your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A Section 1.2, may have regarding this Project.

§ C.1 PERFORMANCE OF THE WORK

§ C.1.1 When was the Contractor’s Project Office established?

§ C.1.2 How many full-time field and office staff are respectively employed at the Contractor’s Project Office?

§ C.1.3 List the business license and contractor license or registration numbers for the Contractor’s Project Office that pertain to the Project.

§ C.1.4 Identify key personnel from your organization who will be meaningfully involved with work on this Project and indicate (1) their position on the Project team, (2) their office location, (3) their expertise and experience, and (4) projects similar to the Project on which they have worked.

§ C.1.5 Identify portions of work that you intend to self-perform on this Project.

§ C.1.6 To the extent known, list the subcontractors you intend to use for major portions of work on the Project.

§ C.2 EXPERIENCE RELATED TO THE PROJECT

§ C.2.1 Complete Exhibit D to describe up to four projects performed by the Contractor's Project Office, either completed or in progress, that are relevant to this Project, such as projects in a similar geographic area or of similar project type. If you have already completed Exhibit D, but want to provide further examples of projects that are relevant to this Project, you may complete Exhibit E.

§ C.2.2 State the total dollar value of work currently under contract at the Contractor's Project Office:

§ C.2.3 Of the amount stated in Section C.2.2, state the dollar value of work that remains to be completed:

§ C.2.4 State the average annual dollar value of construction work performed by the Contractor's Project Office during the last five years.

§ C.2.5 List the total number of projects the Contractor's Project Office has completed in the last five years and state the dollar value of the largest contract the Contractor's Project Office has completed during that time.

§ C.3 SAFETY PROGRAM AND RECORD

§ C.3.1 Does the Contractor's Project Office have a written safety program?

§ C.3.2 List all safety-related citations and penalties the Contractor's Project Office has received in the last three years.

§ C.3.3 Attach the Contractor's Project Office's OSHA 300a Summary of Work-Related Injuries and Illnesses form for the last three years.

§ C.3.4 Attach a copy of your insurance agent's verification letter for your organization's current workers' compensation experience modification rate and rates for the last three years.

§ C.4 INSURANCE

§ C.4.1 Attach current certificates of insurance for your commercial general liability policy, umbrella insurance policy, and professional liability insurance policy, if any. Identify deductibles or self-insured retentions for your commercial general liability policy.

§ C.4.2 If requested, will your organization be able to provide property insurance for the Project written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis?

§ C.4.3 Does your commercial general liability policy contain any exclusions or restrictions of coverage that are prohibited in AIA Document A101-2017, Exhibit A, Insurance A.3.2.2.2? If so, identify.

§ C.5 SURETY

§ C.5.1 If requested, will your organization be able to provide a performance and payment bond for this Project?

§ C.5.2 Surety company name:

§ C.5.3 Surety agent name and contact information:

§ C.5.4 Total bonding capacity:

§ C.5.5 Available bonding capacity as of the date of this qualification statement:

Sample



AIA[®]

Document A305™ – 2020 Exhibit E

Contractor's Past Project Experience, Continued

| | 1 | 2 | 3 | 4 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT NAME | | | | |
| PROJECT LOCATION | | | | |
| PROJECT TYPE | | | | |
| OWNER | | | | |
| ARCHITECT | | | | |
| CONTRACTOR'S PROJECT EXECUTIVE | | | | |
| KEY PERSONNEL (include titles) | | | | |
| PROJECT DETAILS | Contract Amount Completion Date % Self-Performed Work | Contract Amount Completion Date % Self-Performed Work | Contract Amount Completion Date % Self-Performed Work | Contract Amount Completion Date % Self-Performed Work |
| PROJECT DELIVERY METHOD | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: |
| SUSTAINABILITY CERTIFICATIONS | | | | |



AIA[®]

Document A305™ – 2020 Exhibit D

Contractor's Past Project Experience

| | 1 | 2 | 3 | 4 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT NAME | | | | |
| PROJECT LOCATION | | | | |
| PROJECT TYPE | | | | |
| OWNER | | | | |
| ARCHITECT | | | | |
| CONTRACTOR'S PROJECT EXECUTIVE | | | | |
| KEY PERSONNEL (include titles) | | | | |
| PROJECT DETAILS | Contract Amount Completion Date % Self-Performed Work | Contract Amount Completion Date % Self-Performed Work | Contract Amount Completion Date % Self-Performed Work | Contract Amount Completion Date % Self-Performed Work |
| PROJECT DELIVERY METHOD | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: | <input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other: |
| SUSTAINABILITY CERTIFICATIONS | | | | |

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**



AIA Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

- Not later than () calendar days from the date of commencement of the Work.

By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

| Portion of Work | Substantial Completion Date |
|-----------------|-----------------------------|
|-----------------|-----------------------------|

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

| Item | Price |
|------|-------|
|------|-------|

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. (Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

| Item | Price | Conditions for Acceptance |
|------|-------|---------------------------|
|------|-------|---------------------------|

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

| Item | Price |
|------|-------|
|------|-------|

§ 4.4 Unit prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

| Item | Units and Limitations | Price per Unit (\$0.00) |
|------|-----------------------|-------------------------|
|------|-----------------------|-------------------------|

§ 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner’s prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor’s responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner’s final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect’s final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

_____ % _____

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

- Arbitration pursuant to Section 15.4 of AIA Document A201–2017
- Litigation in a court of competent jurisdiction
- Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

(Name, address, email address, and other information)

§ 8.3 The Contractor’s representative:

(Name, address, email address, and other information)

§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

| | | |
|--------|-------|------|
| Number | Title | Date |
|--------|-------|------|

.6 Specifications

| | | | |
|---------|-------|------|-------|
| Section | Title | Date | Pages |
|---------|-------|------|-------|

.7 Addenda, if any:

| | | |
|--------|------|-------|
| Number | Date | Pages |
|--------|------|-------|

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

- AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

The Sustainability Plan:

| Title | Date | Pages |
|-------|------|-------|
|-------|------|-------|

Supplementary and other Conditions of the Contract:

| Document | Title | Date | Pages |
|----------|-------|------|-------|
|----------|-------|------|-------|

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor’s bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)



AIA[®]

Document A312 – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

1

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: None See Section 16

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Performance Bond.)

Signature: _____

Name and

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corporate Seal)

Signature: _____

Name and Title: _____

Address: _____

SURETY

Company: _____ (Corporate Seal)

Signature: _____

Name and Title: _____

Address: _____



Additions and Deletions Report for AIA[®] Document A312[™] – 2010

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 15:00:27 on 03/04/2011.

PAGE 1

1

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, _____, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 15:00:27 on 03/04/2011 under Order No. 2108302635_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A312™ – 2010, Performance Bond, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)



AIA[®]

Document A312 – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

1

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

Signature: _____

Name and

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____ *(Corporate Seal)*

Signature: _____
Name and Title: _____
Address: _____

SURETY

Company: _____ *(Corporate Seal)*

Signature: _____
Name and Title: _____
Address: _____

Additions and Deletions Report for AIA[®] Document A312[™] – 2010

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 14:59:31 on 03/04/2011.

PAGE 1

1

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, _____, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 14:59:31 on 03/04/2011 under Order No. 2108302635_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A312™ – 2010, Payment Bond, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)

DOCUMENT 00 62 12
PRODUCT SUBMITTAL FORM

This 2-page document is to be fully completed, and attached to, ALL submittals for the Project. Use additional sheets as needed. Attach cut sheets, technical data sheets, materials safety data sheets, and other documentation supporting product data.

General Submittal Information:

Calcutt Middle School – FEI
Central Falls, Rhode Island
Bid Package #2

Architect:

Ai3 Architects, LLC
111 Speen Street, Suite 300
Framingham, Massachusetts 01701

Construction Manager / General Contractor:

Trade Contractor /or/ Subcontractor /or/ Sub-subcontractor:

Vendor:

Date submitted: _____

Submittal #: _____

Resubmittal:: R-__ _____

Specification Section Reference: _____

Page: _____ Article: _____

Drawing Number Reference: _____

Detail Number: _____

Quantity submitted:

Reproducibles: ____ Prints: _____

Standard References (ANSI, ASTM, FS, etc)

Attachments:

- Product Data
- Drawings
- Samples
- Reports
- Tests
- Warranties
- MSDS
- Schedules
- Calculations
- 3rd. Party Certification

Product Information:

Product Description/Name: _____

Specified Manufacturer: _____ model #: _____

Submitted Manufacturer: _____ model #: _____
(company name & address)

Manufacturer's Phone #: _____

Deviation from contract documents?: NO Deviations YES (attach complete documentation)

Lead time after approval: _____

Date items required at project: _____

SUBCONTRACTOR COORDINATION IS REQUIRED WITH WORK IN THESE DIVISIONS

- 02 03 04 05 06 07 08 09 10 11 12 13 14
- 21 22 23 25 26 27 28 31 32 33

REVIEW STAMPS

GENERAL CONTRACTOR:

- ARCHITECT**
- No Exceptions Taken Confirm Revise And Resubmit
 - Make Corrections Noted Rejected
 - Submit Specified Item

COMMENTS: _____

- CONSULTANT**
- Reviewed Furnish As Corrected
 - Rejected Revise and Resubmit

COMMENTS: _____

DISTRIBUTION AND COORDINATION

Project File: _____
 Site Office: _____
 Owner's Project Manager: _____
 Resident Engineer / Clerk: _____

END OF DOCUMENT

Document 00 63 13

REQUEST FOR INTERPRETATION (RFI) FORM
(BID PACKAGE #2)

Date Submitted: _____

To the Architect: Ai3 Architects, LLC
111 Speen Street, Suite 300
Framingham, Massachusetts 01701

Architect's Assigned
RFI #

Submitted By: Company: _____
Address _____

References: Specification Section Number: _____
Article/ Paragraph / Subparagraph: _____
Drawing Number: _____
Detail Number: _____

Request: _____
 Refer to Attachment(s) _____

Signed By: _____

Response: _____

Refer to Attachment(s) _____

Response From: _____

Signed by: _____

Copies to: Owner Consultants _____
 _____ _____ _____
 _____ _____ File

Date Received at
Architect

Date Returned by
Architect

End of Document

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**

Document 00 63 25

SUBSTITUTION REQUEST FORM
(BID PACKAGE #2)

Date Submitted: _____

Project: _____

To the Architect: Ai3 Architects, LLC
111 Speen Street, Suite 300
Framingham, Massachusetts 01701

Submitted By: Company Name: _____

.....
The Contractor proposes the following substitution in accordance with the requirements of the Contract Documents:

References: Specification Section Number: ----- _____
Article / Paragraph / Subparagraph: -- _____
Drawing Number: ----- _____
Detail Number: ----- _____

Scope of Substitution: _____

Reason for Substitution: _____

Impact on Project Cost: Savings to Owner for accepting substitution: \$ _____

Impact on Project Schedule None Yes [Add] [Deduct] # of Calendar Days _____

Impact on Related Work: None Yes - explain: _____

.....
List all Deviations from specified requirements: _____

Attach Additional Sheets if necessary to describe deviations

.....
Attachments: Attach supporting documentation sufficient for Architect to evaluate substitution. Substitution Request Forms submitted without adequate documentation will be returned without review.

Attachments: Drawings Product Data Reports _____
 Samples Warranties Tests _____

In addition to specific product information, attachments shall address the following issues:

- Manufacturer’s Name, Address and Phone Number.
- Point by point comparative with specified product.
- Age of product availability in US marketplace
- List of 3 Similar installations, include Project Name, A/E and A/E phone number

Response Date: List date by which response by Architect is requested to maintain project schedule and allow sufficient time for inclusion of proposed substitution.

Requested Response Date *: _____

* shall be not less than 10 working days from date substitution request is received.

Contractor’s Certification: The Contractor certifies substitution complies with the project requirements and with the General Conditions by initiating each line below:

Investigation: ----- _____

Warranties and Guarantees: ----- _____

Cost Data:----- _____

Coordination of Substitute: ----- _____

Submitted by:
(company name & address)

Authorized Signature

Notations listed below shall have the same meaning as on Architect’s review stamp. Clarifications to or changes in project schedule or time shall be processed using standard project forms.

Architect’s Response: Approved: ----- _____

Approved as Noted: ----- _____

Revise and Resubmit: ----- _____

Not Approved:----- _____

Remarks:

Date:

Signed:

CONSTRUCTION DOCUMENTS

BID PACKAGE #2

CALCUTT MIDDLE SCHOOL - FEI

Ai3 Architects, LLC
Central Falls, Rhode Island

End of Document

SUBSTITUTION REQUEST FORM

00 63 25-3

Construction Documents – Bid Package #2 / 06.22.2023

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THIS PAGE INTENTIONALLY LEFT BLANK**

DOCUMENT 00 73 46

PREVAILING WAGE DETERMINATION SCHEDULE

Prevailing Wage refers to the requirements of the Rhode Island General Law 37-13 and the general prevailing rate of pay for regular, holiday, and overtime wages to be paid to each craftsmen, mechanic, teamster, laborer, or other type of worker performing work on public works projects when state or municipal funds are used in excess of \$1,000. Contractors must refer to the applicable Davis Bacon Wage Determination rate schedule bound herewith. The prevailing wage rates to be applied are those that are effective as of the date of the awarding of the contract to the General Contractor. Contractors must also adjust employees' hourly wage rates (if applicable) every July 1st, in accordance with any updated Davis Bacon Wage Determination rates.

Updates to the Davis-Bacon Wage Determination rate schedule may be found online at the US System for Award Management (SAM).

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**

"General Decision Number: RI20220001 05/06/2022

Superseded General Decision Number: RI20210001

State: Rhode Island

Construction Types: Building, Heavy (Heavy and Marine) and Highway

Counties: Rhode Island Statewide.

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories) HEAVY, HIGHWAY AND MARINE CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: | . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022. |
| If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: | . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022. |

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

| Modification Number | Publication Date |
|---------------------|------------------|
| 0 | 01/07/2022 |
| 1 | 01/21/2022 |
| 2 | 02/18/2022 |
| 3 | 02/25/2022 |
| 4 | 04/01/2022 |
| 5 | 05/06/2022 |

* ASBE0006-006 12/01/2021

| | Rates | Fringes |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|
| HAZARDOUS MATERIAL HANDLER (Includes preparation, wetting, stripping, removal scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)..... | \$ 37.80 | 25.05 |

ASBE0006-008 09/01/2021

| | Rates | Fringes |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|
| Asbestos Worker/Insulator Includes application of all insulating materials, protective coverings, coatings & finishes to all types of mechanical systems. | \$ 45.00 | 32.89 |

BOIL0029-001 01/01/2021

| | Rates | Fringes |
|------------------|----------|---------|
| BOILERMAKER..... | \$ 45.87 | 29.02 |

BRRIO003-001 06/01/2020

| | Rates | Fringes |
|------------------------------------------------------------|----------|---------|
| Bricklayer, Stonemason, Pointer, Caulker & Cleaner..... | \$ 42.55 | 28.02 |

BRRIO003-002 03/01/2020

| | Rates | Fringes |
|------------------------------------------------------|----------|---------|
| Marble Setter, Terrazzo Worker & Tile Setter..... | \$ 40.78 | 28.92 |

BRRIO003-003 03/01/2020

| | Rates | Fringes |
|------------------------------------------|----------|---------|
| Marble, Tile & Terrazzo Finisher..... | \$ 34.10 | 27.88 |

CARP0330-001 01/01/2021

| | Rates | Fringes |
|--------------------------|-------|---------|
| CARPENTER (Includes Soft | | |

| | | |
|-------------------|----------|-------|
| Floor Layer)..... | \$ 39.72 | 28.66 |
| Diver Tender..... | \$ 40.72 | 28.66 |
| DIVER..... | \$ 51.47 | 28.66 |
| Piledriver..... | \$ 39.72 | 28.66 |
| WELDER..... | \$ 40.72 | 28.66 |

FOOTNOTES:

When not diving or tending the diver, the diver and diver tender shall receive the piledriver rate. Diver tenders shall receive \$1.00 per hour above the pile driver rate when tending the diver.

Work on free-standing stacks, concrete silos & public utility electrical power houses, which are over 35 ft. in height when constructed: \$.50 per hour additional.

Work on exterior concrete shear wall gang forms, 45 ft. or more above ground elevation or on setback: \$.50 per hour additional.

The designated piledriver, known as the ""monkey"": \$1.00 per hour additional.

 CARP1121-002 01/06/2020

| | Rates | Fringes |
|-----------------|----------|---------|
| MILLWRIGHT..... | \$ 39.07 | 29.15 |

 ELEC0099-002 06/02/2021

| | Rates | Fringes |
|--------------------------------|----------|--------------|
| ELECTRICIAN..... | \$ 43.61 | 54.71% |
| Teledata System Installer..... | \$ 32.71 | 12.57%+14.93 |

FOOTNOTES:

Work of a hazardous nature, or where the work height is 30 ft. or more from the floor, except when working OSHA-approved lifts: 20% per hour additional.

Work in tunnels below ground level in combined sewer outfall: 20% per hour additional.

 ELEV0039-001 01/01/2022

| | Rates | Fringes |
|------------------------|----------|------------|
| ELEVATOR MECHANIC..... | \$ 56.91 | 36.885+a+b |

FOOTNOTES:

A. PAID HOLIDAYS: New Years Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

B. Employer contributes 8% basic hourly rate for 5 years or more of service of 6% basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Rates Fringes

Operating Engineer: (power plants, sewer treatment plants, pumping stations, tunnels, caissons, piers, docks, bridges, wind turbines, subterranean & other marine and heavy construction work)

| | | |
|--------------|----------|---------|
| GROUP 1..... | \$ 43.55 | 28.25+a |
| GROUP 2..... | \$ 41.55 | 28.25+a |
| GROUP 3..... | \$ 37.17 | 28.25+a |
| GROUP 4..... | \$ 34.32 | 28.25+a |
| GROUP 5..... | \$ 40.60 | 28.25+a |
| GROUP 6..... | \$ 31.40 | 28.25+a |
| GROUP 7..... | \$ 25.40 | 28.25+a |
| GROUP 8..... | \$ 37.25 | 28.25+a |
| GROUP 9..... | \$ 41.17 | 28.25+a |

a. BOOM LENGTHS, INCLUDING JIBS:

- 150 feet and over + \$ 2.00
- 180 feet and over + \$ 3.00
- 210 feet and over + \$ 4.00
- 240 feet and over + \$ 5.00
- 270 feet and over + \$ 7.00
- 300 feet and over + \$ 8.00
- 350 feet and over + \$ 9.00
- 400 feet and over + \$10.00

a. PAID HOLIDAYS:

New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, Christmas Day. a: Any employee who works 3 days in the week in which a holiday falls shall be paid for the holiday.

a. FOOTNOTES:

Hazmat work: \$2.00 per hour additional.
 Tunnel/Shaft work: \$5.00 per hour additional.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, lighters, boom trucks and derricks

GROUP 2: Digging machine, Ross Carrier, locomotive, hoist, elevator, bidwell-type machine, shot & water blasting machine, paver, spreader, graders, front end loader (3 yds. and over), vibratory hammer & vacuum truck, roadheaders, forklifts, economobile type equipment, tunnel boring machines, concrete pump and on site concrete plants.

GROUP 3: Oilers on cranes.

GROUP 4: Oiler on crawler backhoe.

GROUP 5: Bulldozer, bobcats, skid steer loader, tractor, scraper, combination loader backhoe, roller, front end loader (less than 3 yds.), street and mobile-powered sweeper (3-yd. capacity), 8-ft. sweeper minimum 65 HP).

GROUP 6: Well-point installation crew.

GROUP 7: Utility Engineers and Signal Persons

GROUP 8: Heater, concrete mixer, stone crusher, welding machine, generator and light plant, gas and electric driven pump and air compressor.

GROUP 9: Boat & tug operator.

* ENGI0057-002 05/01/2022

| | Rates | Fringes |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|
| Power Equipment Operator (highway construction projects; water and sewerline projects which are incidental to highway construction projects; and bridge projects that do not span water) | | |
| GROUP 1..... | \$ 36.70 | 29.25+a |
| GROUP 2..... | \$ 31.40 | 29.25+a |
| GROUP 3..... | \$ 25.40 | 29.25+a |
| GROUP 4..... | \$ 31.98 | 29.25+a |
| GROUP 5..... | \$ 35.68 | 29.25+a |
| GROUP 6..... | \$ 35.30 | 29.25+a |
| GROUP 7..... | \$ 30.95 | 29.25+a |
| GROUP 8..... | \$ 32.33 | 29.25+a |
| GROUP 9..... | \$ 34.28 | 29.25+a |

a. FOOTNOTE: a. Any employee who works three days in the week in which a holiday falls shall be paid for the holiday.

a. PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day & Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Digging machine, crane, piledriver, lighter, locomotive, derrick, hoist, boom truck, John Henry's, directional drilling machine, cold planer, reclaimer, paver, spreader, grader, front end loader (3 yds. and over), vacuum truck, test boring machine operator, veemere saw, water blaster, hydro-demolition robot, forklift, economobile, Ross Carrier, concrete pump operator and boats

GROUP 2: Well point installation crew

GROUP 3: Utility engineers and signal persons

GROUP 4: Oiler on cranes

GROUP 5: Combination loader backhoe, front end loader (less than 3 yds.), forklift, bulldozers & scrapers and boats

GROUP 6: Roller, skid steer loaders, street sweeper

GROUP 7: Gas and electric drive heater, concrete mixer, light plant, welding machine, pump & compressor

GROUP 8: Stone crusher

GROUP 9: Mechanic & welder

ENGI0057-003 12/01/2021

BUILDING CONSTRUCTION

| | Rates | Fringes |
|--------------------------|----------|---------|
| Power Equipment Operator | | |
| GROUP 1..... | \$ 42.82 | 28.25+a |
| GROUP 2..... | \$ 40.82 | 28.25+a |
| GROUP 3..... | \$ 40.60 | 28.25+a |
| GROUP 4..... | \$ 36.60 | 28.25+a |
| GROUP 5..... | \$ 33.75 | 28.25+a |
| GROUP 6..... | \$ 39.90 | 28.25+a |
| GROUP 7..... | \$ 39.47 | 28.25+a |
| GROUP 8..... | \$ 36.79 | 28.25+a |

a. BOOM LENGTHS, INCLUDING JIBS:

- 150 ft. and over: + \$ 2.00
- 180 ft. and over: + \$ 3.00
- 210 ft. and over: + \$ 4.00
- 240 ft. and over: + \$ 5.00
- 270 ft. and over: + \$ 7.00
- 300 ft. and over: + \$ 8.00
- 350 ft. and over: + \$ 9.00
- 400 ft. and over: + \$10.00

a. PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day & Christmas Day. a: Any employee who works 3 days in the week in which a holiday falls shall be paid for the holiday.

- a. FOOTNOTE: Hazmat work: \$2.00 per hour additional.
Tunnel/Shaft work: \$5.00 per hour additional.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, lighters, boom trucks and derricks.

GROUP 2: Digging machine, Ross carrier, locomotive, hoist, elevator, bidwell-type machine, shot & water blasting machine, paver, spreader, front end loader (3 yds. and over), vibratory hammer and vacuum truck

GROUP 3: Telehandler equipment, forklift, concrete pump & on-site concrete plant

GROUP 4: Fireman & oiler on cranes

GROUP 5: Oiler on crawler backhoe

GROUP 6: Bulldozer, skid steer loaders, bobcats, tractor, grader, scraper, combination loader backhoe, roller, front end loader (less than 3 yds.), street and mobile powered sweeper (3 yds. capacity), 8-ft. sweeper (minimum 65 hp)

GROUP 7: Well point installation crew

GROUP 8: Heater, concrete mixer, stone crusher, welding machine, generator for light plant, gas and electric driven

pump & air compressor

IRON0037-001 09/16/2021

| | Rates | Fringes |
|-----------------|----------|---------|
| IRONWORKER..... | \$ 38.21 | 30.58 |

LAB00271-001 05/30/2021

BUILDING CONSTRUCTION

| | Rates | Fringes |
|--------------|----------|---------|
| LABORER | | |
| GROUP 1..... | \$ 33.55 | 26.15 |
| GROUP 2..... | \$ 33.80 | 26.15 |
| GROUP 3..... | \$ 34.30 | 26.15 |
| GROUP 4..... | \$ 34.55 | 26.15 |
| GROUP 5..... | \$ 35.55 | 26.15 |

LABORERS CLASSIFICATIONS

GROUP 1: Laborer, Carpenter Tender, Mason Tender, Cement Finisher Tender, Scaffold Erector, Wrecking Laborer, Asbestos Removal [Non-Mechanical Systems]

GROUP 2: Asphalt Raker, Adzemen, Pipe Trench Bracer, Demolition Burner, Chain Saw Operator, Fence & Guard Rail Erector, Setter of Metal Forms for Roadways, Mortar Mixer, Pipelayer, Riprap & Dry Stonewall Builder, Highway Stone Spreader, Pneumatic Tool Operator, Wagon Drill Operator, Tree Trimmer, Barco-Type Jumping Tamper, Mechanical Grinder Operator

GROUP 3: Pre-Cast Floor & Roof Plank Erectors

GROUP 4: Air Track Operator, Hydraulic & Similar Self-Powered Drill, Block Paver, Rammer, Curb Setter, Powderman & Blaster

GROUP 5: Toxic Waste Remover

LAB00271-002 05/30/2021

HEAVY AND HIGHWAY CONSTRUCTION

| | Rates | Fringes |
|----------------|----------|---------|
| LABORER | | |
| COMPRESSED AIR | | |
| Group 1..... | \$ 53.45 | 24.15 |
| Group 2..... | \$ 50.98 | 24.15 |
| Group 3..... | \$ 40.50 | 24.15 |
| FREE AIR | | |
| Group 1..... | \$ 44.05 | 24.15 |
| Group 2..... | \$ 43.05 | 24.15 |
| Group 3..... | \$ 40.50 | 24.15 |
| LABORER | | |
| Group 1..... | \$ 33.55 | 24.15 |
| Group 2..... | \$ 33.80 | 24.15 |
| Group 3..... | \$ 34.55 | 24.15 |
| Group 4..... | \$ 27.05 | 24.15 |
| Group 5..... | \$ 35.55 | 24.15 |

OPEN AIR CAISSON,
UNDERPINNING WORK AND
BORING CREW

| | | |
|------------------------|----------|-------|
| Bottom Man..... | \$ 39.55 | 24.15 |
| Top Man & Laborer..... | \$ 38.60 | 24.15 |
| TEST BORING | | |
| Driller..... | \$ 40.00 | 24.15 |
| Laborer..... | \$ 38.60 | 24.15 |

LABORER CLASSIFICATIONS

GROUP 1: Laborer; Carpenter tender; Cement finisher tender; Wrecking laborer; Asbestos removers [non-mechanical systems]; Plant laborer; Driller in quarries

GROUP 2: Adzeperson; Asphalt raker; Barcotype jumping tamper; Chain saw operators; Concrete and power buggy operator; Concrete saw operator; Demolition burner; Fence and guard rail erector; Highway stone spreader; Laser beam operator; Mechanical grinder operator; Mason tender; Mortar mixer; Pneumatic tool operator; Riprap and dry stonewall builder; Scaffold erector; Setter of metal forms for roadways; Wagon drill operator; Wood chipper operator; Pipelayer; Pipe trench bracer

GROUP 3: Air track drill operator; Hydraulic and similar powered drills; Brick paver; Block paver; Rammer and curb setter; Powderperson and blaster

GROUP 4: Flagger & signaler

GROUP 5: Toxic waste remover

LABORER - COMPRESSED AIR CLASSIFICATIONS

GROUP 1: Mucking machine operator, tunnel laborer, brake person, track person, miner, grout person, lock tender, gauge tender, miner: motor person & all others in compressed air

GROUP 2: Change house attendant, powder watchperson, top person on iron

GROUP 3: Hazardous waste work within the ""HOT"" zone

LABORER - FREE AIR CLASSIFICATIONS

GROUP 1: Grout person - pumps, brake person, track person, form mover & stripper (wood & steel), shaft laborer, laborer topside, outside motorperson, miner, conveyor operator, miner welder, heading motorperson, erecting operator, mucking machine operator, nozzle person, rodperson, safety miner, shaft & tunnel, steel & rodperson, mole nipper, concrete worker, form erector (wood, steel and all accessories), cement finisher (this type of work only), top signal person, bottom person (when heading is 50' from shaft), burner, shield operator and TBM operator

GROUP 2: Change house attendant, powder watchperson

GROUP 3: Hazardous waste work within the ""HOT"" zone

| | Rates | Fringes |
|-----------------------------------------------------------------|----------|---------|
| PAINTER | | |
| Brush and Roller..... | \$ 36.42 | 22.90 |
| Epoxy, Tanks, Towers, Swing Stage & Structural Steel..... | \$ 38.42 | 22.90 |
| Spray, Sand & Water Blasting..... | \$ 39.42 | 22.90 |
| Taper..... | \$ 37.17 | 22.90 |
| Wall Coverer..... | \$ 36.92 | 22.90 |

PAIN0011-006 06/01/2021

| | Rates | Fringes |
|--------------|----------|---------|
| GLAZIER..... | \$ 39.98 | 22.90 |

FOOTNOTES:

SWING STAGE: \$1.00 per hour additional.

PAID HOLIDAYS: Labor Day & Christmas Day.

PAIN0011-011 06/01/2021

| | Rates | Fringes |
|----------------------------|----------|---------|
| Painter (Bridge Work)..... | \$ 54.00 | 22.90 |

PAIN0035-008 06/01/2011

| | Rates | Fringes |
|-------------------|----------|---------|
| Sign Painter..... | \$ 24.79 | 13.72 |

PLAS0040-001 06/03/2019

BUILDING CONSTRUCTION

| | Rates | Fringes |
|-----------------------------------|----------|---------|
| CEMENT MASON/CONCRETE FINISHER... | \$ 36.00 | 27.15 |

FOOTNOTE: Cement Mason: Work on free swinging scaffolds under 3 planks width and which is 20 or more feet above ground and any offset structure: \$.30 per hour additional.

PLAS0040-002 07/01/2019

HEAVY AND HIGHWAY CONSTRUCTION

| | Rates | Fringes |
|-----------------------------------|----------|---------|
| CEMENT MASON/CONCRETE FINISHER... | \$ 32.85 | 22.20 |

PLAS0040-003 07/01/2019

| | Rates | Fringes |
|----------------|----------|---------|
| PLASTERER..... | \$ 37.55 | 27.50 |

PLUM0051-002 08/30/2021

| | Rates | Fringes |
|-------------------------------|----------|---------|
| Plumbers and Pipefitters..... | \$ 46.49 | 31.40 |

ROOF0033-004 12/01/2021

| | Rates | Fringes |
|-------------|----------|---------|
| ROOFER..... | \$ 40.40 | 29.06 |

SFRI0669-001 04/01/2022

| | Rates | Fringes |
|-----------------------|----------|---------|
| SPRINKLER FITTER..... | \$ 47.55 | 29.38 |

SHEE0017-002 12/01/2020

| | Rates | Fringes |
|-------------------------|----------|---------|
| Sheet Metal Worker..... | \$ 38.58 | 36.73 |

TEAM0251-001 05/01/2019

HEAVY AND HIGHWAY CONSTRUCTION

| | Rates | Fringes |
|---------------|----------|---------------|
| TRUCK DRIVER | | |
| GROUP 1..... | \$ 27.96 | 26.8525+A+B+C |
| GROUP 2..... | \$ 27.61 | 26.8525+A+B+C |
| GROUP 3..... | \$ 27.66 | 26.8525+A+B+C |
| GROUP 4..... | \$ 27.71 | 26.8525+A+B+C |
| GROUP 5..... | \$ 27.81 | 26.8525+A+B+C |
| GROUP 6..... | \$ 28.21 | 26.8525+A+B+C |
| GROUP 7..... | \$ 28.41 | 26.8525+A+B+C |
| GROUP 8..... | \$ 27.91 | 26.8525+A+B+C |
| GROUP 9..... | \$ 28.16 | 26.8525+A+B+C |
| GROUP 10..... | \$ 27.96 | 26.8525+A+B+C |

FOOTNOTES:

A. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, plus Presidents' Day, Columbus Day, Veteran's Day & V-J Day, providing the employee has worked at least one day in the calendar week in which the holiday falls.

B. Employee who has been on the payroll for 1 year or more but less than 5 years and has worked 150 Days during the last year of employment shall receive 1 week's paid vacation; 5 to 10 years - 2 weeks' paid vacation; 10 or more years - 3 week's paid vacation.

C. Employees on the seniority list shall be paid a one hundred dollar (\$100.00) bonus for every four hundred (400) hours worked, up to a maximum of five hundred dollars (\$500.00)

All drivers working on a defined hazard material job site shall be paid a premium of \$2.00 per hour over applicable rate.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Pick-up trucks, station wagons, & panel trucks

GROUP 2: Two-axle on low beds

GROUP 3: Two-axle dump truck

GROUP 4: Three-axle dump truck

GROUP 5: Four- and five-axle equipment

GROUP 6: Low-bed or boom trailer.

GROUP 7: Trailers when used on a double hook up (pulling 2 trailers)

GROUP 8: Special earth-moving equipment, under 35 tons

GROUP 9: Special earth-moving equipment, 35 tons or over

GROUP 10: Tractor trailer

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate

(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISIO"

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THIS PAGE INTENTIONALLY LEFT BLANK**



RI Department of Labor and Training - Division of Workforce Regulation & Safety

Professional Regulation Unit/Prevailing Wage Section

1511 Pontiac Avenue Building 70, P.O. Box 20247 Cranston, RI 02920-0943

Rhode Island Certified Weekly Payroll

Contractor: _____ Subcontractor: _____
 Address: _____ Address: _____
 City/Town: _____ State: _____ Zip: _____ City/Town: _____ State: _____ Zip: _____
 Phone #: _____ Email: _____ Phone #: _____ Email: _____
 For Week Ending: _____ Project/Location: _____ Wage Decision #: _____ Decision Date: _____

****NOTE:** If an employee works more than one trade, please list each classification on separate lines with the corresponding hours they performed that trade and hourly rate paid.

| Name, Address and Phone Number of Employee | Work Classification Apprentice % | Date: | S | M | T | W | T | F | S | Total Hrs | Hourly Rate (List all Rates) | Hourly Fringe Benefit | Weekly Gross | Weekly Deductions | | | | | | |
|--------------------------------------------|-------------------------------------|--------|-----------------------|---|---|---|---|---|---|-----------|---------------------------------|-----------------------|--------------|-------------------|-----------|----------|-------|--------|--------|------------|
| | | | Hours Worked Each Day | | | | | | | | | | | Social Security | Medi-care | Withheld | | RI TDI | *Other | Weekly Net |
| | | | | | | | | | | | | | | | | Federal | State | | | |
| | | P.S. | | | | | | | | | | | | | | | | | | |
| | | P.O. | | | | | | | | | | | | | | | | | | |
| | | A.P.S. | | | | | | | | | | | | | | | | | | |
| | | A.P.O. | | | | | | | | | | | | | | | | | | |
| | | R.H. | | | | | | | | | | | | | | | | | | |
| | | R.O. | | | | | | | | | | | | | | | | | | |
| | | P.S. | | | | | | | | | | | | | | | | | | |
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| | | A.P.S. | | | | | | | | | | | | | | | | | | |
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| | | R.H. | | | | | | | | | | | | | | | | | | |
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| | | R.H. | | | | | | | | | | | | | | | | | | |
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| | | P.S. | | | | | | | | | | | | | | | | | | |
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| | | A.P.O. | | | | | | | | | | | | | | | | | | |
| | | R.H. | | | | | | | | | | | | | | | | | | |
| | | R.O. | | | | | | | | | | | | | | | | | | |

Legend: P.S.=Prevailing Wage Standard Hours P.O.=Prevailing Wage Overtime Hours R.H.=Regular Hours R.O.=Regular Overtime Hours APS= Additional PW Standard Hours APO=Additional PW Overtime Hours

List all PW Projects in APS/APO: _____

*Deductions listed in "Other" column: _____

STATEMENT OF COMPLIANCE

I, _____ do hereby state:

(print name and title of signatory party)

(1) That I pay or supervise the payment of the persons employed by: _____
(contractor or subcontractor)

on the _____, that during the payroll period commencing on _____
(project)
 _____ day of _____, 20 _____, and ending on the _____ day of _____, 20 _____
(day) *(month)* *(year)* *(day)* *(month)* *(year)*

all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said _____ from the full weekly wages earned by any person and that no deductions have been
(contractor or subcontractor)

made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Rhode Island General Law Chapter 28-14.

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in the appropriate wage determination for the project; that the classifications set forth therein for each laborer or mechanic conform with the work they performed.

(3) That the apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with the Rhode Island State Apprenticeship Council.

(4) That: **(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS OR PROGRAMS**

In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made when due, to appropriate programs for the benefit of such employees.

Fringe Benefits Explanation: Bona fide fringe benefits are those paid to approved plans, funds or programs except those required by Federal or State Law.

Please specify the type of benefits provided:

- | | |
|-------------------------------------|------------------------------------|
| 1.) Medical or hospital care: _____ | 4.) Disability: _____ |
| 2.) Pension or Retirement: _____ | 5.) Vacation, sick, holiday: _____ |
| 3.) Life Insurance: _____ | 6.) Other (please specify): _____ |

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

Each laborer or mechanic listed in the above referenced payroll has been paid as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the rate schedule.

(5) In accordance with Chapter 37-13-13, it is mandatory that contractors use these forms for all Rhode Island Department of Labor requests for certified copies of payroll. Failure to submit information on these forms will constitute non-compliance by the responding contractor. These forms must be signed by the owner or an officer of the corporation, certifying that this is a true and exact copy of their payroll records.

| | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------|
| | | |
| SIGNATURE OF OWNER OR OFFICER OF CORPORATION | PRINT NAME & TITLE | DATE |
| <p>My signature hereon constitutes my affirmation that the information contained herein is true and accurate regarding the number of employees participating in the prevailing wage program, the prevailing wage standard hours each employee worked, prevailing wage overtime hours, regular hours and overtime hours for each employee as well as the gross wages for each employee. I have confirmed and attest that all the information contained in this document is correct and I understand and acknowledge by my signature that if I provide any inaccurate information on this form, I may be subject to civil penalties and/or referral to the Rhode Island Attorney General for criminal prosecution.</p> | | |



RI Department of Labor and Training
 Division of Workforce Regulation & Safety
 Professional Regulation Unit/Prevailing Wage Section
 1511 Pontiac Avenue Building 70, P.O. Box 20247 Cranston, RI 02920-0943

Page: _____

Rhode Island Certified Prevailing Wage Daily Log

Project Name: _____

Contractor: _____

Project Location: _____

Address: _____

Date: _____

City/Town: _____ State _____ Zip _____

| Employee Name (Print) | Job Title/ Classification | Time | | Employee Signature |
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I _____ hereby certify that the information in this form is complete and correct.
 (print name and title)

Any contractor who knowingly maintains a false or fraudulent daily log maybe penalized by the Department of Labor and Training up to \$500 for each calendar day of noncompliance.

 Contractor/Officer's Signature

 Date

*** Each contractor working on this project must complete a Daily Log for their employees only.**

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State of Rhode Island
DEPARTMENT OF LABOR AND TRAINING
Division of Workforce Regulation and Safety
Professional Regulation Unit-Prevailing Wage Section
1511 Pontiac Avenue- Building #70
Cranston, RI 02920
(401) 462-8580, Option #7

PW APPRENTICESHIP REQUIREMENT COMPLAINT FORM

(***Note**: Only for those state awarded projects valued at one million dollars or more)

COMPLAINANT INFORMATION (please print):

Complainant Name: _____

Address: _____ **Tel. #:** () _____

City/Town: _____ **State:** _____ **Zip Code:** _____

PROJECT INFORMATION (please print):

Project in Question: _____

Address: _____ **City/Town:** _____

Type of Project: _____ **Awarding Authority:** _____

General Contractor: _____

CONTRACTOR INFORMATION (please print):

Contractor's Name: _____ **Work Performed:** _____

Address: _____

City/Town: _____ **State:** _____ **Zip:** _____ **Tel. #:** () _____

* **The following evidence must be provided from the Awarding Authority to support claim:**

- () **Verification of Funding Source** () **Verification of Project Cost**
- () **Documentation of Specific Work Performed by Contractor**
- () **Copy of General Contract and Approved Sub-contractor List**

Additional Comments: _____

I hereby attest that the information provided is true and accurate to the best of my knowledge.

Complainant's Signature: _____ **Date:** _____

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MUNICIPAL CONTRACT ADDENDUM

RHODE ISLAND DEPARTMENT OF LABOR AND TRAINING

PREVAILING WAGE REQUIREMENTS (37-13-1 ET SEQ.)

The prevailing wage requirements are generally set forth in RIGL 37-13-1 et seq. These requirements refer to the prevailing rate of pay for regular, holiday, and overtime wages to be paid to each craftsmen, mechanic, teamster, laborer, or other type of worker performing work on public works projects when state or municipal funds exceed one thousand dollars (\$1,000).

All Prevailing Wage Contractors and Subcontractors are required to:

1. Submit to the Awarding Authority a list of the contractor's subcontractors for any part or all of the prevailing wage work in accordance with RIGL § 37-13-4;
2. Pay all prevailing wage employees at least once per week and in accordance with RIGL §37-13-7;
3. Post the prevailing wage rate scale and the Department of Labor and Training's prevailing wage poster in a prominent and easily accessible place on the work site in accordance with RIGL §37-13-11; posters may be downloaded at <https://dlt.ri.gov/requiredposters/> or obtained from the Department of Labor and Training, Center General Complex, 1511 Pontiac Avenue, Cranston, Rhode Island;
4. Access the Department of Labor and Training website, at <https://dlt.ri.gov> on or before July 1st of each year, until such time as the contract is completed, to ascertain the current prevailing wage rates and the amount of payment or contributions for each covered prevailing wage employee and make any necessary adjustments to the covered employee's prevailing wage rates effective July 1st of each year in compliance with RIGL §37-13-8;
5. Attach a copy of this CONTRACT ADDENDUM and its attachments as a binding obligation to any and all contracts between the contractor and any subcontractors and their assignees for prevailing wage work performed pursuant to this contract;
6. Provide for the payment of overtime for prevailing wage employees who work in excess of eight (8) hours in any one day or forty (40) hours in any one week as provided by RIGL §37-13-10;

7. Maintain accurate prevailing wage employee payroll records on a Rhode Island Certified Weekly Payroll form available for download at <https://dlt.ri.gov/wrs/prevailingwage/> as required by RIGL §37-13-13, and make those records available to the Department of Labor and Training upon request;
8. Furnish the fully executed RI Certified Weekly Payroll Form to the awarding authority on a monthly basis for all work completed in the preceding month.
9. For general or primary contracts one million dollars (\$1,000,000) or more, shall maintain on the work site a fully executed RI Certified Prevailing Wage Daily Log listing the contractor's employees employed each day on the public works site; the RI Certified Prevailing Wage Daily Log shall be available for inspection on the public works site at all times; this rule shall not apply to road, highway, or bridge public works projects. Where applicable, furnish both the Rhode Island Certified Prevailing Wage Daily Log together with the Rhode Island Weekly Certified Payroll to the awarding authority.
10. Any violation of RIGL 37-13-13 of Certified Weekly Payroll Forms and Daily Logs will result in the department imposing a penalty on the contractor of a minimum of one hundred dollars (\$100) for each calendar day of noncompliance.
11. Assure that all covered prevailing wage employees on construction projects with a total project cost of one hundred thousand dollars (\$100,000) or more has a OSHA ten (10) hour construction safety certification in compliance with RIGL § 37-23-1;
12. Assure that all prevailing wage employees who perform work which requires a Rhode Island trade license possess the appropriate Rhode Island trade license in compliance with Rhode Island law; and
13. Comply with all applicable provisions of RIGL §37-13-1, et. seq;

Any questions or concerns regarding this CONTRACT ADDENDUM should be addressed to the contractor or subcontractor's attorney. Additional Prevailing Wage information may be obtained from the Department of Labor and Training at <https://dlt.ri.gov/wrs/prevailingwage/>.

CERTIFICATION

I hereby certify that I have reviewed this CONTRACT ADDENDUM and understand my obligations as stated above.

By: _____

Title: _____

Subscribed and sworn before me this ____ day of _____, 20__.

Notary Public
My commission expires: _____

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Section 01 10 00

SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. Project description.
- B. Project's environmental goals.
- C. Definitions – Owner, Owner's Director of Operations, Owner's Project Manager, Architect.
- D. Work by Owner.
- E. Work sequence.
- F. Work restrictions.
- G. Specification Formats and Conventions.

1.2 PROJECT DESCRIPTION

- A. Summary of Work: In General the project consists of the following scope, and as additionally indicated on Drawings, and as specified:
 - 1. General Upgrades:
 - a. Cafeteria/Student Commons Renovations.
- B. Building Permits: Permits are required for the commencing and completion of the work. The City of Central Falls does not collect permit fees on City projects. Therefore, the only necessary fee will be the State ADA fee. The General Contractor shall receive the building, electrical and plumbing permits prior to performing any work on the Project. All other permits required by City, State Agencies or other public agencies will require payment of fees. Each Bidder shall take this into account in calculating his or her bid for work.
 - 1. The General Contractor and subcontractors are responsible for all other permits, fees, inspections, and licenses, as may be required by State and local authorities.

1.3 PROJECT ENVIRONMENTAL GOALS

- A. Objectives: Utilize pollution prevention materials, sustainable construction methods, low VOC and no off-gassing, products to maintain of healthy Indoor Air Quality (IAQ) during the construction process:
 - 1. Incorporate green products and sustainable materials into the Project. To the greatest extent possible, the Contractor shall:
 - a. Use products with low embodied energy (production, manufacturing, and transportation).
 - b. Use products that maximize recycled content in materials products, and systems.

BID PACKAGE #2

- c. Use products easy to maintain, repair, and that can be cleaned using non-toxic substances..
 - d. Use products that will not negatively affect healthy indoor air quality.
 - e. Use reusable and recyclable packaging.
 - f. Avoid use of ozone-depleting compounds, such as HCFCs from refrigerants or foam insulation materials.
- B. Water resource protection: Conserve and use water efficiently, limit on-site fresh water usage to the greatest extent possible, control water distribution systems and waste, minimize use of imported or mined water. Utilize water-conserving appliances and equipment.
- C. Air Quality is achieved by compliance with the limitation of indoor air concentrations of certain pollutants, at or below the established maximum allowable concentrations. Healthy air quality goals shall be maintained during construction, and through building commissioning.
- 1. Use construction practices that achieve the most efficient use of resources and materials.

1.4 DEFINITIONS - OWNER, OWNER'S PROJECT MANAGER, AND ARCHITECT

- A. Wherever the term "Owner" is used in this specification, it refers to:
- City of Central Falls
Central Falls School District
949 Dexter Street, Lower Level
Central Falls, Rhode Island 02863-1715
- 1. The terms "Owner" and "Awarding Authority" as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. Both terms refer to the same entity.
 - 2. Important Tax Note: OWNER is exempt from certain taxes. It is therefore required that the General Contractor and all subcontractors purchasing taxable goods or services make known to suppliers that tax-exempt status of the Owner, in order that such taxes will not be applied to the goods under Contract.
 - a. Federal Excise Taxes as applied to articles which are taxable under Chapter 32 of the Internal Revenue Code of 1954, as amended. The Owner's Excise Tax Exemption Certificate Number is applicable.
 - b. Sales and Use Tax imposed by the State of Rhode Island and Providence Plantations: The Owner has been assigned Exemption Certificate Number, with respect to leases, rental, or purchase of "tangible personal property", including building materials and supplies, subject to the Rhode Island Sales and Use Tax Act, Chapter 18, Title 44 of the General Laws 1956, as amended. This exemption does not apply to any equipment leased or rented by the Contractor for his own use on the construction of the Project.
 - c. Sales and Use Tax imposed by the states where the Owner does not have exemption status: The Owner may choose to apply for tax exemption status in other states where major building materials and supplies are being purchased. In the event that the Owner obtains exemption status after bids are received, the General Contractor shall

adjust the Stipulated Sum by change order, for the amount equal to the scheduled taxes that were included in the General Contractors Bid.

- d. Fines and Penalties: Contractor and subcontractors are fully responsible for payment of all penalties and fines assessed by authorities having jurisdiction for improper and illegal use of Owner's tax exemption certificate number.
3. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the contrary, be delivered to the office of the Architect:
 - B. The School's Authority in Charge of Project is referred to as the "Director of Operations": Wherever this term is used in the Contract Documents, it refers to
Mr. Rory Marty
112 Washington Street
Central Falls, Rhode Island 02863
email: martyr@cfschools.net
 - C. Wherever the term "Owner's Project Manager" (OPM) is used in the Contract Documents, it refers to:
Peregrine Group, LLC
20 Newman Avenue, Suite 1005
Rumford, Rhode Island, 02916
 - D. Wherever the term "Architect", "Designer", or "Architect/Engineer", is used in the Contract Documents, it refers to:
Ai3 Architects, LLC
111 Speen Street, Suite 300
Framingham, Massachusetts 01701

1.5 WORK BY OWNER

- A. Related work under separate agreements: The Owner will award a separate contract which will commence prior to or during the work of this Contract; which in general includes:
 1. Testing Laboratory Services.
- B. Owner Furnished and Installed (OFI) Products: The General Contractor has coordinating responsibility for the following work, provided by others under separate agreement(s) with the Owner:
 1. Food Service and Servery equipment.
 2. Furnishings and equipment, artwork, loose casegoods and similar items.

1.6 PRODUCTS REQUIRING LONG LEAD TIME

- A. Several products specified in individual specification sections are "long lead time" products and thus require advance ordering. For the following categories of work, affirm early purchase orders under the requirements of Section 01 32 00 – Construction Progress Documentation.
 1. Hardware for doors.
 2. Equipment for heating, ventilating and air conditioning.
 3. Light fixtures.

1.7 USE OF SITE

- A. Use of and access to site may be subject to special requirements of the Owner, as directed.
 - 1. Prior to beginning the Work of this Contract, the General Contractor shall meet with the Owner and the Architect to determine procedures regarding access and use of the site, locations and access to staging and storage areas, tree protection, temporary barriers and fencing, and any special site conditions or restrictions regarding the use of the site areas surrounding the construction.
 - 2. Hours of construction, 7:30 AM to 5:00 PM local time, Monday to Friday. Provisions for working hours other than those specified, must be pre-arranged with the Owner.
 - 3. Security: Owner access must be permitted at all times in all construction areas, for purposes of security.
- B. Confine operations to areas within Contract limits indicated on the Drawings. Portions of the site and building beyond areas in which construction operations are indicated are not to be disturbed.
 - 1. Use of on-site areas outside of the contract limits for workers parking or storage of materials must be pre-arranged with Owner. Schedule deliveries to minimize requirements for storage of materials.

1.8 ACCESS TO SITE

- A. Keep all public roads and walks, and access drive to facility clear of debris caused by this Work during building operations.

1.9 PROJECT MANUAL FORMATS AND CONVENTIONS

- A. Project Manual Format: The Project Manual is organized into Divisions and subdivided into Sections and Documents using Construction Specification Institute (CSI) publication "MasterFormat" numbering system, current edition.
 - 1. Section Identification: Six/Eight digit Section numbers are utilized and cross-referenced throughout the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because only those Section numbers which are applicable to this Project are used.
 - 2. Division One of the Project Manual governs procedural and administrative requirements of the Work. Division One requirements are applicable to all Sections and Documents in the Project Manual.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular as applicable to the context of the Contract Documents.

2. Imperative mood and streamlined language is generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by General Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by General Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 14 00
WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Site access restrictions.
- B. Coordination of work with adjacent school occupancy.
- C. Worker conduct, appearance and Work Rules.

1.2 WORK FORCE REQUIREMENTS

- A. Work force requirements:
 - 1. The General Contractor acknowledges the stringent requirements of the Owner with respect to the dates of Substantial Completion for various Portions of the Work, and recognizes that the construction schedule may require that work proceed on an accelerated basis. The General Contractor further acknowledges that requirements related to items such as safety, service to Owner occupied areas, or General Contractor access to Owner occupied areas may mandate that some operations be performed only after “normal school hours” or other occupancy hours. The General Contractor therefore agrees that the Work of his own forces and of his Subcontractors, including all subcontractors, shall be performed on an overtime and/or double-shift basis if and to the extent necessary in order that the construction schedule be met.
 - 2. Neither overtime nor double-shift work shall be grounds for any claims for compensation to the General Contractor or to any subcontractor. If the nature of overtime or double-shift work requires that the Owner provide personnel to operate the facility at times when they would not normally be present, such personnel costs shall be borne or reimbursed by the General Contractor.
 - 3. The General Contractor, subcontractors shall have access to and from the site through the designated gate(s), refer to Drawings. All other gate access to the site will require approval of the OPM or their site representative.
 - a. No vehicles (except fire, police and rescue) may enter or exit the construction sites from other gates unless authorized by the Owner.
 - b. Prior to 7:00 AM any vehicle which arrives at the school during the “Closed Gate” time must move to a location acceptable to the Owner. Idling/parking on designated streets is not permitted at any time. No vehicles will be allowed to idle or wait on the project site, or any other nearby street. The General Contractor shall be responsible for enforcing this requirement.
 - 4. Winter Conditions: The Owner and General Contractor recognize that time is of the essence for completion of this Contract and agree to continue work throughout the winter months without delay or additional claim for costs to do so.
 - 5. Municipal Authority: The General Contractor shall comply with all local ordinances, including those with respect to work start, finish, and weekend work, including but not limited to any Central Falls noise regulations.

6. None of the requirements herein shall be construed as relieving the General Contractor of his responsibility to conduct his operations in conformance with local ordinances or requirements established by the State of Rhode Island.

1.3 USE OF SITE

- A. Use of, and access to, site will be subject to special requirements of the Owner, as directed.
 1. Prior to beginning the Work of this Contract, the General Contractor shall meet with the Owner and the Architect to determine procedures regarding access and use of the site, locations and access to staging and storage areas, tree protection, temporary barriers and fencing, and any special site conditions or restrictions regarding the use of the site areas surrounding the construction.
 2. Security:
 - a. Owner access must be permitted at all times in all construction areas, for purposes of security.
 - b. Contractor is permitted to enter school only where designated by Director of Operations. Entry by all workers shall be controlled and only as authorized through the BCI process.
 - c. Absolutely no building entry doors are permitted to be propped open at any time.
- B. Confine operations to areas within delineated work areas indicated on the Drawings and as further directed by the Director of Operations.. Portions of the site and building beyond areas in which construction operations are indicated are not to be disturbed or entered.
 1. Use of on-site areas outside of the contract limits will not be permitted. Schedule deliveries to the site to minimize requirements for storage of materials.
 2. The General Contractor, and subcontractors and their personnel are not permitted to use the School's cafeteria.
- C. Keep all public roads and walks, and access drive to facility clear of debris caused by this Work during building operations.

1.4 SITE ACCESS RESTRICTIONS

- A. Access to the site is restricted to established routes for safety of public and surrounding neighborhoods.

1.5 COORDINATION OF WORK WITH SCHOOL OCCUPANCY

- A. The Owner may occupy outside site areas, parking areas and access roads during construction. Notify the Owner of work which will affect the use of these areas; coordinate work schedule with Owner. The General Contractor shall consult with the Owner's Project Manager on the best ways to provide access, and on changes to access areas, as the work progresses, to perform the Work.
 1. Take all measures to insure the safety of the general public. The General Contractor must take every reasonable precaution and employ all necessary measures including extra cleaning, special supervisory personnel, and additional temporary barriers and signage to facilitate the clean, quiet, safe,

and continual operation of adjacent facilities and areas being used by the Owner.

2. Suspension of Work: The Owner retains the right to temporarily suspend work at any time when the noise or disturbance created by construction proves disruptive to Owner's activities or which exceed the limits of any Central Falls noise ordinances. The Owner may request of the General Contractor to utilize other means and methods, if practical, and acceptable to the Architect, which are less disruptive.

B. Interruption of services: Any major work entailing disruption to heating, lighting, life safety system utility connections or other similar major disruption to the adjacent school must be closely coordinated with the Owner and local public safety officials, and temporary services, safety precautions, or connections provided. Do not shut down any service without approval of the Owner.

1. Provide 1 week notification for any possible disruption of service to Owner, Owner's Project Manager and Architect provide notification for connecting, disconnecting, turning on or turning off any service which may affect Owner's operations of the existing facility.
2. Provide 72 hour (3 work days) notice to the Central Falls Fire Department of disruptions in electrical services, fire alarm services and emergency power services.
3. Any action either planned or unplanned, by the General Contractor, or subcontractors which impairs the operation of anyone or the activation of the fire alarm detection and or suppression system shall cause notification of the appropriate party. In case of unplanned, accidental, impairment, the General Contractor will immediately notify the Owner. The General Contractor should be prepared to provide assistance to correct the problem at its own expense.

1.6 WORKER CONDUCT, APPEARANCE AND WORK RULES

A. For Work occurring when Students are Present: Pursuant to Rhode Island General Laws 16-2-18.1 Central Falls School District will require criminal offender record information (referred to as "BCI check") from the Bureau of Criminal Identification and Investigation, relating to any worker who is scheduled to work on any portions of the school property (this does not apply when there are no Summer Education or Recreation Programs on-site, therefore BCI is not anticipated as a requirement for Bid Package #2 Work). Contractor is required to pay required fees and obtain a Background Criminal Record for all employees, subcontractors, and vendors on site, through the Rhode Island Bureau of Criminal Identification and Investigation (BCI) Reporting.. The General Contractor, and subcontractors shall make every effort to provide the Owner's Project Manager with a list of the proper paperwork at least two weeks before any workmen who they anticipate will be on site. All approved workers on the project shall wear visible I.D. badges at all times. The General Contractor is responsible for issuing these badges to authorized personnel as reviewed by the Owner's Project Manager and School Department. The General Contractor shall be responsible for enforcing this requirement with their staff and all subcontractors and vendors. Workers failing to display their I.D. badges will be removed from the site. The Owner reserves the right to stop work if there has been a failure to comply with this paragraph, in which event the General Contractor, subcontractors, and vendors shall have no claim for damages, delay or time extensions against the Owner.

BID PACKAGE #2

- B. The conduct and appearance of each worker at the job site is of paramount importance. The Owner reserves the right to require any worker to be banished from the Site.
- C. Access Restriction to existing elementary school: Construction Workers are prohibited to enter the existing elementary school without prior authorization from Owner.
- D. Privacy: Conduct all work of the Contract with the maximum effort to maintain the privacy of the Owner's operations, staff, and students. Do not allow workers to peer into areas of the adjacent residential properties which is visible from the work area. Invasion of privacy is a major infraction of the work rules.
- E. General Conduct and Demeanor: All construction workers shall treat all other workers, Owner staff, student and the public with respect and courtesy.
- F. Physical Appearance: Require each worker to dress appropriately in a clean, neat, and professional manner.
 - 1. Sleeved shirts and long pants are required minimum clothing. Short sleeved shirts may not be rolled up. Shirts may not be rolled up at the waist. Pants may not be rolled up past the top of the boots or shoes worn. Anyone not in compliance is subject to immediate dismissal.
- G. Entertainment Devices (including, but not limited to radios, CD players, MP3 players and televisions): The use of all entertainment devices, including personal devices with headphones or earphones, is strictly prohibited at all times.
 - 1. Control the volume of communication radios and loudspeakers to avoid creating a nuisance.
- H. Smoking: Smoking is strictly prohibited on-site.
- I. Alcoholic Beverages: Alcoholic beverages are strictly prohibited on-site.
- J. Language: Foul and rude language is strictly prohibited.
- K. Physical Actions: Running, horseplay, fighting, and other unprofessional conduct is prohibited. Fighting is a major infraction of the work rules.
- L. Stealing: Stealing of any materials, objects, furnishings, equipment, fixtures, supplies, clothing, or other items will not be tolerated and is a major infraction of the work rules.
- M. Sexual Harassment: All forms of physical and verbal sexual harassment will not be tolerated and is a major infraction of the work rules. Sexual harassment includes, without limitation: touching, taunting, whistling, sexually explicit stories, jokes, drawings, photos and similar representations, exhibitionism and all other sexually oriented offensive behavior.
- N. Warnings and Dismissal:
 - 1. For minor infractions of the rules, the Owner may issue a warning. Only one warning will be allowed per worker. A second infraction will result in immediate dismissal of the worker from the Site.
 - 2. For major infractions of the rules, the worker shall be dismissed immediately without warning and is subject to possible criminal prosecution.

- O. Notification of Workers: Clearly notify and educate each worker about these Work Rules and the requirements for worker conduct and appearance.
 - 1. Recommendation: The Owner recommends that the General Contractor notify each worker of the work rules in writing and obtain a signed acknowledgment of the worker's understanding of the work rules as a condition of employment on this project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ACADEMIC AND WORK SCHEDULE

- A. Academic Schedule: Availability dates to perform the Work is indicated in Green in the attached document.
 - 1. Shop Submittal Deadline: All shop submittals shall be submitted no later than November 1, 2023.
 - 2. Substantial Completion: All work must be completed no later than August 25, 2024.

End of Section

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ATTACHMENT TO SECTION 01 14 00 - WORK RESTRICTIONS

ACADEMIC/WORK SCHEDULE

NOTICE:

School vacations and non-occupancy dates which are suitable for Construction Work are indicated in GREEN. Contractor is permitted to be on-site on dates indicated in GREEN, all other days are prohibited for performing on-site work, except as maybe previously agreed to jointly by the Director of Operations, and Owner's Project Manager.

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Section 01 25 13

PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Product options.
 - 1. Product selections.
 - 2. Visual matching.
- B. Product substitution procedures.
- C. Owner's proprietary products.

1.2 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Basic product requirements

1.3 PRODUCT OPTIONS

- A. Product selections: Comply with the following for selection of products:
 - 1. Products specified by reference standards or by description only: Provide any acceptable product meeting those standards or description.
 - 2. Products specified by performance requirements only: Provide any acceptable product which has been tested to show compliance with specified requirements, including indicated performances.
 - 3. Products specified by naming one or more manufacturers with a provision for substitutions: Provide products of manufacturers named, or submit a request for substitution for any manufacturer or product not named.
- B. Visual matching: Where Specifications require matching a sample, the Architect's decision on whether a proposed product matches is final. Where no product matches and complies with other requirements, comply with provisions for "substitutions" for selection of a matching product in another category.

1.4 PRODUCT SUBSTITUTION

- A. Products specified by reference standards or by description only: Any product meeting those standards or description.
- B. Pursuant to 2018 edition, *RHODE ISLAND BUILDING CODE*, Regulation RISBC-1, where products or materials are prescribed by manufacturer name, trade name or catalog reference, the word "or approved equal" shall be implied. The Architect will evaluate the proposed "equal" item on the following criteria:
 - 1. The submitted "equal" item is at least equal in quality, durability, appearance, strength and design,
 - 2. The submitted "equal" item is at least equal in function for the purpose intended by the design of the Work
 - 3. The submitted "equal" item conforms substantially to the detailed requirements for the items as indicated by the specifications.

4. The submitted "equal" item fully conforms to the LEED Credit requirements for Project LEED Certification.
- C. The Architect's evaluation and decision on whether a proposed product is equal to that specified, based on the above evaluation requirements. The General Contractor retains the right to appeal the Architect's determination of equality through regulated statutory provisions.
1. The Architect and Owner reserve the right to reject proposed substitutions where data for VOCs is not provided or where emissions of individual VOCs are higher than for specified materials.
- D. Owner's proprietary products: Under provisions of 2018 edition, *RHODE ISLAND BUILDING CODE*, Regulation RISBC-1 the Owner has determined that specific products shall be proprietary for 'sound reasons in the public interest'. This determination has been made under vote of the City of Central Falls represented by the Central Falls Permanent Building Committee, and has been recorded in writing for public record.
1. Owner's proprietary products are listed under Section 01 60 00 and in respective individual Specification Sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 26 13

REQUESTS FOR INTERPRETATION

PART 1 – GENERAL

1.1 SUMMARY

- A. Administrative requirements for Requests For Information (RFI's).

1.2 DEFINITIONS

- A. Requests For Information (RFI):

1. A document submitted by the General Contractor to the Architect requesting clarification of a portion of the Contract Documents, hereinafter referred to as RFI.
2. A properly prepared RFI shall include a detailed written statement that indicates the specific Drawings or Specification in need of clarification and the nature of the clarification requested.
 - a. Drawings shall be identified by drawing number and location on the drawing sheet.
 - b. Specifications shall be identified by Section number, page and paragraph.
 - c. The General Contractor shall provide suggestions or alternate solutions to the RFI if such suggestions are known or should be known.

- B. Improper RFI's:

1. RFI's that are not properly prepared, as required above.

Improper RFI's will be processed by the Architect at the Architect's standard hourly rate and Architect will charge the General Contractor, and such costs will be deducted from monies due the General Contractor. The General Contractor will be notified by the Architect through the General Contractor of the "back charge" amounts.

- C. Frivolous RFI's:

1. RFI's that request information that is clearly shown on the Contract Documents.
2. Frivolous RFI's will be returned unanswered.

1.3 GENERAL CONTRACTOR'S REQUESTS FOR INFORMATION

- A. When the General Contractor is unable to determine from the Contract Documents, the material, process or system to be installed, the General Contractor shall submit an RFI to the Architect requesting a clarification of the indeterminate item.

1. When possible, such clarification shall be requested at the next appropriate project meeting, with the response entered into the meeting minutes. When clarification at the meeting is not possible, either because of the urgency of the need, or the complexity of the item the General Contractor shall prepare and submit an RFI to the Architect.

- B. Individual Contractors and each subcontractor shall endeavor to keep the number of RFI's to a minimum. In the event that the process becomes unwieldy, in the

opinion of the Architect, because of the number and frequency of RFI's submitted, the Architect may require the General Contractor to abandon the process and submit future requests as submittals, substitutions, or requests for change.

- C. RFI's shall be submitted on a form acceptable to the Architect. Forms shall be completely filled in, and if prepared by hand, shall be fully legible after photocopying or electronic transmission in PDF format. Each page of attachments to RFI's shall bear the RFI number in the lower right corner.
- D. RFI's shall be originated by the General Contractor, individual contractors, or subcontractors as appropriate. General Contractor shall endeavor to address and resolve subcontractor's RFI's to the extent possible for issues which are obviously covered by the Contract Documents, before forwarding to the Architect for processing.
 - 1. RFI's from contractors, subcontractors or material suppliers shall be submitted through, reviewed by, and signed by the General Contractor prior to submittal to the Architect.
 - 2. RFI's shall be processed and sent to the Architect from the General Contractor only. RFI's received by the Architect or the Architect's consultants from other parties shall not be accepted and will be returned unanswered.
- E. Each subcontractor shall carefully study the Contract Documents to assure that the requested information is not available therein. RFI's which request information available in the Contract Documents will be deemed either "improper" or "frivolous" as noted above.
- F. In cases where RFI's are issued to request clarification of coordination issues, for example pipe and duct routing, clearances, specific locations of work shown diagrammatically, and similar items, the General Contractor shall fully lay out a suggested solution using drawings or sketches drawn to scale, and submit same with the RFI. RFI's, which fail to include a suggested solution, will be returned unanswered with a requirement that the General Contractor submit a complete request.
- G. RFI's used for the following purposes will be returned without review:
 - 1. To request approval of submittals.
 - 2. To request approval of substitutions.
 - 3. To request coordination information already indicated in the Contract Documents.
 - 4. To request changes which entail adjustments in the Contract Time or the Contract Sum (additional cost or credit).
 - 5. To request different methods of performing work than those drawn and specified.
 - 6. To request interpretation of Architect/Engineer's actions on submittals.
 - 7. Incomplete RFI's or RFI's with numerous errors.
- H. In the event the General Contractor believes that a clarification by the Architect results in additional cost or time, General Contractor shall not proceed with the Work indicated by the RFI without a written authorization from the Architect. RFI's shall not automatically justify a cost increase in the Work or a change in the Schedule.

1. Answered RFI's shall not be construed as approval to perform extra work.
 2. Unanswered RFI's will be returned with a stamp or notation: Not Reviewed.
- I. General Contractor will prepare and maintain a log of RFI's and provide updated copies at the weekly Construction Progress Meetings showing outstanding RFI's.
 - J. RFI Response: The Architect will endeavor to respond in a timely fashion to RFI's, however, the following minimum time periods are required. RFI's which are received by the Architect after 1PM local time shall be considered received on the following working day.
 1. RFI's which require only Architect's Response: General Contractor shall allow up to Three (3) full work days review and response time,
 2. RFI's which require Architect's and an Engineering or Consultant Response: General Contractor shall allow up to Four (4) full work days review and response time.

1.4 ARCHITECT'S RESPONSE TO RFI'S

- A. Architect will respond to RFI's on one of the following forms:
 1. Properly prepared RFI's:
 - a. Response on the RFI form.
 - b. Architect's Supplemental Instruction.
 - c. Request for Proposal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Schedule of Values.
- B. Applications for payment.
 - 1. Procedures for application for payment.
 - 2. Initial application for payment.
 - 3. Monthly application for payment.
 - 4. Application for payment at substantial completion.
 - 5. Final payment application.
- C. Payment for stored materials.
- D. Change procedures.

1.2 COORDINATION

- A. Coordinate the Schedule of Values and Applications for Payment with the General Contractor's construction schedule, list of subcontractors, and submittal schedule.
- B. The General Contractor's construction schedule and submittal schedule are included in Section 01 33 00 - SUBMITTAL PROCEDURES.

1.3 SCHEDULE OF VALUES

- A. Coordinate preparation of the Schedule of Values with preparation of the General Contractor's Construction Schedule. Schedule of values shall reflect project phasing.
 - 1. Schedule of values shall be used only as basis for General Contractor's application for payment.
 - 2. Breakdown schedule of values into separate line items, each having a value of not more than \$25,000.
- B. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - 1. General Contractor's construction schedule.
 - 2. Application for Payment form.
 - a. List of subcontractors.
 - b. List of products.
 - c. List of principal suppliers and fabricators.
 - d. Schedule of submittals.
- C. Submit typewritten schedule of values to the Architect at least 10 days prior to submitting first application for payment.

BID PACKAGE #2

- D. Sub-Schedules: Where the Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- E. Identification: Include the following Project identification on the Schedule of Values:
1. Project name and location.
 2. Name of the Architect.
 3. Project number.
 4. General Contractor's name and address.
 5. Date of submittal.
- F. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:
1. Generic name.
 2. Related Specification Section.
 3. Name of subcontractor.
 4. Name of manufacturer or fabricator.
 5. Name of supplier.
 6. Change Orders (numbers) that have affected value.
 7. Dollar value.
 8. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
- G. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
1. Upon request by Architect, submit data that will substantiate values given.
- H. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
1. Indicate retainage as a separate line item, as a negative number.
- I. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
- J. Unit Cost Allowances: Show line item value of unit cost allowances as a product of unit cost times measured quantity as estimated from the best indication in the Contract Documents.
- K. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.

BID PACKAGE #2

- L. At the General Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.
- M. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum.
- N. Payment requisitions shall summarize subtotals for each CSI division corresponding to divisions in the contract specifications.

1.4 PROCEDURES FOR APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
 - 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application or Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
 - 1. Entries shall match data on the Schedule of Values and General Contractor's Construction Schedule. Use updated schedules if revisions have been made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
 - 3. Monthly Applications for Payment shall include a separate summary of the invoiced costs by division. The General Contractor shall fill in the amounts which shall tie the subtotals for each division in the requisition itself.
- E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours.
- F. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.

1.5 INITIAL APPLICATION FOR PAYMENT

- A. Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. List of principal suppliers and fabricators.
 - 3. Schedule of Values.
 - 4. General Contractor's Construction Schedule (preliminary if not final).

BID PACKAGE #2

5. Schedule of principal products.
6. Schedule of unit prices.
7. Submittal Schedule (preliminary if not final).
8. List of General Contractor's staff assignments.
9. List of General Contractor's principal consultants.
10. Copies of building permits.
11. Copies of authorizations and licenses from governing authorities for performance of the Work.
12. Initial progress report.
13. Report of pre-construction meeting.
14. Data needed to acquire Owner's insurance.
15. Initial settlement survey and damage report, if required.

1.6 MONTHLY APPLICATION FOR PAYMENT

- A. Administrative actions and submittals that must precede or coincide with submittal of the period Application for payment, include the following:
 1. As-built record documents, required documents and submittal records on site.
 2. General Contractor's construction schedule, updated, with corrective action plan as applicable.
 3. Weekly up-to-date, accurate, certified submission of payroll records.
 - a. Payroll records shall include photocopies of each employee's OSHA card and identification of pay grade cross referenced to payroll records when submitted. Failure to provide accurate information may delay processing of application for payment.
 4. Pre-installation meeting conducted in accordance with Section 01 31 00, prior to first billing for any activity.
 5. Material Status Report.
 6. Stored Materials forms.
 - a. All materials stored off-site shall be properly warehoused, protected, insured, and identified as specific to the project. The General Contractor shall provide timely access to the stored materials for inspection prior to submission of any application for payment. Payment shall be contingent on agreement by the Owner's Project Representative and the Architect.
 7. Submittal Schedule and submittal status reports.
 8. Monthly Progress report and Notarized Progress report Statement from the General Contractor's project manager stating that the work is on schedule and that the General Contractor will meet the Substantial Completion date for the Work and the Substantial Completion dates for every portion thereof as established under Construction Phasing Schedule Section.
 9. Construction progress photographs.
 10. Quality control reports and procedures in compliance with Section 01 45 00 - QUALITY CONTROL.
 11. Summary of Project waste and diversion report (updated each month) in compliance with Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

PAYMENT PROCEDURES

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1.7 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION:

- A. Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- B. Administrative actions and submittals that shall proceed or coincide with this application include:
 - 1. Occupancy permits and similar approvals.
 - 2. Warranties (guarantees) and maintenance agreements.
 - 3. Test/adjust/balance records.
 - 4. Maintenance instructions.
 - 5. Meter readings.
 - 6. Start-up performance reports.
 - 7. Change over information related to Owner's occupancy, use, operation and maintenance.
 - 8. Final cleaning.
 - 9. Application for reduction of retainage, and consent of surety.
 - 10. Advice on shifting insurance coverage.
 - 11. Final progress photographs.
 - 12. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
 - 13. Final summary of Project waste and diversion report in compliance with Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

1.8 FINAL PAYMENT APPLICATION

- A. Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
 - 1. Completion of Project Closeout requirements.
 - 2. Completion of items specified for completion after Substantial Completion.
 - 3. Assurance that unsettled claims will be settled.
 - a. Assurance that Work not complete and accepted will be completed without undue delay.
 - 4. Transmittal of required Project construction records to Owner.
 - 5. Certified property survey.
 - 6. Proof that taxes, fees and similar obligations have been paid.
 - 7. Removal of temporary facilities and services.
 - 8. Removal of surplus materials, rubbish and similar elements.
 - 9. Change of door locks to Owner's access.

1.9 PAYMENT FOR STORED MATERIALS

- A. Provide supporting documentation for the value of stored materials. Acceptable form of supporting documentation include a certified and notarized invoice from the

manufacturer or supplier which indicates the actual amount due, including discounts to which the General Contractor may be entitled, and the date which the invoice was paid.

- B. Provide notice to Architect 48 hours in advance, and provide transportation for Architect and Clerk to the site where materials are stored to permit inspection of the materials.
- C. With Application for Payment, submit notarized certificate of title and evidence of insurance for materials stored off-site.
- D. With each subsequent Application for Payment, indicate in the appropriate columns the value of stored material which has been taken from off-site location and brought to the project site. Provide supporting documentation.

1.10 CHANGE PROCEDURES

- A. The Architect will advise of minor change in the Work not involving adjustment to Contract Sum/Price or Contract Time as authorized under the General and Supplementary Conditions of Contract, by issuing supplemental instructions on AIA Form G710.
- B. The Architect may issue a Proposal Request or Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the request price will be considered valid. The General Contractor will prepare and submit an estimate within 10 days.
- C. The General Contractor may propose changes by submitting a request for change to the Architect describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time and full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 25 13 - PRODUCT SUBSTITUTION PROCEDURES.
- D. Stipulated Sum/Price Change order:
 - 1. Based on Proposal Request or Notice of Change and General Contractors price quotation or General Contractors request for a Change Order approved by the Architect.
- E. Unit Price Change Order:
 - 1. For a pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Construction Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- F. Construction Change Directive:
 - 1. Architect may issue a directive on AIA Form G713 Construction Change Directive signed by the Owner instructing the General Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

PAYMENT PROCEDURES

01 29 00 - 6

Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time.

2. Promptly execute the change.
- G. Time and Material Change Order:
1. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
 2. Maintain detailed records of work done on Time and Material basis. Document each quotation for a change in cost or time with sufficient data to allow evaluation of proposed changes and to substantiate changes in the Work.
- H. Documentation of change in Contract Sum/Price and Contract Time:
1. Change order Forms: AIA G701 Change Order.
 2. Maintain detailed records. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
 3. On request, provide additional data to support computations:
 - a. Quantities of products, labor and equipment.
 - b. Taxes, insurance and bonds.
 - c. Overhead and profit.
 - d. Justification for any change in Contract Time.
 - e. Credit for deletions from Contract, similarly document.
 4. Support each claim for additional costs and for work done on a time and material basis, with additional information:
 - a. Origin and date of claim.
 - b. Dates and times work was performed, and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
- I. Computing Change Order Requests
1. Changes in the Contract price shall be determined according to one of the following methods, or a combination thereof, as determined by the Owner:
 - a. Fixed price basis, provided that the fixed price shall be inclusive of items (i) through (vi) in subparagraph (c) (below) and shall be computed in accordance with those provisions;
 - b. Estimated lump sum basis, to be adjusted in accordance with Contract unit prices, or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such equitable adjustment;
 - c. Time and materials basis, on a not-to-exceed upset amount designated by the Owner to be subsequently adjusted on the basis of actual costs based on the following items (i) through (vi):
 - 1) The cost at prevailing rates for direct labor, material, and use of equipment (charges for small tools or "tools of the trade" shall not be computed in the amount of a Change Order request);

- 2) Plus cost of Workmen's Compensation Insurance, union fringe benefits, federal unemployment taxes, Federal Social Security, and Rhode Island Unemployment Compensation, or, as an alternative the Contractor may elect to use a flat thirty (30) percent of the total labor rate in item (i);
- 3) Plus fifteen (15) percent of item (i) for overhead, superintendence and profit and for all General Conditions, which will be paid to the Contractor for Item 1 work, which is the work of the Contractor and all its non-filed subcontractors. The Contractor and its non-filed subcontractors shall agree upon the distribution of the fifteen (15) percent as a matter of contract between each other;
- 4) On Item 2 work, which is the work of subcontractors, ten (10) percent will be allowed to the subcontractor for overhead, superintendence and profit and the Contractor shall receive a five (5) percent markup for overhead, superintendence and profit and for all General Conditions on the cost of the work performed by the subcontractor;
- 5) If the net amount of a change is an addition to the Contract price, it shall include the Contractor's overhead, superintendence, and profit. On any change that involves a net credit, no allowances for overhead, superintendence, and profit shall be figured.
- 6) Plus actual direct premium cost of payment and performance bonds required of the Contractor and its subcontractors, provided there will be an appropriate credit for bond premiums in the case of a credit Change Order.

- J. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Project coordination.
- B. Project site administration.
- C. Project meetings.

1.2 RELATED REQUIREMENTS

- A. Section 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION.
- B. Section 01 33 00 - SUBMITTAL PROCEDURES.
- C. Section 01 78 00 - CLOSEOUT SUBMITTALS: Requirements for Project Record Drawings (As-built drawings).

1.3 GENERAL PROJECT COORDINATION

- A. Coordination: The General Contractor is fully responsible for coordinating the Work of this Contract including scheduling, and submittals. Work and other activities included in various Sections to assure efficient and orderly sequence of installation of interdependent construction elements. The General Contractor is responsible for coordinating actual installed location and interface of work, and to make provisions to accommodate items scheduled for later installation.
- B. Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain efficient installation with the least amount of alterations, or cutting and patching, to completed Work.
 - 1. The General Contractor shall be responsible to uncover work completed in order to install ill-timed work, at no additional cost to the Owner.
- C. Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.
- D. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; move routing to avoid architectural conflicts place runs parallel or perpendicular with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

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- G. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion and Owner's occupancy.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.4 UTILITIES, MECHANICAL AND ELECTRICAL COORDINATION

- A. Coordinate all Work of this Project. Provide full and complete coordination for utilities, mechanical and electrical work in Divisions 11, and 21 through 28, with Work of other Divisions.
 - 1. Each subcontractor shall compare his drawings and specifications with those of other Trades and report any discrepancies between them to the General Contractor. The General Contractor shall obtain from the Architect written instructions for changes necessary in the mechanical or electrical work, to ensure that all work is installed in coordination and cooperation with other Trades installing interrelated work. Before installation, each subcontractor shall make proper provisions to avoid interferences in a manner approved by the Architect. All changes required in the work of each subcontractor caused by his negligence, shall be corrected by him at his own expense, to the Architect's satisfaction.
- B. Give all advance notice to public utility companies required by law, and provide proper disposition, subject to Architect's approval of all existing pipe lines, conduits, sewers, drains, poles, wiring, and other utilities that in any way interfere with the Work, whether or not they are specifically shown on the Drawings.
- C. Coordination regarding existing utilities:
 - 1. Notify Owner and appropriate authorities when coming across an unknown utility line(s), and await decision as to how to dispose of same.
 - 2. When an existing utility line must be cut and plugged or capped, moved, or relocated, or has become damaged, notify the Owner and Utility company involved, and assure the protection, support, or moving of utilities to adjust them to the new work.
 - 3. The General Contractor shall be responsible for all damage caused to existing, active utilities located within the limits of this Contract, whether or not such utilities are shown on the Drawings, including resultant damages or injuries to persons or properties.
- D. General coordination of piping, ductwork, conduits and equipment:
 - 1. Determine exact routing and location of individual systems prior to fabrication of components or installation.
 - a. Piping runs requiring pitch have "right-of-way" over those systems that do not pitch.
 - b. System components whose elevations cannot be changed have "right-of-way" over those components whose elevations can be changed.
 - 2. Adjust locations of piping, ductwork, conduits and equipment to accommodate new work with interferences anticipated and as encountered during installation.

- a. Locate piping, conduits and ductwork to be clear of swinging doors, access doors, and clear for unimpeded equipment access.
3. Provide all offsets, transitions and changes of direction for all systems, as may be required to maintain proper clearances for headroom, and as may be required for coordination with other "fixed-in-place" building components (such as structural systems).
 - a. Furnish all vents, drains and similar accessories as may be required for offsets, transitions and changes of direction.
4. Provide openings in the work for penetration of mechanical and electrical work.
5. Coordinate final locations of ceiling mounted devices (including air distribution devices, thermostats, heaters, control devices, sprinkler heads and similar work) with reflected ceiling plans. Review locations with Architect and obtain approval of all devices prior to installation.

1.5 2D COORDINATION DOCUMENTS

- A. General: Prepare coordination drawings for areas where close coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space necessitates maximum utilization of space for efficient installation of different components.
 1. Coordination Drawings include, but are not necessarily limited to:
 - a. Structure.
 - b. Partition/room layout.
 - c. Ceiling layout and heights.
 - d. Light fixtures.
 - e. Access panels.
 - f. Sheet metal, heating coils, boxes, grilles, diffusers, and similar items.
 - g. All heating piping and valves.
 - h. Smoke and fire dampers.
 - i. Soil, waste and vent piping.
 - j. Major water.
 - k. Rain water drainage piping.
 - l. Major electrical conduit runs, panelboards, feeder conduit and racks of branch conduit.
 - m. Above ceiling miscellaneous metal.
 - n. Sprinkler piping and heads.
 - o. All equipment, including items in the Contract as well as OFCI and OFI items.
 - p. Equipment located above finished ceiling requiring access for maintenance and service. In locations where acoustical lay-in ceilings occur, indicate areas in which the required access area may be greater than the suspended grid system.
 - q. Seismic Restraints.

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- B. Timing: Prior to fabricating materials or beginning work, supervise and direct the creation of one complete set of coordination drawings showing complete coordination and integration of work, including, but not limited to, structural, architectural, mechanical, plumbing, fire protection, elevators, and electrical disciplines.
- C. Intent: Coordination drawings are for the General Contractor's and subcontractor's use during construction and are not to be construed as replacing shop drawings or record drawings. Architect's review of submitted coordination drawings shall not relieve the General Contractor from his overall responsibility for the coordination of the Work of the Contract.
- D. Shell Model: General Contractor shall prepare and provide an accurate shell model for the purposes of preparing coordination drawing showing all architectural and structural work. Shell model shall be at appropriate scale; congested areas and sections through vertical shafts shall be at larger scale.
1. A scale of not less than 1/4 inch scale (1/4" = 1'-0"), congested areas and sections through vertical shafts shall be at larger scale.
 - a. Highlight all fire rated and smoke partitions.
 - b. Indicate horizontal and vertical dimensions to avoid interference with structural framing, ceilings, partitions, and other services.
 - c. Indicate elevations relative to finish floor for bottom of ductwork and piping and conduit (6 inches and greater in diameter).
 - d. Indicate the main paths for the installation of, equipment from mechanical and electrical rooms.
 2. Revit Files: Architect's Revit files will be available for download for use by General Contractor and subcontractors. Additionally, each party receiving drawings will be required to sign a use and liability waiver.
- E. General Contractor shall grant access to coordination models to the following subcontractors and any other installers whose work might conflict with other work. Each of these subcontractors shall accurately and neatly show actual size and location of respective equipment and work. Each subcontractor shall note apparent conflicts, suggest alternate solutions, and return drawings to the General Contractor.
1. Miscellaneous and ornamental iron subcontractor.
 2. Acoustical tile subcontractor.
 3. Elevator subcontractor.
 4. Plumbing subcontractor.
 5. Fire protection subcontractor.
 6. Heating ventilating and air conditioning subcontractor.
 7. Electrical subcontractor.
 8. Control system subcontractors.
- F. Review and modify and approve coordination drawings in cooperation with individual installers and subcontractors to assure conflicts are resolved before work in field is begun and to ensure location of work exposed to view is as indicated or approved by Architect.

1. The General Contractor shall submit digitally signed coordination drawings in PDF format to Architect for review.
2. Do not commence work in areas described in the coordination drawings until receipt of Architect's comments.

1.6 GENERAL PROJECT ADMINISTRATION

- A. Prepare memoranda for distribution to each party involved outlining required coordination procedures. Include required notices, reports, and attendance at meetings.
- B. Prepare similar memoranda for the Owner and separate subcontractors where coordination of their Work is required.
- C. Conduct conferences among subcontractors and others concerned with the Work, to establish and maintain coordination and schedules, and to resolve coordination matters in dispute.
- D. Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:
 1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Project Closeout activities.

1.7 SITE MOBILIZATION CONFERENCE

- A. Prior to commencement of the Work, schedule a meeting at a meeting room provided by the General Contractor.
- B. In addition to the pre-bid conference specified under Section 00 11 16 – INVITATION TO BID, the Architect may, prior to commencement of the Work, schedule a meeting at a meeting room provided by the Owner.
 1. Attendance is required by Owner, Owner's Project Manager, Architect, engineering consultants, General Contractors' Project Manager and the Superintendent for each building site, and other major subcontractors, applicators, installers and suppliers. Other persons are required to attend as the Architect may direct or the General Contractor may wish to have present.
 2. Items of Agenda:
 - a. Use of premises by Owner, General Contractor and subcontractors.
 - b. Owner's requirements and partial occupancy considerations,
 - c. Temporary utilities provided by General Contractor.
 - d. Barricading and protection of the public, dust barriers.
 - e. Survey and building layout.
 - f. Wetlands protection.
 - g. Potentially difficult areas of work.
 - h. Project coordination.

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- i. Construction waste management and recycling procedures.
- j. Security and housekeeping procedures.
- k. Construction schedules.
- l. Delivery routes, access to site.
- m. Work hours.
- n. Work beyond Contract Limit.
- o. Procedures for the following:
 - 1) Proposal requests.
 - 2) Architect's Supplemental Instructions
 - 3) Requests for Information.
 - 4) Changes.
 - 5) Submittals.
 - 6) Applications for payment.
- p. Procedures for testing and inspection.
- q. Indoor air quality standards and testing requirements.
- r. Quality Control.
- s. Sustainability product requirements and procedures.
- t. Procedures for maintaining record documents.
- u. Requirements for equipment start-up.
- v. Inspection and acceptance of equipment put into service during construction period.

1.8 PRE-INSTALLATION/PRE-FABRICATION CONFERENCES

- A. When required in individual specification sections and prior to commencing the work of that trade, the General Contractor shall convene a pre-installation conference at the work site, if possible, on the same day as weekly progress meeting.
- B. Notify Architect and Owner's Project Manager a minimum of one week in advance of meeting date.
- C. Attendance is required by General Contractor's Project Manager and Superintendent, and parties directly affecting, or affected by, work of the Section.
 - 1. General Contractor shall include discussions on waste management goals and requirements in all pre-fabrication meetings conducted with subcontractors, fabricators, and vendors.
 - 2. General Contractor shall include discussions on Owner's environmental/sustainability goals, procedures and requirements in all prefabrication meetings conducted with subcontractors, fabricators, and vendors.

1.9 COORDINATION MEETINGS

- A. In addition to other specified meetings and additional meetings. General Contractor shall hold project coordination meetings, at least monthly at regularly schedule times. Hold meetings more frequently when necessary to ensure full coordination of work. Request representation at each meeting by every entity involved in

coordination or planning for work of the entire project. Conduct meetings in a similar manner to progress meetings, to resolve coordination problems.

- B. Keep minutes of coordination meetings and distribute copies to all attendees, related parties and to Owner, Owner's Project Manager, Architect and its engineering consultants within 3 business days following meeting. Coordination meetings shall continue on an appropriate schedule, even after completion of coordination drawings by General Contractor, to review progress and resolve minor conflicts not identified in the coordination drawings.
- C. The following trades shall participate in coordination meetings, preparation of coordination drawings and reviews. Additional trades shall participate as the General Contractor deems necessary for proper coordination of the Work.
 - 1. Concrete work.
 - 2. Masonry.
 - 3. Structural steel, light gage metal framing and metal fabrications.
 - 4. Rough carpentry.
 - 5. Air and vapor barrier work.
 - 6. Finish wall and ceiling construction.
 - 7. Food service equipment
 - 8. Elevators.
 - 9. Fire protection systems
 - 10. Plumbing systems, including roof drainage, waste and vent systems and distribution.
 - 11. Ductwork including appurtenances and equipment
 - 12. HVAC piping
 - 13. HVAC equipment and controls.
 - 14. Electrical lighting, power, communications and signaling, fire detection and related systems.
 - 15. Excavation, site utilities and site improvements.
- D. All adjustments necessary to achieve full coordination shall be determined in a timely manner, so as not to delay the work. Include time necessary for consideration by the Architect and the Owner's Project Manager for proposed modifications. No claim for additional compensation for extension of time arising from delays due to failure of General Contractor to identify potential conflicts requiring coordination in a timely manner or from additional work made necessary by such failure will be valid.

1.10 PROGRESS MEETINGS

- A. The Architect or its representative will schedule and administer meetings throughout the progress of the Work; make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes and distribute copies within one week to General Contractor, Owner and participants of meeting only. General Contractor is responsible for distribution to subcontractors, vendors, suppliers and others who are affected by decisions made.
 - 1. Scheduled Frequency of Meetings: Weekly at each construction site.

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- B. Attendance: Required are General Contractor's Project Manager and Project Superintendent, and each applicator, installer, and supplier whose work is ongoing or scheduled as directed by the Owner, General Contractor, OPM or Architect. Subcontractors, engineering consultants, and other persons are required to attend as the Architect may direct. Other subcontractors, vendors, suppliers shall be present at meetings upon request of General Contractor.
1. Attendee Authority: Subcontractors and supplier representatives present at meetings shall have authority to act for and make commitments for, the entity which they represent.
 2. Restricted Attendance: Owner and Architect reserve the right to expel or exclude from any Progress Meeting any person(s) or company representative(s) without statement of reason or excuse.
 3. Attendance of Architect's Consultants: General Contractor shall make an attendance request for specific Architect's consultants and engineers at least 72 hours in advance of the meeting. Clearly identify in the request all consultant related issues and topics to be discussed at the meeting. The Architect will decide if its consultant or engineer will attend.
 4. Attendance of Owner's Independent Consultants: General Contractor shall make an attendance request for specific Owner's consultants at least 72 hours in advance of the meeting. Clearly identify in the request all consultant related issues and topics to be discussed at the meeting. The Owner will decide if its consultant will attend.
- C. Items of Agenda:
1. Review minutes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identifications of problems which impede planned progress.
 5. Review of submittals schedule and status of submittals.
 - a. Review of environmental/sustainability related submittals, schedule and status.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Coordination of projected progress.
 10. Maintenance of quality and work standards.
 11. Progress of Work to be adjusted under coordination requirements, and effect of proposed changes on progress schedule and coordination.
 12. Review of construction waste management and recycling performance, material quantities disposed and diverted for recycling.
 13. Other business relating to Work.

1.11 SPECIAL MEETINGS AND BUILDING COMMITTEE MEETINGS

- A. Special Project Meetings held by the General Contractor: The General Contractor shall conduct special project meetings throughout the course of the Work. Special Project Meetings are those held in addition to the regularly scheduled progress meetings. The Architect and Owner are not required to attend these meetings.

1. Special meeting issues may include, but are not limited to:
 - a. Safety issues.
 - b. Labor issues.
 2. Construction waste management and recycling issues.
- B. Environmental Quality Review Meetings: The General Contractor shall conduct special Environment Quality review meetings throughout the course of the Work.
1. Meetings may be held in conjunction with dates of Project Progress Meetings. The General Contractor shall notify both the Owner and Architect at least 7 days in advance of the meeting dates. The General Contractor along with any requested or necessary subcontractors, applicators, vendors or material suppliers shall attend.
 2. Meeting shall include the following topics:
 - a. Review of construction waste management and recycling.
 - b. Review of indoor air quality testing.
- C. Building Committee Meetings: General Contractor is advised of obligation to attend Building Committee Meetings (held in evenings) as requested by Owner or Architect, at no additional cost to the Contract.
- D. Additional Special Meetings requested by the Architect or Owner: The General Contractor along with any requested or necessary subcontractors, applicators, vendors or material suppliers shall attend additional meetings when requested by the Architect or Owner as they deem necessary. Such meetings may be convened on short notice if conditions at the project site so require and attendance is mandatory. The Architect and Owner are not limited as to the number of additional meetings that may be requested or the agenda for such meetings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Survey and layout data.
- B. Critical Path Method (CPM) scheduling of the Work.
- C. Contract progress reporting.
 - 1. Construction schedule updates.
 - 2. Daily construction reports.
 - 3. Special Reports - Unusual Event Reporting.
- D. Work Documentation:
 - 1. Periodic site observations.
 - 2. Verification of built tolerances.
 - 3. Construction progress photographs.

1.2 SURVEY AND LAYOUT DATA

- A. Prior to starting any construction work, stake out all limits of cut and fill, the limits of proposed walkways and site improvements. Promptly upon completion of layout work and before any construction work is begun on the site, notify the Architect and Owner's Project Manager, who shall conduct a field inspection of the stakeout. The Architect reserves the right to adjust the location of such layouts as it deems necessary to comply with the intent of the Contract Documents.

1.3 CRITICAL PATH METHOD (CPM) SCHEDULING OF THE WORK

- A. Definitions:
 - 1. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - a. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - b. Predecessor activity is an activity that must be completed before a given activity can be started.
 - 2. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
 - 3. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
 - 4. Event: The starting or ending point of an activity.
 - 5. Float: The measure of leeway in starting and completing an activity.

- a. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Date of Substantial Completion.
 - b. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 - c. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
6. Fragnet: An amplified portion of the CPM schedule, to study a special sequence or establish a difficult time estimate, showing its predecessors, successors and impacts.
 7. Major Area: A story of construction, a separate building, or a similar significant construction element.
 8. Milestone: A key or critical point in time for reference or measurement.
 9. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- B. General CPM Requirement: The Contractor shall develop and maintain a Network Diagram to demonstrate fulfillment of the contract requirements and shall utilize the plan for scheduling, coordinating and monitoring the Work (including all activities of subcontractors, equipment vendors and suppliers). A conventional Critical Path Method (CPM) Precedence Diagramming Method (PDM) technique will be utilized to satisfy both time and cost applications.
- C. Preliminary CPM Schedule: Submit for Architect's and Owner's review Critical Path Method (CPM) construction schedule in triplicate within 45 calendar days after date of commencement stated on Notice to Proceed. Revise and resubmit when required.
1. Before the first progress payment can be approved, the Contractor must have an approved CPM Schedule as described herein. It is the Contractor's responsibility to submit the CPM schedule with sufficient time for review by the Owner and Architect and any re-submittals and corresponding reviews that may be necessary prior to approval of the first requisition.
 2. Software: Provide to the Architect one complete and legal copy of all software used to prepare the CPM Progress Schedule. Include documentation and user manuals. Software and CPM provided by the Contractor shall be fully compatible and useable with Microsoft's "Windows" operating system. Software provided to the Architect will be used solely for "this project only".
 3. Supporting data: Submit the following supporting data in addition to the CPM Network Plots
 - a. The proposed number of working days per week.
 - b. The holidays to be observed during the life of the contract (by day, month, and year).
 - c. The planned number of shifts per day.
 - d. The number of hours per shift.
 - e. List the major construction equipment to be used on the site, describing how each piece relates to and will be used in support of the submitted network diagram work activities/events.

- D. CPM Progress Schedule shall be as described below:
1. Network Diagram Plots, General: The network diagram shall be an activity or arrow diagram. The diagram shall show relationships between the various activities. Exercise sufficient care to produce a clear, legible and accurate network diagram. Group activities related to specific physical areas of the project, on the network diagram for ease of understanding and simplification. Provide a key plan on each network diagram sheet showing the project area associated with the work activities/events shown on that sheet.
 2. Work Activities (not less than 200 lines), as a minimum include:
 - a. All major, and critical minor portions of the work.
 - 1) Break up the work into activities/events of a duration no longer than 20 work days each, except as to non-construction activities/events (for example: procurement of materials, delivery of equipment, curing times) and any other activities/events for which the Architect may approve the showing of a longer duration.
 - b. Fabrication and delivery time for each item requiring off site fabrication.
 - c. Each in-place sample.
 - d. Temporary facilities and controls.
 3. Show not only the activities/events for actual construction work for each trade category of the project, but also trade relationships to indicate the movement of trades from one area, floor, or building, to another area, floor, or building, for at least five trades who are performing major work under this contract.
 4. Identify all events on which the work is dependent on actions of Architect and Owner, including:
 - a. Submittal of shop drawings, equipment schedules, samples, color submission, coordination drawings, templates, fabrication and material delivery times.
 - b. Architect/Engineer's review of shop drawings, equipment schedules, samples and templates as defined under Section 01 33 00. Contractor shall additionally schedule and allow for in the CPM Progress Schedule time for Architect's response to Contractor's request for clarifications and interpretations of the Contract Documents. Time required for such activity, up to 10 or more days, is part of the normal construction process and is not a valid reason for extension of Contract Time, nor increase in the Contract Amount.
 - c. Delivery times of equipment furnished under separate Contracts with Owner, where the Contractor has responsibility for installation or coordination.
 - d. Interruption of Owner's existing utilities, delivery of Owner furnished products (OFI and OFCI), rough-in drawings for OFI and OFCI products, project phasing and Owner's scheduling and use of site requirements.
 - e. Test, balance and adjust various systems and pieces of equipment, maintenance and operation manuals, instructions and preventive maintenance tasks.
 5. Activity Descriptive Information: identify the following for each work activity/event:

- a. Activity/Event ID number. (Uniquely number each activity/event. The network diagram should be generally numbered in sequence; left to right; top to bottom, and omitting numbers ending in 3, 6, and 9.)
 - b. Concise description of activity (35 characters or less including spaces preferred).
 - c. Work location code, coordinated with key plan.
 - d. Performance responsibility or trade code using defined and approved abbreviations.
 - e. Nodes that correspond to the activities on the network diagram.
 - f. Duration (in work days.)
 - g. Early Start (calendar day).
 - h. Late Start (calendar day).
 - i. Early Finish (calendar day)
 - j. Late Finish (calendar day).
 - k. Total float time.
 - l. Manpower required (average number of men per day).
 - m. Work Activity/Event Cost Data (as described below).
- E. CPM Submittal Requirements: Submit three copies of Network Plots, and have approved an updated CPM prior to the approval of each progress payment.
1. Plot format (each submittal): Colored plots (minimum 30 by 40 inches) and a CD-ROM disc.
 - a. Electronic info shall be in compressed Primavera, (PDM) format.
 2. Plots and reports required:
 - a. Network diagram plots.
 - 1) Bar chart plot.
 - 2) Time logic plot.
 - 3) Critical Path items of work only plot.
 - 4) Early start and finish plot.
 - 5) Late start and finish plot.
 - 6) Individual monthly activity plots for each month for the duration of the entire Contract.
 - b. Activity List.
 - c. Shop drawing and sample submittal schedule.
 3. Updates: Update and reissue the CPM Progress Schedule in coordination with each application for progress payment. Submission of complete and accurate monthly CPM Progress Schedules is a pre-requisite to the Architect's Certificate of Payment. The updated CPM; shall include the items specified herein above, in addition the updated CPM shall show the following:
 - a. Changes to the Contract and their effect on the schedule and Activity/event costs.
 - b. Delays in submittals, or deliveries, or work stoppage are encountered which make rescheduling of the work necessary.

- c. Revisions to schedule to reflect actual prosecution and progress of the Project. Show current status of activities completed or partially completed. Identify actual start dates and finish dates for each activity.
 - d. Modifications to the Contractor's plan of action for future activities.
- F. Work Activity/Event Cost Data:
 - 1. Provide cost loading for all work activities/events except procurement activities. The cumulative amount of all cost loaded work activities/events (including alternates) shall equal the total contract price. Prorate overhead, profit and general conditions on all work activities/events for the entire project length. The contractor shall generate from this information cash flow curves indicating graphically the total percentage of work activity/event dollar value scheduled to be in place on early finish, late finish. These cash flow curves will be used by the Architect to assist him in determining approval or disapproval of the cost loading.
 - a. In the event of disapproval, the Contractor shall revise and resubmit.
 - b. Negative work activity/event cost data will not be acceptable.
 - 2. Provide cost loading for work activities/events related to guarantee period services, and system testing, balancing and adjustment.
- G. Special CPM Progress Schedule Meetings: The Owner may require additional special CPM review meetings at any time during the Contract to review the CPM Progress Schedule updates.
- H. Responsibility for Project Completion:
 - 1. Whenever it becomes apparent from the current progress review meeting or the updated CPM progress schedule that phasing or contract completion dates will not be met, the Contractor shall execute some or all of the following remedial actions:
 - a. Increase construction manpower in such quantities and trades as necessary to eliminate the backlog of work.
 - b. Increase the number of working hours per shift, shifts per working day, working days per week (pending approval of Owner), the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of work.
 - c. Reschedule the work in conformance with the specification requirements.
 - 2. Prior to proceeding with any of the above actions, the Contractor shall notify and obtain approval from the Owner's Representative for the proposed schedule changes. If such actions are approved, the CPM revisions shall be incorporated by the Contractor into the network diagram before the next update, at no additional cost to the Owner.
- I. Extension of Contract Time: Each time an extension of Contract Time is requested, submit the request with justification and evidence supporting the request and submit a completely revised and updated CPM Project Schedule showing the impact of the proposed extension of Contract Time on the Progress Schedule. Contractor Time may only be adjusted by Change Order issued by the Owner.

1.4 CONTRACT PROGRESS REPORTING

- A. Daily construction reports: Prepare a daily construction report, submit duplicate copies to the Architect at weekly intervals. Record the following information concerning events at the site:
1. List of subcontractors at the site, and approximate count of personnel.
 2. Accidents, unusual events, and emergency procedures.
 3. Meetings and significant decisions.
 4. Stoppages, delays, shortages, losses.
 5. Emergency procedures.
 6. Orders and requests of governing authorities.
 7. Change Orders received, and implemented.
 8. Services connected, disconnected.
 9. Meter readings and similar recordings.
 10. Equipment or system tests and start-ups.
 11. Partial Completions/occupancies.
 12. Substantial completions authorized.
- B. Special Reports:
1. Unusual Event Reporting: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information.
- C. Look ahead activity reports: Prepare each week throughout the term of construction a listing of upcoming construction activities. Each weekly report shall include a listing of planned construction activities for the upcoming 2 weeks (14 calendar days). Submit a Look Ahead Activity Report at each job meeting to all participants. If no meeting is planned on a given week, mail the reports directly to both Architect/Engineer and Owner's Project Manager.
1. Maintain a record of all Look Ahead Activity Reports in a 3-ring binder in the Contractor's field office and make available for review by Architect/Engineer and Owner's Project Manager.
 2. Unusual Event Reporting: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information.

1.5 WORK DOCUMENTATION - PERIODIC SITE OBSERVATIONS

- A. Observe and maintain a record of tests. Record the following:
1. Specification section number, product(s), and name of subcontractor or installer.
 2. Name of testing agency and name of inspector.
 3. Name of manufacturer's representative present.

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4. Date, time and duration of tests.
 5. Type of test and results.
 6. Retesting required.
- B. Observe startup and adjustments; record time and date of equipment start-up and results.
- C. Observe equipment demonstrations to Owner; record times and additional information required for operation and maintenance manuals.
- D. Assist Architect with final inspections. Prepare list of items to be completed and corrected.
- 1.6 WORK DOCUMENTATION - CONSTRUCTION PROGRESS PHOTOGRAPHS
- A. Furnish digital files of site and construction throughout the progress of Work, produced by an experienced photographer acceptable to Architect.
1. Submittals:
 - a. Discs: 2 copies, monthly and at final project completion.
 2. LEED compliance photographs, submit within 3 days from date of photograph.
 - a. Discs: 2 copies.
 3. Personal Privacy: After Owner occupancy, take special care not to photograph students. All photographs having students in them shall be destroyed by the photographer prior to submittal. The photographer will be required to take additional photographs to obtain the specified submission numbers specified.
- B. Views: Take photographs from differing directions indicating the relative progress of the Work. Take photographs monthly on date for Application of Payment, and at final completion.
1. Prior to start of demolition work and site clearing take one set of interior photographs showing existing conditions.
 2. As a minimum each month during the Work, furnish the following number of views (as appropriate to Work being performed)
 - a. Interior views: 6.
- C. Additional photograph scope: Take additional photographs documenting protection of ducts, and both on-site stored or installed absorptive materials.
1. General,
 - a. All photographs shall be date imprinted by camera.
 - b. Furnish not less than 12 photographs per date, from at least 3 different dates as directed by Architect/Engineer.
 2. Views: Coordinate photograph views with Construction IAQ Management Plan to highlighting the following six requirements of SMACNA IAQ Guideline for Occupied Buildings under Construction, 1995, Chapter 3.
 - a. For HVAC Protection, submit photographs demonstrating compliance with protection of HVAC work during construction.
 - 1) Ductwork sealed off with plastic during construction.
 - 2) MERV 8 filters on return ductwork, if unable to close off.

- 3) HVAC equipment protected from the elements and construction debris.

D. Discs/thumb drives: Identify each disc /drive on the back with the following information:

1. Project identification.
2. Date and time of exposure , and orientation(s) of view.
3. Photographer's name, address and phone number.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Submittal coordination.
- B. Submittal procedures and grading.
- C. Schedule of Submissions.
- D. Shop drawings, product data and samples.
- E. Manufacturer's instructions.
- F. Manufacturer's certificates.
- G. Emergency addresses.
- H. Erosion and sediment control program.

1.2 SUBMITTAL COORDINATION

- A. ALL SHOP SUBMITTALS MUST BE SUBMITTED PRIOR TO WEDNESDAY, NOVEMBER 1, 2023.**
- B. Make submittals in a proper and timely fashion, allowing for administrative procedures, Architect's review, corrections to submissions and resubmittal, if necessary, and fabrication of products without delaying the project. Minimum processing times required by the Architect are as follows:
 - 1. Review for Architect's Office only: Allow a minimum of 10 working days for review and processing. Some submittals may require additional time.
 - a. Simultaneous submission of a large number of shop drawings and product data may require longer than 10 working days for review. (In particular submittals for Divisions 3, 5, 6, 21, 22, 23, 25 and 26).
 - b. Complex Systems (structural, mechanical, electrical) may require longer than 10 working days for review each time shop drawings, layout drawings, and product data are submitted or resubmitted.
 - 2. Review by Architect and its consultant(s): Allow 10 working days for review and processing of submittals by Architect plus an additional 5 working days for review by each consultant as applicable.
 - 3. Reprocessing of submittals: For submittals requiring resubmittal, re-processing time required shall be the same as first submittal.
 - 4. No extension of Contract Time will be authorized due to failure to transmit submittals sufficiently in advance of scheduled performance of Work.
- C. Make submittals of similar items, systems, or those specified in a single specification section together.
- D. Make submittals for products which other products are contingent upon, first.

- E. The General Contractor is fully responsible for delay in the delivery of materials or progress of work caused by late review of shop drawings due to failure of the General Contractor to submit, revise, or resubmit shop drawings in adequate time to allow the Architect checking and processing of each submission or resubmission.

1.3 SCHEDULE OF SUBMISSIONS

- A. Schedule procedure: Immediately after being awarded the Contract, meet with the Architect to discuss the schedule of submissions and then prepare and submit within 14 calendar days for approval a schedule of submissions for the Work. The schedule of submissions shall be related to the entire Project, and shall contain the following:
1. Shop Drawing Schedule (for shop and setting drawings to be provided by the General Contractor).
 2. Sample Schedule (for samples to be provided by the General Contractor).
 3. With respect to portions of the Work to be performed by Subcontractors, such schedule of submissions for the work of each Subcontractor shall be submitted for approval within 30 calendar days after execution of a subcontract with such Subcontractor.
- B. List all submissions required of each trade:
1. Include the Specification Section number, name of subcontractor or vendor, submittal type, item, description, type, quantity and size (where applicable) of each submission.
 2. For each submission, provide the following dates, as estimated:
 - a. Scheduled date of submission.
 - b. Required date of approval. (permit time for appropriate review and resubmissions as may be required).
 - c. Estimated date of beginning fabrication or manufacture of product (where applicable).
 - d. Required date of submission of product to testing laboratory.
 - e. Required date of testing laboratory approval.
 - f. Required date for delivery of product to site.
 - g. Required date for beginning of installation of product.
 - h. Required date for completion of installation (and in-place testing).
 - i. Required dates for documentation as indicated in Section 01 78 00 – CLOSEOUT SUBMITTALS.
 - 1) Project record documents.
 - 2) Project record drawings.
 - 3) Required date for operation and maintenance data and preventative maintenance instructions.
 - 4) Materials and finishes manuals.
 - 5) Warranties and bonds.
 - 6) Maintenance contracts.
 - 7) Attic stock, spare parts and maintenance materials. Include a full list of these items to the General Contractor for organization and turnover to the owner at project closeout.

SUBMITTAL PROCEDURES

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- C. For each submittal, schedule to allow adequate time for review by the Architect and its consultants. The Architect will not be responsible for Work performed in shop or field prior to approval. Long-lead items requiring expedited action must be clearly indicated.
 - 1. The schedule shall be reviewed and resubmitted as necessary to conform to approved modifications to the construction Project Schedule, and shall be updated as may be required by the Architect.
- D. Posting of submittal schedule: Print and distribute the submittal schedule to Architect, Owner, subcontractors and other parties affected. Post copies in field.
- E. Update schedule throughout progress of the Project, coordinated with scheduling changes in the Work, and redistribute monthly in conjunction with submittal of Application for Payment.

1.4 OWNER'S ENVIRONMENTAL POLICY SUBMITTALS

- A. Schedule: Immediately after being awarded the Contract, meet with the Architect and Owner's Representative to discuss environmental submissions required, and submit with overall schedule of submissions.
 - 1. Environmental Submissions as a minimum contain the following items:
 - a. Waste Management Plan (as specified under Section 01 74 19).
 - b. Construction Indoor Air Quality (IAQ) plan.
 - c. Manufacturer's product environmental declarations and safety data sheets.

1.5 SUBMITTAL PROCEDURES AND GRADING

- A. Prepare and submit to the Architect, all specified and requested submittals including but not limited to the following:
 - 1. Construction Schedule.
 - 2. Schedule of Values.
 - 3. Schedule of shop drawings, product data, and samples.
 - 4. Schedule of Environmental Submissions.
- B. Provide space for General Contractor, Architect and engineering consultant review stamps, on the front page of each item's submittal copy. Apply General Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction Work, and coordination of product information, is in accordance with the requirements of the Work and the Contract Documents. The Architect's stamp shall contain the following data: (Engineering consultant review stamps may vary in language, but intent of language is similar):

_____ APPROVED
 _____ APPROVED AS NOTED
 _____ REVISE AND RESUBMIT
 _____ NOT APPROVED

- 1. The Architect will insert the date of action taken and an identification of the person taking the action.

2. Submittal grading:
 - a. APPROVED - No corrections, no marks.
 - b. APPROVED AS NOTED - Resubmission not required. Minor amount of corrections; all items can be fabricated without further corrections to original submission; checking is complete and all corrections are deemed obvious without ambiguity.
 - c. REVISE AND RESUBMIT - Resubmission required. Minor amounts of corrections; checking is not complete; details of items noted by checker are to be clarified further before full review can be given. Correct and resubmit, do not fabricate noted items requiring correction.
 - d. REJECTED - Submittal is rejected as not in accord with the Contract Documents, too many corrections, or other justifiable reasons. When returning submission, Architect will state reasons for rejection. Correct and resubmit, do not fabricate.
 3. Review/approval neither extends nor alters any contractual obligations of the Architect, Engineer or General Contractor.
- C. Identify all variations from Contract Documents, and product or system limitations which may be detrimental to successful performance of the completed work.
- D. Coordinate related submittals and schedule submissions to expedite the Project; deliver to Architect at the following address:
Ai3 Architects, LLC
111 Speen Street, Suite 300
Framingham, Massachusetts 01701
- Additional submittals may be required to go concurrently to the Architect's consultants and Owner's Project Manager, if required by the Architect and Owner's Project Manager.
- E. Transmit submittals to Architect at the above address, with individual transmittal forms for each submission, using AIA Document G810.
1. On transmittal form, identify Project, General Contractor, subcontractor, installer, or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate. Transmittals received by the Architect from sources other than the General Contractor will be returned without any action taken.
 2. General Contractor shall number submittals sequentially by Specifications Section prior to submittal. Resubmitted items shall retain number and be noted as resubmitted (example 08 31 00.00 R1)
- F. General Contractor's review: Review all shop drawings, product data and samples. Include, without limitation, verification of the following:
1. Proper title, original date, drawing number (which shall be changed if resubmitted), revision numbers and dates, designation of project General Contractor, subcontractor and/or supplier.
 2. Identification of Shop Drawings, Product Data or Samples by Specification Section and subsection or paragraph where appropriate and identification of Contract Drawings by number and detail.
 3. On each submittal, as a minimum, General Contractor shall identify the following:

- a. Errors, inconsistencies, and omissions discovered in the contract documents and field conditions must be reported at once to the Architect.
 - b. Any variations from code requirements contained in the contract documents must be reported promptly in writing to both the Architect and owner.
 - c. Promptly report to the Architect information that any design, process, or product infringes on a patent.
 - d. Names of Subcontractors and Suppliers must be given in writing to the Architect as soon as practicable after award of the Contract, preferably at the pre-construction meeting. (Note: If objection is made, a change order is possible.) List shall include name(s) of contact person(s), address, telephone and fax number(s).
- G. Revise and resubmit submittals, identify all changes made since previous submittal. Distribute copies of reviewed submittals to concerned parties; instruct parties to promptly report any inability to comply with provisions.

1.6 ELECTRONIC DOCUMENT PROCEDURES REQUIREMENTS

A. General:

1. All documents including but not limited to shop drawing and product data submittals, Request for Information, Proposal Requests, Proposed Change Orders, and reports shall be transmitted to Architect and Owners Project Manager in electronic (PDF) format. The General contractor shall utilize a web based service such as Procore Technologies, Submittal Exchange, i Builder or approved equal designed specifically for transmitting submittals between construction team members.
2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
3. The electronic document process is not intended for color samples, color charts, or physical material samples.

B. Procedures for Documents and Submittals:

1. Document Preparation – General Contractor may use any or all of the following options:
 - a. subcontractors, subcontractors and suppliers may provide electronic (PDF) documents to General Contractor via a web based service.
 - b. subcontractors, subcontractors and suppliers may provide paper documents to General Contractor (subject to approval of the GC) who electronically scans and converts to PDF format.
 - c. subcontractors, subcontractors and suppliers may provide paper documents to Scanning Service which electronically scans and converts to PDF format.
2. General Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
3. General Contractor shall transmit each submittal or document to Architect using web based service.

4. Architect review comments will be made available on the web based service for downloading. General Contractor will receive email notice of completed review.
5. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the General Contractor.
6. Submit paper and electronic copies of reviewed submittals or documents at project closeout for record purposes in accordance with Section 01 78 00 – CLOSEOUT SUBMITTALS.

C. Costs:

1. The cost of web based services shall be paid in full by the General Contractor.
2. General Contractor shall provide training for web based service for Architect, OPM and any other entity required to use such service.
3. Internet Service and Equipment Requirements:
 - a. Email address and Internet access at General Contractor's main office.
 - b. Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.

1.7 SUBMITTAL QUANTITY REQUIREMENTS

A. Furnish Architect with electronic files through the Adobe Acrobat Portable Document Format (PDF) files for each of the following submittal types:

1. Schedules, including, but not limited to:
 - a. Construction Schedule.
 - b. Schedule of Values.
 - c. Schedule of shop drawings, product data, and samples.
 - d. Schedule of Environmental Submissions.
2. Shop drawings.
3. Product data, manufacturer's instructions and certificates and similar submissions.
4. Erosion control program.
5. LEED Certification and Environmental policy (sustainable design) submittals.
6. Waste management reports.
7. Emergency addresses: 1 file to Architect, and 1 file direct to Owner.

B. Furnish Architect with the following quantities of each submittal:

1. Schedules: 1 copy.
2. Product data, manufacturer's instructions and certificates and similar submissions: 1 copy.
3. Shop drawings: 1 copy.
4. Samples: Sets of 3 identical samples of each submission required.
5. Erosion control program: 1 copy.
6. Environmental and sustainable related submittals: 1 copy.
7. Emergency addresses: 1 copy to Architect, and 1 copy direct to Owner.

1.8 SHOP DRAWINGS

- A. General: Provide accurately prepared, large scale and detailed shop drawings prepared specifically for this Project. Shop drawings shall include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Standard information prepared without specific reference to Project are not considered shop drawings.
1. Show adjacent conditions and related work. Show accurate field dimensions where appropriate.
 2. Identify materials and products shown. Note all conditions that require coordination with other trades and special installation procedures.
 3. Show gage and thickness of materials.
 4. Indicate welding details and joint types.
 5. Show every component of fabricated items, notes regarding manufacturing process coatings and finishes, identifying numbers conforming to the Contract Documents (i.e. stair numbers, door numbers and similar items), dimensions, and appropriate trade names.
 6. Show anchorage and fastening details, including type, size and spacing.
 7. Review each submittal for conformity with the Contract requirements prior to submittal, certify such review on each shop drawing with General Contractor's stamp, signature and date. Reference on shop drawings to other sections, installers, suppliers, or trade(s) shall designate the appropriate specification sections, and the term "by others" shall not be used.
- B. Size of Format: Not less than 8-1/2 by 11 inches, and no larger than 30 by 42 inches, except for templates, patterns and similar full-size drawings.
- C. The Architect's comments and corrections will be made on the electronic submission (PDF) and returned to the General Contractor. If necessary, the General Contractor then shall make the necessary corrections on the original drawings and resubmit the corrected drawings in electronic format (PDF) as specified. Prints of any submittals required for the Architect's own use, and those of engineering consultants, will be made without cost to the General Contractor. The General Contractor is responsible to distribute and furnish (at no additional cost to Owner) all shop documents needed for use by the General Contractor, subcontractors, installers, vendors and suppliers.
- D. Drawing submittals returned "APPROVED", or "APPROVED AS NOTED", as set forth below: General Contractor shall obtain and distribute adequate prints for construction, including one print of each for the Owner's project representative, and then return the original markup to the subcontractor or supplier from whom he originally received them.
- E. Drawing submittals returned "REJECTED" or "REVISE AND RESUBMIT", as set forth below: General Contractor shall first obtain a record print and then forward them to source for correction of original drawings, and resubmission of a new original mark up and prints as above.
- F. Each drawing shall have a title block on the right hand side containing one of the following:

| | |
|--------------------------|------------------------------------|
| Name of project - | CALCUTT MIDDLE SCHOOL - FEI |
| Architect - | Ai3 Architects, LLC |
| General Contractor - | |
| Subcontractor/supplier - | |
| Date of submission - | |

G. Each drawing shall have a clear space on the right hand side for review stamps of both the Architect and General Contractor.

1. The General Contractor's Review and Action Stamp: Provide suitable space on label or title block for General Contractor's review and action stamp. Stamp and sign each submittal to show General Contractor's review and approval prior to transmittal Architect. Submittals not signed and stamped by General Contractor will be returned without action.

a. Only submittals received from the General Contractor will be considered for review by the Architect. General Contractor shall review each submittal for accuracy and conformance with the requirements of the Contract Documents, and particularly for field measurements and proper fit with adjoining work. Modify submittals to show interface with adjacent work and attachment to Building.

b. The General Contractor's Review and Action Stamp shall contain the following language or similar:

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>APPROVED FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS.</p> <p>All dimensions and quantities have been reviewed and are accepted by _____ <i>General Contractor's Name</i></p> <p>All dimensions and field conditions have been or will be verified prior to fabrication of the items described herein.</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

c. Submittals received from the General Contractor shall be signed and comply with review requirements. Submittals not certified or improperly certified (stamped but not reviewed) will be returned to the General Contractor without Architect's review. Claims due to the return of uncertified, improperly prepared or inadequately reviewed submittals will be rejected.

1.9 PRODUCT DATA

A. Submit Product data as specified, and as the Architect may additionally prescribe. Product data includes, but is not limited to:

1. Catalog cuts.
2. Complete specifications.
3. Standard color charts.
4. Performance data.
5. Environmental data including, but not limited to:
 - a. Chemical composition.
 - b. Recycled (pre and post consumer) content.

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- c. Locations of material extraction/harvest and manufacture, with respective distances to site.
 - d. VOC content.
 - e. Material certifications as applicable to product.
6. Certified laboratory test report data.
 7. Health and safety precautions.
 8. Illustrated capacities, characteristics, wiring diagrams, controls, and other pertinent information for complete product and product use description.
- B. If more than one size or type is shown on any printed sheet, indicate clearly intended item(s).
- C. When accepted or not accepted, the Architect will retain three copies. Submit sufficient copies for all other parties. No copies stamped REJECTED or RESUBMIT shall be sent to the job site.

1.10 SAMPLES

- A. Submit samples clearly labeled as to its material, type or make, manufacturer, size or gauge, and other pertinent data, accompanied by an appropriate transmittal form. Samples shall show full range of color and texture variation that can be expected.
1. When accepted or not accepted, the Architect will retain one set of samples and return the other to the General Contractor. Samples will not be permitted for use in the project.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturer's printed instructions for delivery, handling, storage, assembly, installation, start-up, adjusting, and finishing.
- B. Identify conflicts between manufacturer's instructions and Contract Documents.

1.12 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturer's certificates and installer certificates to Architect for review.
1. Environmental Product Certificates: Include manufacturer certification indicating product contains maximum recycled content possible without being detrimental to product performance.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

1.13 ELECTRONIC SUBMISSIONS TO OWNER

- A. The General Contractor shall maintain files of all APPROVED submittals required by Article 1.7 SHOP DRAWINGS, Article 1.9 PRODUCT DATA, Article 1.11 MANUFACTURER'S INSTRUCTIONS, and Article 1.12 MANUFACTURER'S

CERTIFICATES of this Section throughout the duration of construction and shall provide PDF format files of all documentation, organized by specification section, to the Owner on a set of discs at Substantial Completion. Discs shall be labeled by specification section and shall include an electronic index and a hardcopy index. Index shall include all information provided.

1.14 EMERGENCY ADDRESSES

- A. Emergency Contact List: Within 15 days of Notice to Proceed, submit in writing, the name, addresses and telephone numbers (direct work phone, home phone, and cellular phone numbers) of key members of the General Contractor's and Subcontractor's respective organizations. Include contact information for General Contractor's Superintendent and all on-site supervisory personnel (including Subcontractor supervisory personnel), who may be contacted in the event of emergencies at the building site, which may occur during non-working hours.
- B. Maintain and update the Emergency Contact List as changes may necessitate. Keep a current version of the list in the emergency key cabinet (Knox Box) as specified under Section 01 50 00 – TEMPORARY FACILITIES AND CONTROLS.

1.15 EROSION CONTROL PROGRAM

- A. Submit erosion control program within 30 days after date of Owner-General Contractor Agreement for Architect's review. Revise and resubmit when required.
- B. Erosion control program shall indicate proposed methods, materials to be employed, and schedule for effecting erosion and siltation control and preventing erosion damage. Provide sufficient information to fully explain the program; the following are the minimum requirements:
 - 1. Proposed methods for actuating erosion and siltation control including 1 inch equals 40 feet (1"=40') scale plans indicating location of erosion control devices and siltation basins.
 - 2. List of proposed materials including manufacturer's product data, in accordance with Division 32 - EARTHWORK and Division 33 - EXTERIOR IMPROVEMENTS.
 - 3. Schedule of erosion control program indicating specific dates from implementing programs in each major area of Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 35 16

ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Special requirements and considerations for renovation and alternation work including, but not limited to, the following:
 - 1. Special requirements for temporary protection of existing finishes and building components.
 - 2. Transitions and adjustments.
 - 3. Procedural requirements for Alterations.
 - 4. Repair of damaged surfaces, finishes, and cleaning.
 - 5. General requirements for rehabilitation and renovations of existing spaces and materials.

1.2 RELATED REQUIREMENTS

- A. Section 01 73 29 - CUTTING AND PATCHING: Procedural and administrative requirements for cutting and patching.
- B. Section 02 41 19 - SELECTIVE DEMOLITION: Demolition of selected portions of the building for new construction.

1.3 GENERAL RENOVATION REQUIREMENTS

- A. General: The work required by the Contract Documents includes alterations and renovation of existing construction.
- B. Rework, rebuild, and repair existing construction and surfaces to eliminate damaged and deteriorated materials and construction, and to create continuous "like new appearance and conditions":
 - 1. At each interface between new and existing work.
 - 2. Where damage or holes are caused by installation of new work.
 - 3. At each location of demolition and removal of existing work.
 - 4. Wherever the Contract Documents indicate work on existing surfaces.
 - 5. At all existing construction and surfaces to remain except those specifically noted as "No Work Required".
- C. All items required to be moved to facilitate work shall be carefully carried or conveyed.
- D. Use qualified personnel for alteration and restoration work.
- E. Protect and maintain existing finishes, surfaces, and substrates indicated to remain, indicated to remain "with specific cleaning", or indicated to remain "with new finishes".
- F. Protect existing surfaces from damage, vandalism, graffiti, impressions, marks, and defects.

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- G. Locate protection where it will serve the project adequately and result in minimum interference with performance of the work.
- H. Protection may be required to remain in place for the duration of the project. As such, materials should be installed to provide adequate protection throughout the full extent of construction activities. Repair or reinstall protection throughout the duration of construction as required.
- I. Renovation Work Patching: Comply with requirements indicated throughout the Contract Documents for each type of patching, repair, and finish work.

1.4 SUBMITTALS

- A. Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Shop drawings: Show extent and location of temporary protection of existing building elements and finishes. Existing construction drawings may be used as base sheets for shop drawings.
 - 2. Proposed methods of protection for review and approval prior to the commencement of work.

1.5 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
- B. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES.
 - 1. ANSI A 10 - Safety Requirements for Construction and Demolition.
 - 2. NFPA 241 - Building Construction and Demolition Operations.
 - 3. ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition".

1.6 REGULATORY REQUIREMENTS

- A. Obtain and pay for required permits and licenses required from authorities prior to commencing demolition work. Arrange and pay for legal disposal of removed materials and equipment, obtain proper disposal receipts for verification.
- B. Do not close or obstruct egress width to exits. Do not disable or disrupt building fire or life safety systems without 3 days prior written notification to the Owner.

1.7 QUALITY ASSURANCE

- A. The General Contractor is responsible for protection of all existing materials and components to remain or to be salvaged. In the event of damage, such items shall be immediately repaired or replaced by the Contractor, at his expense, to the satisfaction of the Architect.

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- B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of work in this section.
- C. The Contractor is hereby directed to recognize the value and significance of the building, and exercise special care during all phases of the work to ensure that the existing building, its details, materials and finishes which are to remain or to be salvaged are not damaged by the work being performed.
- D. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with specified requirements and methods needed for proper performance of the work of this Section.

1.8 PROJECT CONDITIONS

- A. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
- B. Protections shall remain in place for the duration of the project unless determined otherwise by the Architect.
- C. Coordinate the performance of work of this section with related or adjacent work. Protection of items should be complete prior to commencement of demolition and construction.

1.9 SEQUENCING AND SCHEDULING

- A. Conduct alteration and restoration work in a manner giving prime consideration to protection of the public; protection from the weather, control of noise, shocks and vibration; control of dirt and dust; orderly access for and storage of materials; protection of existing buildings; protection of adjacent surfaces and property; coordination and cooperation with the Owner at all times.
- B. Coordinate and arrange with mechanical and electrical trades for their disconnecting, rerouting and maintenance of existing services in the buildings as required, as part of the work of this Contract.
- C. Adhere to approved locations for trash chutes, and areas for storage of materials.
- D. Provide necessary protection to completely cover all remaining adjacent surfaces, existing equipment, furniture and furnishing during demolition and construction operations.
- E. Equipment Access: Provide access for all large scale equipment furnished and installed under this contract. Should existing openings require enlargement, enlarge same and replace to former condition.

PART 2 – PRODUCTS

2.1 PRODUCTS FOR PROTECTION

- A. General: Materials used for protection of existing finishes and surfaces: sound materials and of adequate dimension for the intended use. Temporary protection

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materials shall be properly supported, braced, tied, and arranged to ensure absolute safety for those using the equipment and sufficient to safely withstand all loading and stress.

1. Temporary protection shall not puncture, scar, or damage walls or other finish construction.
- B. Lumber and Plywood:
 1. Lumber: Hem-Fir, Douglas Fir, Eastern Spruce, Eastern Hemlock, or Southern Pine, surfaced dried stud or utility grade.
 2. APA graded C-D-X EXT, Group 2 species, thickness as required.
- C. Wood fiber board, equal to Homasote Company, Trenton NJ., product "HCFR Homasote", 4 by 8 foot panel, 1/2 inch thick.
- D. Clear polyethylene film, 0.006 inches (6 mil) thick provided in full-wall length and width pieces, without joints, wherever possible.
- E. Neoprene: 1/4-inch or 1/2-inch stock sizes.
- F. Temporary Floor Protection: Flame retardant treated in conformance with NFPA 701. Acceptable Products include the following, or approved equal:
 1. Holland Manufacturing, Succasunna NJ., product: "Blue Shield Flame StopR."
 2. Pro Tect Associates, Northbrook, IL, product "Traffic Guard."
 3. Protection from the Ground Up, Escondido, CA., product "Deck Cover FR."
 4. Surface Shields, Orland Park, IL, product "Cover Shield."
- G. Accessories: Provide necessary and related parts, devices and anchors required for complete installation.

2.2 PRODUCTS FOR PATCHING AND EXTENDING WORK

- A. General: Provide new materials. If acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. New Materials: As specified in individual Sections, match existing products and work for patching and extending work.
- C. Determine type and quality of existing products by inspection and any necessary testing, and workmanship by use of existing as a standard. Presence of a product, finish, or type of work, requires that patching, extending, or matching shall be performed as necessary to make Work complete and consistent with existing quality.

2.3 EQUIPMENT

- A. Existing Equipment Designated To Be Relocated: Relocate existing fixed equipment designated to be relocated.
 1. Disconnect and reconnect existing relocated equipment to building services.
 2. Make all terminal connections to the mechanical and electrical services.
 3. Receive, check and place equipment in designated position.

4. A schedule of room locations of the items of existing equipment will be furnished by the Architect.

PART 3 – EXECUTION

3.1 PROTECTION OF EXISTING BUILDING FINISHES AND COMPONENTS

- A. General: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
 1. Provide all temporary protection, including planking, barricades, signs, necessary to protect personnel and the public from equipment and construction operations. Take all required measures to protect the existing building (contents, surfaces, or materials) and site from damage of any kind when performing the Work.
- B. Existing Building Elements to Remain:
 1. Interior finishes must be physically isolated from construction operations by means of protective barriers and coverings.
 2. Protect all existing building elements to remain in place which may be damaged by construction activities. In the event of new damage, inform the Architect immediately as to the nature and extent of damage and the proposed method of repair.
 3. Do not attach protection materials directly to existing finished surfaces which might be damaged by such attachment. Do not use duct tape or mechanical fasteners on existing finished materials unless so directed by Architect.
 4. Protection to be secured adequately so as to maintain a safe environment for workers and other individuals using the building throughout the duration of the project.
 5. Provide all temporary protections as may be required to ensure that all components of existing building indicated to remain are not damaged during the execution of the Work.
 6. Closed Areas: Closed areas shall be those rooms where access is not required for construction activities. These rooms shall be locked at the outset of construction for protection from construction activities, and shall be maintained locked during the entire course of construction. No construction activities shall be permitted in these areas, including storage of construction materials.
 7. Primary Path of Travel: Those areas which will experience a high degree of traffic, primarily at the lobbies and main corridors.
 8. Secondary Path of Travel: All other areas outside the required path for heavy construction, where access is required to perform secondary construction procedures. The Secondary Path of Travel shall be locked, and access shall be controlled and limited by the Contractor.
- C. Dust Protection where demolition work is required.
 1. General: Comply with requirements of Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS.
 2. Seal all floor, wall and ceiling openings to prevent the intrusion of dust into these spaces. Provide dust curtains at doors.

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3. Construct temporary partitions surrounding the area of construction in these areas.
 4. Dust-Proof Wrap: Cover surfaces with polyethylene plastic. Seal seams completely with duct tape. Anchor to protection wherever possible. Attach to historic materials with preservation tape. Do not use duct tape or mechanical fasteners on historic materials.
 5. Dust-Proof Temporary Partitions: Construct floor to ceiling wood frame with 2 x 4-inch, or 2 x 6-inch lumber at 16-inches on center. Staple double layers of polyethylene plastic to either side, seal seams with duct tape. Seal interface with unprotected materials with preservation tape.
- D. Ceilings: Provide dust-proof wrap on all acoustical tile ceilings and other acoustic and fabric ceiling surfaces.
- E. Wood Doors and Frames:
1. Primary Path of Travel: Protection will consist of 1/2-inch soft fiberboard and plywood screwed to 2 by 4 inch shoring braces set at 16-inches to four feet apart. Existing door to be removed and stored during construction. Provide a temporary door and complete enclosure of existing door surrounds.
 2. Secondary Path of Travel: Verify extent of potential impact to these elements with General Contractor. If protection is required carefully remove these elements for reinstallation and protect frame as specified.
- F. Miscellaneous Hardware: Verify extent of potential impact to these elements with Architect. Where protection is required, carefully remove and catalog these elements for reinstallation.
- G. Light Fixtures: Verify extent of potential impact to these elements with Architect. Remove, catalog and store impacted fixtures.
- H. Weather Protection: Protect existing building interior and all materials and equipment from weather at all times.
- I. Temporary coverings shall be attended as necessary to insure effectiveness and to prevent displacement.
- J. Contractor shall repair or replace all elements of the building damaged by failure to properly protect them from the weather to the satisfaction of the Architect at no additional cost to the Owner.

3.2 PREPARATION

- A. Cut, move or remove items as necessary for access to alterations and renovations work; replace and restore at completion.
- B. Remove unsuitable material not marked for salvage, such as rotted wood, rusted metals, and deteriorated masonry and concrete; replace materials as specified for finished work.
- C. Remove debris and abandoned items from area and from concealed spaces.
- D. Prepare surfaces and remove surface finishes to provide for proper installation of new work and new finishes.

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- E. In areas where new base is scheduled to be installed on existing surfaces, the existing base shall be removed and the surface patched in preparation for the installation of new material.
- F. Coordinate with trades involved for the installation of new materials in establishing exact locations of materials to be removed.
- G. Clean, prepare and level all existing floors. All floor surfaces shall be left smooth, free from abrupt ridges, pits, cracks, depressions, dust, oil or other materials which will have adverse effect on, or will cause discoloration or damage to finished floor materials.
- H. Where alterations occur or new and old work join, the immediate, adjacent surfaces shall be cut, removed, patched, repaired or refinished and left in as good a condition as existing prior to the start of the work. The materials and workmanship employed in the alterations involved by the new construction, unless otherwise indicated or specified shall conform to that of the original work.

3.3 PREPARATION – SUBFLOORS AND FINISH FLOORING SUBSTRATE

- A. General: Substrates: These requirements apply to existing subfloors and are in addition to preparation required for new subfloors and substrates.
- B. Removal of existing flooring, as specified under Section 02 41 19 - SELECTIVE STRUCTURE DEMOLITION with additional requirements specified herein.
 - 1. Completely remove existing flooring located in areas scheduled to receive new flooring surfaces and elsewhere as noted. Remove all layers of flooring down to the existing substrate. Where existing flooring is installed in a setting bed, the existing setting bed shall be completely removed.
 - 2. Remove resilient flooring and adhesive in strict accordance with the technical bulletin entitled " Recommended Work Practices for the Removal of Resilient Floor Covering", as issued by Resilient Floor Covering Institute, Rockville, MD.
- C. Preparation of existing floors:
 - 1. Remove all foreign materials from existing floor surfaces by use of mechanical abraders , grinders or other methods required to clean the existing surfaces to a smooth clean finish acceptable for the application of new flooring surfaces or cementitious underlayment.
- D. Patching and leveling of flooring substrates and subfloors damaged by demolition operations: Comply with requirements of Section 09 05 60 - COMMON WORK RESULTS FOR FLOORING

3.4 INSTALLATION

- A. Coordinate work of alterations and renovations to expedite completion of Work.
- B. Remove, cut, and patch work in a manner to minimize damage and to provide means of restoring products and finishes to original or specified condition.
- C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent new finishes.

- D. Install products as specified in individual Sections.

3.5 ENCLOSURE OF EXPOSED PIPES AND CONDUIT

- A. Exposed piping and conduit in existing spaces: Not all chases and enclosures required in renovated areas are shown on drawings.
 - 1. Provide chases with finishes matching surrounding materials to enclose and completely conceal all new piping, ducts, and conduits located in renovated finished spaces.
 - 2. Build chases out of new materials specified under individual product specification sections, matching surrounding abutting materials.
 - 3. Construct chases and enclosures as small as possible, unless otherwise approved by Architect.
 - 4. Align new chases and enclosures with existing major architectural lines and planes.

3.6 TRANSITIONS

- A. Where new work abuts or aligns with existing, make a smooth and even transition. Patched work shall match existing adjacent work in texture and appearance.
- B. When surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and notify Architect.

3.7 ADJUSTMENTS

- A. Where removal of partitions results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps or bulkheads.
- B. Trim existing doors as necessary to clear new floor finishes; refinish trimmed areas.
- C. In any existing area in which a wall is furred, floor raised or ceiling dropped, all mechanical and electrical devices at that area shall be moved, relocated or rerouted in such manner that all work within that area shall conform to the new lines of work established by such indicated furring of walls, raising of floors or dropping of ceilings. The attention of all trades is directed to existing conditions and the various drawings for locations of work.

3.8 REMOVAL OF TEMPORARY PROTECTION

- A. Remove temporary materials and construction at Substantial Completion. Comply with requirements of Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS.

3.9 FINISHES

- A. Finish surfaces as specified in individual product specification sections.
- B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.
- C. Provide complete restoration of areas damaged due to work under the contract, to a condition equal to or similar to that existing before damage or injury. Restoration

shall include repairing, rebuilding, or replacing damaged items at contractor's expense.

3.10 REPAIR OF EXISTING SURFACES

- A. Restore existing facilities used during construction to original conditions. Restore permanent facilities used during construction to specified condition.
- B. Repair substrates prior to patching finish.
- C. Repair and clean existing finishes and materials damaged in the performance of the Work of this Contract.
- D. Repair existing finishes and materials damaged by installation or use of temporary work.
- E. General: Comply with cleaning requirements specified in Section 01 73 00 - EXECUTION.

3.11 CLEANING OF EXISTING SURFACES

- A. General Cleaning: Immediately before Owner occupancy, thoroughly and completely scrub and clean all existing interior finishes, and surfaces indicated to remain in the finished work. Leave floors, walls, windows, ceilings and all other surfaces clean and undamaged
 - 1. Remove all dirt, soil, stains, graffiti, and marks.
 - 2. Remove paint and smears.
 - 3. Clean all glass surfaces (inside and outside).
 - 4. Replace scratched glass.
 - 5. Clean and polish hardware and fixtures.
- B. Specific Cleaning: Where specific cleaning is indicated, thoroughly clean and scrub to "like new" condition using effective means, methods, and techniques which do not damage the substrates or other nearby finishes or substrates.
 - 1. Mock-Ups: Provide minimum 100 square feet mock-ups and obtain Architect's approval of cleaning before continuing work. Repeat mock-up procedure until Architect's approval is obtained. Employ several different cleaning agents and determine through trial and error which cleaning materials and techniques work best to achieve required results.
 - 2. Criteria for Acceptance: To be considered "clean", the surfaces shall be free of all dirt, soil, stains, graffiti, marks, mold, mildew, old wax, and foreign substances, and the surfaces shall match approved mock-ups. Do not damage the surfaces to be cleaned nor other nearby surfaces. Do not scratch or etch glazed and polished surfaces.

End of Section

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Section 01 41 00

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section consists of:
1. Applicable codes and regulations.
 2. Wage rate compliance.

1.2 DEFINITIONS

- A. Regulations include laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.

1.3 APPLICABLE CODES AND REGULATIONS

- A. All work shall be performed in accordance with the latest version, except as indicated otherwise, of all applicable codes including the following:
1. *International Building Code*, 2018 edition, as published by the International Code Council, Inc. (I.C.C.), as revised by *RHODE ISLAND BUILDING CODE*, Regulation RISBC-1, effective February 1, 2022.
 2. *International Plumbing Code*, 2018 Edition, as published by the International Code Council, Inc. (I.C.C.), as revised by *RHODE ISLAND PLUMBING CODE*, Regulation RISBC-3.
 3. *International Mechanical Code*, 2018 Edition, as published by the International Code Council, Inc. (I.C.C.), as revised by *RHODE ISLAND MECHANICAL CODE*, Regulation RISBC-4.
 4. *National Electrical Code (NEC)*, 2020 Edition, as published by National Fire Protection Association (NFPA-70) as revised by *RHODE ISLAND ELECTRICAL CODE*, Regulation RISBC-5.
 5. Rhode Island State Fire Safety Code; effective July 1, 2021, as amended, which includes as reference NFPA-1 (National Fire Protection Association, Inc., 2018 edition, and NFPA 72 National Fire Alarm and Signaling Code, 2019 edition).
 6. ICC/ANSI A117.1, *Accessible and Useable Buildings and Facilities*, 2010 Edition, as published by the International Code Council, Inc. (I.C.C.) and American National Standards Institute (ANSI).
 7. *International Energy Conservation Code 2018 Edition*, as published by the International Code Council, Inc. (I.C.C.), as revised by *RHODE ISLAND CONSERVATION CODE*, Regulation RISBC-8.
 8. Standards for Existing Schools, Regulation RISBC-13, effective January 4, 2022.
 9. Rhode Island Department of Education Regulations for School Construction, 200-RICR-20-04-4, as attached to this Section 014100.

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10. "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", (Blue Book) as published by the Rhode Island, Department of Transportation, 2004 Edition, as amended March 2018.
11. Revised Ordinances, City of Central Falls Rhode Island, codified October 16, 2019, and as amended January 3, 2022
12. *Life Safety Code*, (NFPA-101) 2018 Edition, as published by National Fire Protection Association as revised by *RHODE ISLAND LIFE SAFETY CODE*, Rhode Island Public Laws Chapter 12-237.
13. National Fire Protection Association: NFPA 241 – Safeguarding Building Construction And Demolition Operations, 2022 edition.
14. United States Occupational Safety and Health Administration (OSHA): Standard N°. 29-CFR-1926.59 - HAZARD COMMUNICATION STANDARD.
15. United States Department of Justice, N° 28 CFR Part 36 - AMERICANS WITH DISABILITIES ACT, (Public Law 101-336).

- B. Publication Dates: Where the date of issue of a code or regulation is not specified, comply with the standard in effect as of date of Contract Documents, or as otherwise required by authorities having jurisdiction.

1.4 TRADE UNION JURISDICTIONS

- A. Maintain current information on jurisdictional matters, regulations, actions and pending actions; and administer/supervise performance of Work in a manner which will minimize possibility of disputes, conflicts, delays, claims or losses.

1.5 WAGE RATE COMPLIANCE

- A. The General Contractor is responsible to ensure that the rate per hour to be paid to mechanics, apprentices, teamsters, laborers and other workers employed on the Work shall not be less than the approved wage rates applicable to this project. A legible copy of the approved rates, along with equal opportunity requirements, shall be posted on a weatherproof bulletin board outside the field office and be clearly visible for review by all workers.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ATTACHMENTS

- A. Rhode Island Department of Education Regulations for School Construction, 200-RICR-20-04-4.

End of Section

200-RICR-20-05-4

TITLE 200 – BOARD OF EDUCATION

CHAPTER 20 – COUNCIL ON ELEMENTARY AND SECONDARY EDUCATION

SUBCHAPTER 05 - GENERAL AND SCHOOL OPERATIONS

PART 4 – School Construction

4.1 AUTHORITY, PURPOSE, AND SCOPE

- A. This Part is promulgated by the Rhode Island Board of Education, Council on Elementary and Secondary Education (hereinafter the “Council”). The Council was established by R.I. Gen. Laws § 16-60-1 and have the authority to develop and promulgate these regulations pursuant to R.I. Gen. Laws §§ 16-60-4(9) (iv), 16-7-35 through 16-7-47, 16-7-24, 16-7.1-2(b)(7), and 16-9-4.1. This Part intended to govern the process by which the Council performs its statutory functions of determining the necessity of school construction, establishing standards for design and construction of school buildings, approving projects for school housing aid reimbursement, and ensuring that school districts have adequate asset protection plans in place to maintain their school facilities. Proper exercise of this authority will ensure that approval for school construction will reflect a statewide perspective, establish statewide uniformity in the quality of school building, and meet the needs of school districts. The Council is also authorized to issue such supplemental policies, guidelines, guidance documents, and/or administrative procedures that may assist in the implementation of this Part.
- B. The Rhode Island Department of Elementary and Secondary Education (hereinafter “RIDE”) has the authority to implement and administer this Part on behalf of the Council, including making recommendations to the Council on project approvals, disbursing school housing aid for approved projects, and monitoring compliance with the conditions of project approval set by the Council and requirements for asset protection and maintenance of facilities as set forth in this Part.
- C. This Part applies to all new school construction and school renovations projects where the total cost exceeds five hundred thousand dollars (\$500,000). Multi-year capital improvement projects supported by capital reserve funds that exceed five hundred thousand dollars (\$500,000) over the life of the multi-year cycle must be approved by the Council and shall be submitted using the approved capital improvement plan format available from RIDE on its website. Capital improvement projects with projected costs of less than five hundred thousand dollars (\$500,000) are required to obtain the Commissioner’s approval and shall be submitted using the format detailed in the form provided by RIDE.

4.2 Incorporated Materials

- A. These regulations hereby adopt and incorporate the National Fire Protection Association (NFPA) Standard 664 "Standards for the Prevention of Fire and Explosion in Wood Processing and Woodworking Facilities" (1998) by reference, not including the extent that the provisions therein are not inconsistent with these regulations.
- B. These regulations hereby adopt and incorporate the American National Standards Institute standard number ANSI/IES RP3-00, Guide for Educational Facilities Lighting, (2000) by reference, not including the extent that the provisions therein are not inconsistent with these regulations.

4.3 Definitions

- A. For the purposes of this Part, the following terms shall have the meaning set forth, unless the context clearly requires otherwise:
 - 1. "Applicant" means the school district and the superintendent or other chief administrative agent of the district, regional district, or charter school.
 - 2. "Application" means all documents, forms, letters, statements, certifications, plans, studies, drawings, and other data and information required to be submitted within the deadlines and in the format prescribed by these regulations. The Application will include, but not necessarily be limited to, a Design and Educational Program, Educational Facility Master Plan, Facilities Assessment, Feasibility Study, and Design and Construction Cost Projection; copies of the school committee and municipal approval; and any other documents, forms, letters, statements, certifications, plans, studies, drawings, data, or other information as deemed necessary.
 - 3. "Approved project" means a project that has received the Council's approval pursuant to this Part.
 - 4. "Audit" means an examination by the Council and/or its designee of Audit Materials as shall be submitted in a form or manner prescribed by the Council to determine compliance with any provision of this Part.
 - 5. "Audit materials" means all papers, invoices, votes, contracts, agreements, change orders, progress reports, purchase orders, on-site observation of construction materials and methods, financing information, bonding schedules and other documents related to an Approved Project, and any other documents or information that may be requested or required to determine compliance with these regulations.

6. "Council on Elementary and Secondary Education" or "Council" means the public corporation established by R.I. Gen. Laws § 16-60-1, with all of the powers, authorities, and responsibilities accorded to it by the General Laws of Rhode Island.
7. "Capital improvement plan" means a long-range plan, typically five years, which identifies capital needs in a school district and provides a funding schedule and timeline for implementation. The capital improvement plan allows for systematic evaluation of all projects at one time so that a school district can anticipate future needs. The capital improvement plan should not include routine maintenance expenses of the school district but should include required upkeep of the facilities, including but not limited to, roof repairs, heating and ventilation system repairs, or window and door replacement.
8. "Design and educational program" means a comprehensive numerical and written description of a school district's specific educational program for a specified number of students over a specified period of time, in a format prescribed by the Council. It shall include: an itemization of spaces needed to support the educational program, complete to the degree that a designer may use it as the basic document from which to create the design of a school facility; the instructional programs, grade configuration, type of facility, and the spatial relationships for the functions housed at the facility; the number of students and a list of any specialized classrooms or major support areas, non-instructional support areas, or external activity spaces; gross and net square footage of any affected existing facility; the overall security and security measures taken to safeguard the facility and its occupants; the school administrative organization; and the hours of operation that include the instructional day, extracurricular activities, and any public access. The Design and Educational Program shall begin with a thorough, in-depth explanation of curriculum goals and instructional activities that occur within the learning environment of the facility affected by the proposed project. The Design and Educational Program shall comply with all applicable laws and applicable regulations, including but not limited to, those governing curriculum, basic education program, and length of school day and year. The Design and Educational Program for the proposed project shall include an itemization of each functional space and determination of square footage allocations, a calculation of total building square footage, and establish a realistic construction budget. The Council will provide school districts with annual guidance on what constitutes a realistic construction budget by annually determining a maximum per square foot cost in accordance with state, regional, and national construction data.
9. "District", as used in this Part, means school districts, regional school districts, charter schools, and any other public school entity seeking approval of the necessity of school construction and/or requesting to fund

a portion of the cost of school construction, modernization, or addition projects through reimbursement from the school housing aid program.

10. "Educational program space guidelines" means the itemized listing (set forth in §4.6 of this Part) of educational spaces and square footages that comprise a model program for an elementary school, middle school, and high school, or other grade configurations based upon varying levels of enrollment. The gross square footages are inclusive of all spaces to be designed in an Approved Project.
11. "Enrollment projection" means a District's five-year (5) estimate of student population by grade based on local demographics. It must show increases/decreases from year to year shown in actual numbers or percents and demonstrate how this data supports the need for the project. When possible, local enrollment projections should be supported by those from an outside source, such as RIDE or the New England School Development Council (NESDEC).
12. "Fiscal year" means the year beginning July 1st and ending the following June 30th, unless otherwise determined by the Council.
13. "Minority (MBE) and Women (WBE) Business Enterprises" mean a small business concern, owned and controlled by one or more minorities or women certified by the Rhode Island Department of Administration to meet the definition established by R.I. Gen. Laws Chapter 37-14.1.
14. "NE-CHPS" means Version 3.1 of the Northeast Collaborative for High Performance Schools Criteria.
15. "School housing aid" means funds appropriated by the General Assembly in support of completed school construction projects to guarantee adequate school housing for all public school children in the state and prevent the cost of school housing from interfering with the effective operation of the schools. Funds are distributed as promulgated in R.I. Gen. Laws §§ 16-7-35 through 16-7-47.
16. "Proposed project" means any project submitted by an Applicant, but not yet approved by the Council, including construction of a new school facility, addition to an existing school facility, renovation or refurbishment of an existing school facility, purchasing and renovating a building as a school facility, and repair or replacement of any eligible part of a school facility.

4.4 Project Categories and Priorities

In order to ensure effective planning, management, and financial sustainability of an approved project, the following general requirements and standards shall be met in the application for project approval.

4.4.1 General Requirements

A. General requirements are as follows:

1. Districts must ensure that construction will be completed in a timely, cost-effective manner and that buildings will be occupied within the timelines established during the approval process. The approval of a project by the Council and/or the payment of reimbursements by the Council shall not render the Council responsible or liable for the project, or any aspect thereof, except to ensure that the project is in compliance with these regulations. Districts have sole and exclusive responsibility for all aspects of a proposed and/or approved project, from its inception, including engaging all necessary and appropriate personnel for design, construction, and oversight, including a Commissioning Agent as set forth in § 4.10.2 of this Part
2. Approved projects must have a useful life of fifty (50) years for new construction or an addition to an existing school building.
3. Districts are required to have current capital improvement plans on file at RIDE. Only projects included in the capital improvement plan will be eligible for approval.
4. A project that results from lack of maintenance or negligence by the District will not be approved.
5. A District is not eligible to be reimbursed for temporary housing costs incurred because adequate project planning was not performed or local approvals were not obtained in a timely manner.
6. Projects shall be designed to minimize vandalism, and materials and finishes shall be selected to minimize vandalism.
7. Projects shall provide for equality of educational opportunity without discrimination on account of sex, race, color, religion, sexual orientation, national origin, or handicap, and all approved projects shall meet the requirements of the Rhode Island Building Code, R.I. Gen. Laws Chapter 23-27.3. All projects shall comply with the Americans with Disabilities Act, 42 U.S.C.A. § 12101 *et seq.* and all other applicable provisions of federal, state, and local laws relative to the accessibility of programs and facilities to persons with disabilities.

8. Districts shall demonstrate that projects have undergone review in accordance with applicable state law and regulations and, to the extent applicable to the project, by the Rhode Island's State Building Commissioner, Department of Administration, Department of Health, Historical Preservation and Heritage Commission, Commission for Human Rights, Department of Environmental Management, Governor's Commission on Disabilities, and any other department or agency of the state required by law to review such projects.
9. Projects shall have undergone review in accordance with applicable local or District charters, by-laws, ordinances, or regulations, including local conservation, fire prevention, water, sewer, or building code requirements.
10. Districts shall demonstrate that they have identified educational collaborative programs in the school District not currently housed in public school facilities, and have reviewed any such programs to determine if students in such programs can be served more efficiently and effectively if the project is approved, assuming the project is for school use only.
11. Districts must submit an analysis of the impact on the operating budget of implementing the project in such detail and in the format required by the Council. The analysis shall include an estimate of the costs of additional maintenance required of the District, the costs of additional instructional or support staff, additional utility costs, the costs of additional transportation, if any, and the estimated revenue, if any, from the sale or lease of any school facility decommissioned as a result of implementing the project.
12. Districts must provide an analysis of the potential economic and non-economic impact of leveraging cross-District school capacity and demonstrate that the applicant has considered existing District boundaries, facilities, and populations and the operating cost impact in determining the need and siting of proposed projects.
13. Districts shall ensure that all contracts and subcontracts are complied with and are in conformity with all applicable provisions of federal, state, and local laws and regulations.
14. Districts shall submit an analysis of life cycle costs of all projects including initial capital costs, maintenance costs, and utility costs and demonstrate how such costs will be reduced over the life of the building and its systems. Districts shall consider life cycle costs estimates of all feasible energy systems and technologies, including renewable systems, to identify the system with the lowest life cycle cost estimate.

4.4.2 Existing and New Facilities

- A. The District shall evaluate and present alternatives to school construction projects including but not limited to new school construction, rehabilitation of

existing schools, additions to existing schools, the use of temporary and mobile facilities, and the rehabilitation or historic preservation of existing non-school buildings.

- B. Applicants shall consider these alternatives within the context of each District's comprehensive facilities plan and specifically address issues of school capacity, educational adequacy, capital needs, and life cycle operating costs.
- C. RIDE will determine the extent to which an applicant demonstrates the necessity for a school construction project using the following criteria:
 - 1. Construction and operating costs, including those costs not eligible for reimbursement.
 - 2. The effect on student populations.
 - 3. Educational use and space requirements.
 - 4. Proximity to local resources.
 - 5. Opportunity for shared facilities.
 - 6. The impact on transportation routes and costs.
 - 7. Environmental impact.
 - 8. Land acquisition and site preparation, including environmental assessments and remediation requirements, permitting, and zoning requirements.
 - 9. The impact on historic resources and community character.
 - 10. Adherence to smart growth principles pursuant to § 4.6.6 of this Part.

4.4.3 Priority of Projects

- A. In the event the General Assembly or State Budget Office imposes funding limits, the Council will consider applications for school construction and renovation projects in accordance with the priorities listed below and in the order of the priorities listed below:
 - 1. Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists;
 - 2. Elimination of existing severe overcrowding;
 - 3. Prevention of loss of accreditation;

4. Elimination or prevention of severe overcrowding as documented by current enrollment or by enrollment projections;
5. Creation or alteration of school facilities to provide mandatory instructional programs;
6. Replacement, renovation, or modernization of any school facility to increase energy conservation and decrease energy related costs in the facility;
7. Space requirements due to short term enrollment growth for which no reasonable alternative to school construction exists;
8. Replacement of or addition to obsolete buildings in order to provide a full range of programs consistent with approved state and local requirements; and
9. Creation or alteration of school facilities to provide supportive services and ensure equitable statewide access to adequate school facilities.

4.5 School Construction Standards

4.5.1 High Performance School Design

- A. Projects shall meet all applicable federal, state, local, and regional building code requirements. Projects shall reflect cost-effective design, material, and finish decisions consistent with good architectural and engineering practice and high quality construction. Projects shall demonstrate that the current technological needs of students, faculty, and school staff are met.
- B. Projects shall comply with all requirements set forth in the Northeast Collaborative for High Performance Schools Protocol version 3.0. (Northeast-CHPS) so that approved projects provide high quality learning environments, conserve natural resources, consume less energy, are easier to maintain, and provide an enhanced school facility.

4.5.2 Minority Business Enterprise (MBE)

- A. Districts are required to comply with the requirements of R.I. Gen. Laws Chapter 37-14.1
- B. This section of this Part applies to approved projects to the extent that the state law is determined to be applicable and any future determination that § 4.5.2 of this Part is no longer held to be valid does not affect the enforcement in part or in whole of this Part.

4.5.3 Miscellaneous Construction Requirements

- A. Applicants are prohibited from utilizing chlorofluorocarbon-based (CFC) refrigerants in any new system for building heating, ventilating, air conditioning, or refrigeration.
- B. All new construction and major reconstruction projects shall meet applicable local ordinances for recycling space and provide space within the building that is dedicated to the separation, collection, and storage of materials for recycling, including, at a minimum, paper (white ledger and mixed), cardboard, glass, plastics, aluminum cans, and metals.
- C. New construction shall be oriented on the site so that natural daylight for classroom spaces is maximized.
- D. Windowless classrooms and occupied instructional spaces which do not have operable windows equal to at least four percent (4%) of the floor space shall be air conditioned, excluding gymnasiums, industrial shops, kitchens, and locker rooms.
- E. School facilities shall be designed, constructed, and renovated consistent with state and federal law for radon, lead, asbestos and other contaminants, and subject to the enforcement of such standards by the applicable state or federal agency.
- F. Concrete floors in all instructional areas, except industrial shops, shall be covered with a resilient floor covering;
- G. The storage of pesticides shall be in a locked metal cabinet and vented to the exterior.
- H. Spaces in which power tools and machines in industrial shops generate dust shall have dust collecting equipment. Such equipment shall be either single or multi-use vacuum packs or a central dust collection system. Installed systems shall comply with National Fire Protection Association (NFPA) Standard 664 incorporated at § 4.2(A) of this Part.
- I. Instructional spaces shall comply with the American National Standards Institute Guide for Educational Facilities Lighting, incorporated at § 4.2(B) of this Part.

4.6 Site Standards

4.6.1 Site Ownership

- A. The applicant shall own the site of an Approved Project or be in the process of acquiring or have a reasonable expectation of owning the site by the end of the Architectural Feasibility Study pursuant to § 4.8.3 of this Part .

- B. If the applicant is acquiring a new parcel of land for the project, the applicant shall provide in its Architectural Feasibility Study to RIDE a completed, signed, and sealed description of the plot plan of the land to be acquired showing:
1. Topographical and contour lines.
 2. Adjacent properties indicating current land uses, access roads, deed restrictions, easements, protective covenants, right of ways, and environmentally sensitive areas such as waterways and wetlands.
 3. The acreage and dimensions of the tract proposed for acquisition.
 4. Anticipated footprint of the proposed school.

4.6.2 Responsible School Site Selection

- A. Protecting student health is the most important issue during site selection. These requirements are intended to eliminate sites containing pollutants known to be hazardous to student and staff health. A variety of factors, from hazardous materials in the soil to airborne pollutants from nearby sources, will be considered in the site review process.
1. Project sites must be at sufficient distances from facilities that might reasonably be anticipated to emit hazardous air emissions or to handle hazardous or acutely hazardous materials, substances, or waste. Applicants must demonstrate that the health and safety of students and staff are not jeopardized by the location of the site.
 2. Project sites must have a minimum separation of five hundred (500) feet from 50-133kV power-lines, seven hundred fifty (750) feet from 220-230kV power-lines, and one thousand five hundred (1,500) feet from 500-550kV power-lines; and one thousand five hundred (1,500) feet from railroad tracks, hazardous pipelines, and major highways.
 3. Project sites may not be located in an area with moderate or high radon potential, or in an EPA radon zone, unless the school building project plan incorporates a radon mitigation strategy.
 4. Sites shall be free from noxious pollution or contamination, and shall be selected to avoid flood plain, wetlands or other environmentally sensitive areas. A new school site must not be located within a one-mile radius of an active landfill. A landfill, as defined by the RI Department of Environmental Management's Hazardous Waste regulations, shall mean a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, an injection well, a waste pile, or a corrective action management unit.

- B. In addition, selected sites shall be sensitive to known and unidentified historic resources, including archaeological sites.

4.6.3 Cross District Planning

When choosing a site for school construction projects, applicants shall consider cross Districting issues and possibilities in order to more efficiently and fairly serve the community and student population. Districts will be required to document that this was done as part of the school construction application pursuant to § 4.9.2 of this Part.

4.6.4 Consolidation

- A. Applicants must submit an analysis of the option of school consolidation and school District consolidation. This applicant shall provide this analysis in its Architectural Feasibility Study pursuant to § 4.9.3 of this Part. Documentation shall include:
1. Current school capacity and enrollment by school and grade and anticipated five (5) year District growth by grade and school;
 2. A map of the District showing the location of the site or sites under consideration and the location of existing school buildings in the District;
 3. The attendance area to be served by the proposed school and the number of school-age children who reside within the attendance area and future demographic projections for the District and attendance area;
 4. A map of the nearest adjacent District(s) showing their buildings and attendance areas;
 5. Other potential non-school buildings evaluated for conversion, include information on age, location, size, nearby community services and buildings, cost, and needed modernization;
 6. Information regarding any school buildings abandoned by the District or converted to other use by the community in the last ten years including a map of their location in the District;
 7. A comparative analysis of the potential impact of building sites on student transportation and local traffic conditions including traffic impact, public transportation opportunities, times of transit by school transportation, and cost of any changes that would be required to roads or the transportation system; and
 8. Documentation must also be provided demonstrating that a licensed professional engineer has examined soil conditions for structural integrity and drainage in order to determine the suitability or lack thereof of

possible sites and identified the existence of soil conditions which may increase site development costs.

4.6.5 Community Resources

- A. R.I. Gen. Laws § 16-7-41.1 restricts payment of school housing aid for school facilities which are under the care and control of the school committee and located on school property. Facilities with combined school and municipal uses or facilities that are operated jointly with any other profit or non-profit entity also do not qualify for reimbursement. Nonetheless, it is often necessary to site schools near other existing community resources in order to provide a comprehensive educational program. This is especially true of small and urban Districts where land is at a premium. In this context, the site selected shall be chosen to meet the educational needs of the students who will be housed in the building, maximize the use of any available community resources, and minimize any possible adverse educational, social, environmental, or economic impact upon the community.
- B. Consideration should be given to locating facilities in areas that are already served by existing or planned water, sewer, and other public infrastructure. When possible, the site selected should be in close proximity to other community resources such as libraries, museums, parks, natural resources, nature study areas, community centers, and businesses, so as to enhance the Design and Educational Program.
- C. Sites should be located to efficiently and safely serve intended school populations and provide sufficient space for needed parking, bus turnarounds, delivery areas, required setbacks, and planned aesthetics.

4.6.6 Smart Growth Planning

The site shall incorporate “smart growth” concepts where feasible with relation to educational facilities and the impact of suburban sprawl in developing and planning for new construction. Smart growth schools involve the community in school facility planning, make use of existing resources, such as historic school buildings, are located within neighborhoods and fit into the scale and design of the neighborhood, and are usually small in size. The National Trust for Historic Preservation’s publication *Historic Neighborhood Schools in the Age of Sprawl: Why Johnny Can’t Walk to School* made recommendations as to how Districts could avoid suburban sprawl.

4.6.7 Transportation Impact

- A. Whenever possible, sites shall be located close to public transportation. In order to reduce automobile-related pollution and conserve energy, designs shall incorporate the use of public transportation and carpooling by minimizing parking, creating bike facilities, providing safe walking/biking access, and other appropriate design elements.

- B. Additionally, applicants shall consider the proximity of other services in the community, such as supermarkets, commercial office buildings, grocery stores, day cares, cleaners, fitness centers, hair care, hardware, laundry, medical/dental services, senior care facilities, public parks, pharmacies, post offices, banks, libraries, and community centers.

4.6.8 Storm Water Pollution Prevention

The District must submit a Storm Water Pollution Prevention plan addressing erosion and sediment control that complies with the National Pollution Discharge Elimination System Construction General Permit issued by the U.S. Environmental Protection Agency. Exception: If land disturbance is less than one hundred thousand (100,000) square feet for the entire project as a whole, then the project is exempt from this prerequisite. However, all projects involving the protection of wetlands must meet this requirement.

4.6.9 Site and Building Layout

- A. All proposed projects must:
1. Orient the building(s) to take advantage of maximum natural day lighting and plot shadow patterns from surrounding buildings and place buildings to optimize solar gain (for urban-infill sites).
 2. Consider prevailing winds when determining the site and building layout. For example, consider how the shape of the building itself can create wind-sheltered spaces and consider prevailing winds when designing parking lots and driveways to help blow exhaust fumes away from the school.
 3. Maximize use of existing land formations and vegetation to provide shelter from extreme weather or to deflect unwanted noise.
 4. Plant or protect existing deciduous trees to block summer sun and allow winter solar gain. Plant or protect existing coniferous trees to block winter wind.
 5. Minimize importation of non-native soils and exportation of native soils. Optimize Cut & Fill (ideally 1:1) during clearing and excavation.
 6. Create physical connections to existing bike paths, natural features, or adjacent buildings and neighborhoods.
 7. Design parking lots and driveways to limit student proximity to bus emissions. Design bus loading and unloading areas such that buses need not be lined up head to tail. Do not design bus loading and unloading areas such that bus exhaust is in proximity to any of the school's air intake vents.

8. Site the building to maximize opportunities for on-site renewable energy generation. For example, preserve or ensure availability of space for wood chip storage facilities for biomass heating, wind turbines (if wind resources are adequate), or other renewable energy sources.
9. Facilitate use of public transportation by locating the school within a one-mile radius of a public bus route.

4.7 Space Standards

4.7.1 General Provisions

- A. School facilities shall afford space for general instruction, specialized instruction, administration and student services, the adequacy of which shall be pursuant to the requirements of this section. In addition, school facilities shall afford accommodations for approved vocational and special education programs. General design and construction space requirements are as follows:
 1. Instructional rooms with windows shall have no exterior obstructing wall within twenty (20) feet of the major window wall;
 2. The minimum dimension of any instructional space or specialized instructional space shall be ten (10) square feet of floor area;
 3. Ceiling heights reported in the design and construction plans shall meet the following requirements:
 - a. The ceiling height of an academic classroom or other instructional space containing more than three hundred (300) square feet in area shall average nine feet six inches (9'-6"), and no part of the ceiling or other obstruction shall be lower than eight (8) feet;
 - b. Instructional spaces of less than three hundred (300) square feet and areas of larger spaces devoted to clothing alcoves, storage or work space shall have a minimum ceiling height of eight feet;
 - c. Large group spaces shall have minimum ceiling heights as follows:
 - (1) Gymnasium --22 feet
 - (2) Music Room (Vocal or Instrumental) -- 12 feet, The minimum height from overall highest riser to ceiling shall be eight feet
 - (3) Cafeteria --12 feet
 - (4) Industrial Arts and Vocational Shop --12 feet
 - (5) Library/Media Center – 9½ feet;

- d. Corridors and all other administrative spaces shall have a minimum ceiling height of eight (8) feet; and
- 4. A health unit shall be provided and shall include a nurse's area, a waiting area, an examination area, a rest area with privacy, drinking water and toilet facilities sized and arranged so that physically disabled persons requiring assistance will be able to receive such aid.

4.7.2 Space Allowance Guidelines

- A. All projects must meet Educational Program Space Guidelines that provide the basis for gross square foot per pupil allowances. The standards and any associated guidelines provide by RIDE shall define prototype school design and space recommendations for each specified program activity eligible for housing aid. Projects that exceed gross square foot per student allocations will be reimbursed only up to the limits provided herein. These standards are reflective of realistic, future-oriented, and contemporary educational program goals and are based on the summation of square foot allocations for each itemized educational space.

| Table 1: Gross Square Feet (GSF) per Student - Elementary Schools | | | |
|--------------------------------------------------------------------------|------------------------|-----------------------------|------------------------|
| Projected Enrollment | GSF per Student | Projected Enrollment | GSF per Student |
| Less than 300 | 180 | 450-459 | 163 |
| 300-309 | 180 | 460-469 | 161 |
| 310-319 | 179 | 470-479 | 160 |
| 320-329 | 178 | 480-489 | 159 |
| 330-339 | 177 | 490-499 | 158 |
| 340-349 | 175 | 500-509 | 157 |
| 350-359 | 174 | 510-519 | 156 |
| 360-369 | 173 | 520-529 | 154 |
| 370-379 | 172 | 530-539 | 153 |

| | | | |
|---------|-----|-----------------|-----|
| 380-389 | 171 | 540-549 | 152 |
| 390-399 | 170 | 550-559 | 151 |
| 400-409 | 168 | 560-569 | 150 |
| 410-419 | 167 | 570-579 | 149 |
| 420-429 | 166 | 580-589 | 147 |
| 430-439 | 165 | 590-599 | 146 |
| 440-449 | 164 | 600 and greater | 145 |

Table 2: Gross Square Feet per Student – Middle and Junior High Schools

| Projected Enrollment | GSF per Student | Projected Enrollment | GSF per Student |
|-----------------------------|------------------------|-----------------------------|------------------------|
| Less than 400 | 190 | 580-589 | 175 |
| 400-409 | 190 | 590-599 | 174 |
| 410-419 | 189 | 600-609 | 173 |
| 420-429 | 188 | 610-619 | 172 |
| 430-439 | 187 | 620-629 | 171 |
| 440-449 | 187 | 630-639 | 170 |
| 450-459 | 186 | 640-649 | 169 |
| 460-469 | 185 | 650-659 | 169 |
| 470-479 | 184 | 660-669 | 168 |
| 480-489 | 183 | 670-679 | 167 |

| | | | |
|---------|-----|-----------------|-----|
| 490-499 | 182 | 680-689 | 166 |
| 500-509 | 181 | 690-699 | 165 |
| 510-519 | 181 | 700-709 | 164 |
| 520-529 | 180 | 710-719 | 163 |
| 530-539 | 179 | 720-729 | 163 |
| 540-549 | 178 | 730-739 | 162 |
| 550-559 | 177 | 740-749 | 161 |
| 560-569 | 176 | 750 and greater | 160 |
| 570-579 | 175 | | |

Table 3: Gross Square Feet per Student – Academic High Schools

| Projected Enrollment | GSF per Student | Projected Enrollment | GSF per Student |
|-----------------------------|------------------------|-----------------------------|------------------------|
| Less than 600 | 205 | 800-809 | 195 |
| 600-609 | 205 | 810-819 | 195 |
| 610-619 | 205 | 820-829 | 194 |
| 620-629 | 204 | 830-839 | 194 |
| 630-639 | 204 | 840-849 | 193 |
| 640-649 | 203 | 850-859 | 193 |
| 650-659 | 203 | 860-869 | 192 |
| 660-669 | 202 | 870-879 | 192 |

| | | | |
|---------|-----|------------------|-----|
| 670-679 | 202 | 880-889 | 191 |
| 680-689 | 201 | 890-899 | 191 |
| 690-699 | 201 | 900-909 | 190 |
| 700-709 | 200 | 910-919 | 190 |
| 710-719 | 200 | 920-929 | 189 |
| 720-729 | 199 | 930-939 | 189 |
| 730-739 | 199 | 940-949 | 188 |
| 740-749 | 198 | 950-959 | 188 |
| 750-759 | 198 | 960-969 | 187 |
| 760-769 | 197 | 970-979 | 187 |
| 770-779 | 197 | 980-989 | 186 |
| 790-799 | 196 | 1000 and greater | 185 |

- B. Vocational Technical Schools and the Vocational Education space components of comprehensive high schools shall not exceed two hundred twenty-five (225) gross square feet per pupil and any additional programmatic requirements may be considered on a case by case basis.

4.7.3 Space Allowance by Program Activity

- A. The following space allowance guidelines shall be used to plan new educational facilities. Square footage designed above these criteria is ineligible for reimbursement funding.

| ELEMENTARY SCHOOLS | | |
|----------------------------------------------------|-----------------------|-----------------------|
| Type of Space | 300 Students | 600 Students |
| Pre-Kindergarten & Kindergarten (including toilet) | 1200 square feet each | 1200 square feet each |

| | | |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| Core Classrooms | 950 square feet each | 950 square feet each |
| Art (including storage and workroom) | 1150 square feet | 2300 square feet |
| Music (including practice and ensemble) | 1350 square feet | 2700 square feet |
| Special Education: Self-contained classroom (including toilet) Small Group/Resource Room | 950 square feet 500 square feet | 950 square feet 500 square feet |
| Media Center/Library | 2020 square feet | 3310 square feet |
| Gymnasium (including storage and office) | 6300 square feet | 6300 square feet |
| Food Prep/Kitchen | 1600 square feet | 1900 square feet |
| Cafeteria | 15 square feet per student accommodating ½ planned enrollment | 15 square feet per student accommodating ½ planned enrollment |
| Stage | 1000 square feet | 1000 square feet |
| Chair/Table Equipment Storage | 200 square feet | 300 square feet |
| Staff Lunch Room | 200 square feet | 300 square feet |
| General Office | 1500 square feet | 1600 square feet |
| Nurse/Health | 510 square feet | 510 square feet |
| Guidance | 185 square feet | 185 square feet |
| Teachers Workroom/Lounge (including toilet) | 300 square feet | 450 square feet |

| | | |
|-------------------------|------------------|------------------|
| Custodian/Maintenance | 1500 square feet | 1600 square feet |
| General Storage (Books) | 400 square feet | 600 square feet |

| JUNIOR HIGH/MIDDLE SCHOOLS | | |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|
| Type of Space | 400 Students | 750 Students |
| Core Classrooms | 950 square feet each | 950 square feet each |
| Science | 1200 square feet each | 1200 square feet each |
| Art (including storage and workroom) | 1350 square feet | 2550 square feet |
| Music (including practice and ensemble) | 1700 square feet | 1700 square feet |
| Tech Classroom (e.g. drafting, business) | 1200 square feet | 2400 square feet |
| Tech Shop (e.g. consumer, wood) | 2000 square feet | 4000 square feet |
| Special Education: Self-contained classroom (including toilet) Small Group/Resource Room | 950 square feet 500 square feet | 950 square feet 500 square feet |
| Media Center/Library | 2680 square feet | 4700 square feet |
| Gymnasium (including storage and office) | 6150 square feet | 6150 square feet |
| Food Prep/Kitchen | 1700 square feet | 2050 square feet |
| Cafeteria | 15 square feet accommodating 2/3 planned enrollment | 15 square feet accommodating 2/3 planned enrollment |

| | | |
|---------------------------------------------|------------------|------------------|
| Stage | 1600 square feet | 1600 square feet |
| Chair/Table Equipment Storage | 200 square feet | 300 square feet |
| Staff Lunch Room | 200 square feet | 300 square feet |
| General Office | 1920 square feet | 2170 square feet |
| Nurse's Office/Health | 510 square feet | 510 square feet |
| Guidance | 450 square feet | 750 square feet |
| Teachers Workroom/Lounge (including toilet) | 300 square feet | 450 square feet |
| Custodian/Maintenance | 1375 square feet | 1400 square feet |
| General Storage (Books) | 400 square feet | 600 square feet |

| HIGH SCHOOLS | | |
|------------------------------------------|-----------------------|-----------------------|
| Type of Space | 600 Students | 1000 Students |
| Core Classrooms | 950 square feet each | 950 square feet each |
| Science | 1200 square feet each | 1200 square feet each |
| Art (including storage and workroom) | 1350 square feet | 2700 square feet |
| Music (including practice and ensemble) | 2125 square feet | 2275 square feet |
| Tech Classroom (e.g. drafting, business) | 2400 square feet | 4800 square feet |
| Tech Shop (e.g. consumer, wood) | 4000 square feet | 8000 square feet |

| | | |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| Special Education: | | |
| Self-contained classroom (including toilet) | 950 square feet | 950 square feet |
| Small Group/Resource Room | 500 square feet | 500 square feet |
| Media Center/Library | 3650 square feet | 6150 square feet |
| Gymnasium (including storage and office) | 10000 square feet | 10000 square feet |
| Ancillary PE Space (including PE alternatives, storage, lockers, offices, and locker rooms) | 7000 square feet | 10300 square feet |
| Food Prep/Kitchen | 1900 square feet | 2300 square feet |
| Cafeteria | 15 square feet per student accommodating 1/3 planned enrollment | 15 square feet per student accommodating 1/3 planned enrollment |
| Auditorium | 2/3 enrollment at 10 square feet per student (750 seats maximum) | 2/3 enrollment at 10 square feet per student (750 seats maximum) |
| Stage Auditorium Storage, dressing rooms, controls | 2800 square feet | 2800 square feet |
| Staff Lunch Room | 400 square feet | 500 square feet |
| General Office | 2020 square feet | 2270 square feet |
| Nurse's Office/Health | 710 square feet | 910 square feet |
| Guidance | 1050 square feet | 1500 square feet |
| Teachers Workroom/Lounge (including toilet) | 300 square feet | 450 square feet |

| | | |
|-------------------------|------------------|------------------|
| Custodian/Maintenance | 1475 square feet | 1575 square feet |
| General Storage (Books) | 400 square feet | 600 square feet |

4.7.4 Special Education Spaces

A. Spaces for special education classes/programs may receive special consideration for additional space at the discretion of RIDE, if the District documents and certifies a greater need in the Design and Educational Program. The gross square feet per student defined herein includes an assumption that eight percent (8%) of the total planned enrollment will be enrolled in self-contained special education programs.

B. The Council shall approve requests for additional space eligible for housing aid reimbursement if the District demonstrates that:

1. School facility needs related to the required programs cannot be addressed within the existing facilities and that all other spaces are consistent with the space allowance guidelines;
2. Such spaces are necessary to comply with federal or state laws concerning educating students with disabilities to the greatest extent possible in the same building or classes with their non-disabled peers and the additional or inconsistent spaces will:
 - a. Allow for the return of students with disabilities from out of District facilities;
 - b. Permit the retention of students with disabilities who would otherwise be placed in out of District facilities;
 - c. Provide space for regional programs in a host school building that houses both disabled and non-disabled students; or
 - d. Provide space for the coordination of regional programs by a county special services District, educational services commission, jointure commission or other agency authorized by law to provide regional special education services, in a school facility that houses both disabled and non- disabled students

4.7.5 Space Allowance Exception

The applicant may make reasonable departures from the guidelines shown above only with a prior written determination of the Council that special circumstances exist and that such departures are consistent with the intent of this

Part to provide adequate, safe, cost-effective, and programmatically sound school facilities.

4.8 Cost Standards

4.8.1 Cost Guidelines

- A. Districts shall include in their application a complete and detailed breakdown of the estimated costs associated with the project, prepared by a professional construction cost estimator. Cost estimates should be in the format provided in the annual guidance. This format will be an elemental classification framework developed through industry and government consensus. Construction cost estimates must be carried forward to the proposed bid date and include project management and design fees. Project information collected by RIDE will be stored in a database to provide a means for preparing annual cost guidance.
- B. Project management and design fees, as a percentage of total construction costs, shall not exceed twenty percent (20%) of the general construction costs. Where projects mix new and retrofit construction, costs shall be clearly separated for new construction, new additions, gut rehabilitation, and space modernization.

4.8.2 Additional Facilities

The provisions of this section shall not be deemed to preclude an applicant from including in an Approved Project, in addition to the Design and Educational Program as approved by the Council, such additional facilities as said District might desire. Any and all costs related to said additional facilities, including but not limited to, the design, construction and implementation of said additional facilities, shall be the sole responsibility of the eligible District.

4.8.3 Ineligible Costs

- A. The cost of project elements that exceed or diverge from the project scope of an approved project, including items noted below, are categorically ineligible to receive school housing aid. School housing aid is not paid on furnishings, fittings, and equipment unless the project involves new construction.
- B. Categorically ineligible costs shall include, but not be limited to:
 - 1. Any costs for an Approved Project in excess of the final approved amount for Housing Aid.
 - 2. Financing costs incurred by an Applicant if the bond is not issued through the Rhode Island Health, Education, and Building Corporation (RIHEBC).
 - 3. The cost of legal services.

4. The provision of any direct or indirect municipal services shall be ineligible costs, except the provision of public safety services as required by law, or services which RIDE determines are necessary for the completion of the project.
5. All costs associated with the operation and routine maintenance of a school facility.
6. Costs associated with site remediation costs, unless a District demonstrates that there are no available sites that do not require remediation or that it is less costly to remediate the selected site rather than purchase other property. In addition, the District will have to document its efforts to obtain other sources of public and private funds to assist with the remediation of the site. The Council expect that municipalities will secure federal funding or judgments against those responsible for the contamination.
7. Any costs determined to be ineligible by the Council during the course of the enforcement of the regulations and compliance with the memorandum of agreement process. The Council reserve the right to disallow any costs associated with any change order that deviates from the scope of the project.
8. Other ineligible costs: swimming pools, skating rinks, field houses, District administrative office space that is not incorporated into a school building, indoor tennis courts, and outdoor field surface materials on existing fields. In addition, Districts building new or an addition to existing elementary schools will be reimbursed only for a multi-purpose room for auditorium and cafeteria purposes. Furthermore, athletic facilities requests will be considered only if the District demonstrates that the facility will be used predominantly by the school population. This demonstration shall include an analysis of needed physical education and sports activities based on the student population to be served by the proposed new facility. The District shall also include an inventory of community athletic/recreation facilities to ensure that school housing aid is not being paid for community resources.

4.9 Application and Approval Procedures

4.9.1 Necessity of Construction Overview

- A. The process and requirements of the revised Necessity of Construction approval process allow the Council to:
 1. better project and allocate school housing aid;

2. give school Districts adequate planning time prior to a final bond-approval commitment; and
 3. provide greater accountability over individual school District project costs and content through a structured review process.
- B. The Necessity of School Construction approval process is a two-stage process as outlined below. Stage 1 of the process requires Districts to include a statement of interest, project justification, facilities analysis, District asset protection plan, capital improvement plan, and community demographics. Upon the preliminary determination by RIDE that the project meets the criteria for the Stage 1 of the necessity of school construction process, the application proceeds to Stage 2. Stage 2 of the process requires Districts to complete a feasibility study, cost projections, design plans, and site work.

4.9.2 Necessity of School Construction - Stage 1

- A. The project approval process begins with informing RIDE of the District's intent to modernize, modernize and build an addition, or construct a new school building. The intent is confirmed once the Necessity of School Construction Application packet has been completed by the District, submitted to RIDE, and accepted by RIDE in writing. The Stage 1 Necessity of School Construction Application shall include the following:
1. Statement of Interest/Project Justification
 - a. Districts must submit a letter from the School Committee to RIDE signed by the Superintendent, School Committee Chair, and a representative of the municipality in which the District is located (Town Council, Mayor, etc.) indicating the intent of the District to request school housing aid funds and clearly justifying why the proposed project is necessary.
 - b. When submitting a Statement of Interest, the District must clearly demonstrate why the project is deemed necessary to the District's educational mission and the building deficiencies that this project will remediate such as: not meeting student enrollment needs, class size above appropriate limits, reduced ability or inability to offer ancillary services, and/or learning environments and classroom sizes that are inadequate for student learning or student programs.
 - c. The District must indicate whether the building will be a major renovation of a current building, a major renovation with an addition, or construction of a new building. In the case of new construction, the District must clearly demonstrate why new construction is necessary as opposed to renovating existing facilities. With renovation projects, the Facility Analysis must clearly indicate that the condition of the affected facility is poor. The

application, through the Facility Analysis, should note the reason for the renovations, such as the need to rectify building code compliance issues, safety and/or health concerns, or security issues. When renovations to or closing of an historic building are proposed, the justification should identify historic tax credits or other potential costs if the building were put to commercial use.

- d. The District must indicate how the current condition of existing facilities has been addressed through the Asset Protection plan below and link this information to the need for new construction or a major renovation project.
- e. If the District is applying for High Performance Green School Status and the additional two to four percent (2-4%) reimbursement for energy efficiency pursuant to § 4.13.2 of this Part, this must be stated in the Necessity of Construction Application.

2. School Building Committee members

- a. The District must submit names and backgrounds of the members of the school building committee that shall be formed in accordance with the provisions of the District's local charter and/or by-laws.
- b. The school building committee must, at a minimum consist of eight (8) people, including the superintendent of schools, at least one member of the school committee, the local official responsible for building maintenance, a representative of the office or body authorized by law to construct school buildings in the municipality, the school principal from the subject school, a member who has knowledge of the educational mission and function of the facility, a local budget official or member of the local finance committee, and at least one member of the community with architectural, engineering and/or construction experience to provide input relative to the effect of the project on the community and to examine building design and construction plans for reasonableness.

3. District Asset Protection Plan

- a. The District must submit the District's Asset Protection Plans for the three (3) years prior to the Application documenting spending on preventive maintenance, renovation, and adaptation of the building to be modernized or replaced with notes explaining actions taken by the District to ensure protection of its physical assets. Particular attention must be given to projects receiving Housing Aid reimbursement in previous years.
- b. A review of a District's past investment in maintenance and ongoing maintenance activities will indicate to the Council whether the

District has effectively maintained existing buildings in accordance with its asset protection plans, such that approval of the proposed project by the Council is justified.

4. Capital Improvement Plan

- a. The District must submit the municipality or District's most recently submitted Capital Improvement Plan showing how the proposed building modernization or construction project has been anticipated in District planning or a written explanation of the reason that the project has been moved up in the planning sequence or added to the Plan.
- b. If the District does not have a current five-year Capital Improvement Plan on file with RIDE, the District must complete and submit such Plan. Districts submitting new plans or amendments to existing plans will be notified in writing if the Commissioner of Education accepted the plan prior to Stage 2 of the approval process

5. Facility Analysis of Existing Buildings

- a. A facility analysis must be submitted. The Facility Analysis should list any deficiencies in the District's existing buildings. The Facility Analysis must be conducted by a licensed engineer and must include:
 - (1) Inspection and analysis of the building envelope (roof, walls, glazing, foundation, floor/slab)
 - (2) Inspection and analysis of the structural elements of the facility
 - (3) Inspection and analysis of all mechanical systems, including condition, age, energy efficiency, levels of ventilation, and compliance with American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) standards
 - (4) Inspection and analysis of the lighting system, including condition, age, energy efficiency and lighting levels
 - (5) Inspection and analysis of all controls including lighting controls and sensors, energy management systems, emergency shutoffs
 - (6) Inspection and analysis of all fire, safety and security systems including emergency plans

- (7) Analysis of the energy use (electric and heating and/or cooling) of the facility for at least the last two years, a survey of the facility systems, and recommendations for improving energy efficiency. The use of Energy Star Portfolio Manager or ComCheck software systems to benchmark the facility against other buildings or the Rhode Island Building Energy Code is highly encouraged.

6. District and Community Demographics

- a. Districts must submit enrollment projections for the next five years for each grade with a brief analysis (increases/decreases from year to year shown in actual numbers or percents) of how the data supports the need for the project. When possible, local enrollment projections should be supported by those from an outside source, such as RIDE or the New England School Development Council (NESDEC).
- b. The District must submit community data including actual and projected population, housing statistics, birth rates, or immigration estimates, and an analysis of how the data supports the need for the project.

7. Cross Districting

- a. Districts must provide an analysis for the potential economic and non-economic impact of cross-Districting, which shall demonstrate that the District has considered District boundaries, other existing facilities, and population trends in determining the need and site of proposed projects.

8. Approval of Funding for Architectural Feasibility Study

- a. The District must submit an agreement to fund an Architectural Feasibility Study, to include initial energy modeling of energy efficiency or renewable energy technologies, signed by the school District authority or municipal authority. No application will be considered unless there has been an approval by the authority that authorizes funding of an Architectural Feasibility Study.
- b. The Stage 1 application is reviewed by RIDE and either approved, returned to the District for further information, or disapproved.
- c. Plan Review options:
 - (1) Approval: RIDE approves the Application and schedules and conducts a conference with the School Building Committee and RIDE at which questions about the Application may be

asked and answered and the school construction regulations and feasibility study requirements are discussed. If a project is approved, a written timeline will be established for how the project will proceed.

- (2) Further information needed: RIDE returns the Application with requests to provide timely answers to questions, clarification of prescribed issues or request supplemental information. This step may also include a Plan Review where the concerns are addressed at the scheduled conference.
 - (3) Disapproval: RIDE returns the Application and notes the reasons for disapproval. The District may request a meeting with RIDE to review the Application and the decision.
- d. Once RIDE has approved the Stage 1 Necessity Application, the District has one year in which to complete Stage 2 of the application. This is the critical step in project design since Stage 2 will include the projected total cost of construction of the project as well as the rationale for the project to be presented to voters, if a bond issue is required. If Districts do not submit Stage 2 within one year of the preliminary approval, the approval will expire and Districts will have to start at Stage 1 again.

4.9.3 Necessity of School Construction: Stage 2

- A. The following Stage 2 Necessity of School Construction items are submitted within one year of the preliminary approval and must include the following:
1. Architectural Feasibility Study
 - a. The Architectural Feasibility Study must include the following items:
 - (1) Design and Educational Program as defined in § 4.3 of this Part.
 - (2) The site selected in the case of new construction along with a comparison of the costs and feasibility of modernization/addition and new construction.
 - (3) Cost comparison between this project and other alternatives reviewed. If the project involves new construction, the cost analysis must show clearly and fully that the proposed new construction is the best available alternative to meet the projected need based upon educational programs to be housed, total cost effectiveness (including life cycle cost analysis using twenty years as the lifetime), and the public interest. A consideration of indirect costs associated with the

project, such as new sewers, roads, transportation or utilities, must be included. If there are surplus buildings, include benefits or costs to the public, such as re-sale value or demolition costs. If the project includes the renovation of an existing building, the Facility Analysis must clearly demonstrate that the building is structurally sound or can be made so reasonably.

- (4) Documentation of compliance with Site Standards as referenced in these Regulations and NE-CHPS.
- (5) Consideration of school District or school facility consolidation pursuant to § 4.6.4 of this Part.
- (6) Analysis of historic implications and comments from the RI Historical Preservation and Heritage Commission, if applicable.
- (7) Traffic/Transportation Impact Plan pursuant to Section § 4.6.7 of this Part.
- (8) Preliminary energy analysis or modeling pursuant to NE-CHPS.
- (9) Feasibility of using renewable energy technologies pursuant to NE-CHPS.

2. Architect's Design Plans

- a. Districts must submit three sets of architect's schematic design plans to RIDE for Plan Review.

3. Design and Construction Cost Projection

- a. Cost projections must consider the effects of initial capital costs versus maintenance costs over the life of the building with the goal of reducing operation and maintenance costs. Districts must demonstrate the incorporation of life cycle cost analysis in the selection of mechanical systems, equipment, and materials.
- b. The projection shall include a detailed breakdown of the costs associated with this project. This cost analysis should include not only the estimated costs of construction escalated for inflation at the anticipated bid date but also the project management and design fees. Refer to § 4.8 of this Part. Project management and design fees as a percentage of total construction costs shall not exceed twenty percent (20%) of the general construction costs, as determined by RIDE.

- c. Basic architectural services shall consist of the following phases, schematic design, design development, construction documents, bidding, and construction administration and include the following: architectural drawings, mechanical, electrical, plumbing, fire protection, structural, site development, basic environmental permitting, graphics, lighting design, acoustics, data and communication, educational consultants, any specialty consultants for laboratory, library/media center and kitchen space, code consultants, accessibility, and other services established by RIDE. Additional architectural services may include: geotechnical consultants, asbestos consulting, wetlands flagging, and other additional services as determined by RIDE.
 - d. Cost projections must be broken down between new space (i.e. addition) and space improvements (i.e. renovation). If a District is building an addition onto a school as well as conducting major renovations, the soft costs shall be pro rated between the two aspects of the project. By separating the costs, RIDE is able to compare the cost of the new construction versus renovation. RIDE provides cost guidelines as prescribed in § 4.8 of this Part. The cost comparison should also include an evaluation of the potential for the use of historic tax credits for historic buildings that are being reused or surplus.
- 4. Financing plan
 - a. Districts must consider the impact on the operating budget of implementing the project in such detail and format as required by the Council, including but not limited to, an estimate of the costs of additional maintenance required of the District, the costs of additional instructional or support staff, additional utility costs, the costs of additional transportation, if any, and the estimated revenue, if any, from the sale or lease of any school facility decommissioned as a result of implementing the project.
- 5. Site Purchase Plan (if required)
 - a. Districts must detail information about the location, cost, and acquisition plan for any new site. The site must meet all site standards included in these regulations. The District has sole responsibility for identifying and acquiring control of the site.
- 6. Local Support, Approval by the Council, and Memorandum of Agreement
 - a. Districts must submit documentation of community support for the project, including City/Town Council and School Committee

approvals. Please include a timeline for when the project will be submitted to voters for approval, if applicable.

- b. Upon receipt of the Stage 2 Application, RIDE conducts a project feasibility review followed by a Plan Review meeting with the school building committee, design team, commissioning agent and other applicable parties. After the Plan Review, if the application has received preliminary approval by RIDE, the project will be sent to the Council for final approval. If the project is approved, a Memorandum of Agreement will be entered into with the District that sets forth the dollar authorization for the project (budget agreement), the scope of the project, and any contingencies that the District must comply with. Districts will be required to agree to any contingencies noted in the Memorandum of Agreement. A standing contingency is that Districts will be expected to warn and conduct the vote for public approval for funding within six (6) months of the Council approval. If the voters do not approve the project within that time frame, the approval will expire and Districts will have to start at Stage 1 again. The District will submit a signed copy of the Memorandum of Agreement to RIDE within ten (10) days of receipt. The Superintendent, or other chief administrative officer of the District, as well as all members of the School Committee must sign the agreement.
- c. Finally, there will be ongoing design document review and approval process by RIDE that occurs, at a minimum, at the following three stages of project implementation;
 - (1) Completion of Schematic Design
 - (2) Completion of Design Development
 - (3) Sixty Percent (60%) completion of Construction documents

4.10 Design and Review Process

4.10.1 Design Review

- A. RIDE will conduct an architectural and technical peer review of each Approved Project at the completion of schematic design, design development, and construction document phases, or at such other times determined by RIDE. Such a review will ensure that the designs comply with the approved Design and Educational Program approved by the Council and these regulations. In the event that the school project involves historic buildings or Districts, the RI Historical Preservation and Heritage Commission may require an ongoing review through construction.

- B. Districts are responsible for submitting all required documentation to RIDE upon completion of each design phase and attending Plan Review meetings as scheduled by RIDE. At the Plan Review meetings, the design team and building committee are expected to answer all questions posed by RIDE and, upon successful conclusion of the review, may move to the next phase of design.
- C. Listed below is the required documentation for each phase of the design process:
1. Schematic Design:
 - a. The purpose of the documentation submitted during the Schematic Design is to document the continuing development of the school construction project and its major components and to project a project budget. The documentation should also demonstrate compliance with the Northeast-CHPS.
 - (1) Site plan and Landscape plan @ 1/16" = 1'-0"
 - (2) Floor plans @ 1/16" = 1'-0" showing all partitions and door swings Color Rendering
 - (3) Exterior elevations @ 1/16" = 1'-0" Typical building wall sections Single line engineering diagrams Outline specifications
 - (4) City Planning Board submission
 - (5) Civil engineering drawings (scale as required) Confirm Project schedule
 - (6) Site engineering calculations Construction Cost Estimates Project Report
 - (7) LEED™ Checklist Form Project Review Meeting
 - (8) Educational Specifications and Schematic submission to DOE
 2. Design Development and Construction Documents:
 - a. Design Development is intended to further develop the school facilities project design with greater detail.
 - (1) Construction drawings for all trades that show the scope of work for the Project as defined in the detailed deliverables description

- (2) Specifications with general conditions and all technical sections Construction Cost Estimate
- (3) Legal/regulatory approvals completed as required Confirm Project schedule
- (4) Project Report
- (5) LEED™ Checklist Form
- (6) Project Review Meeting

D. The cost of project elements that exceed or diverge from approved project scope may be declared ineligible for school housing aid reimbursement. The District may retain such elements only by accepting sole financial responsibility for non-conforming elements in writing in a format prescribed by RIDE, prior to inclusion of such elements in any designs.

4.10.2 Commissioning Agent Services

A. The District shall procure the services of an independent engineering Commissioning Agent. Commissioning is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained to perform in conformity with the design intent of a project. The Commissioning Agent must be secured prior to the design phase of the project. The Commissioning Agent must be independent, and be procured separately from the contract for the District's construction services. The Commissioning Agent will be responsible, in part, for the local reporting required to implement state enforcement of the regulations for the project during the design, construction, and operational acceptance process to ensure compliance with the regulations during integrated design. During schematic design and design development, the Commissioning Agent will verify that all standards have been met through meetings with the design team and review of plans submitted by the design team. The Commissioning Agent will continue to monitor compliance with these regulations through the development of construction documents and through the construction process to ensure that all building systems, mechanical and lighting equipment, and all specifications are in compliance with regulations, included in and consistent with all plans, construction documents, and cost estimates. The Commissioning Agent will submit reports certifying compliance with all standards and regulations to RIDE and the District representative. The Commissioning Agent should work closely with the District's project manager, also referred to as clerk of the works.

B. The Commissioning Agent must:

1. Bring the owner's needs and project requirements to the forefront at each phase of the project to ensure that the finished project will meet expectations;

2. Improve the building's overall performance by optimizing energy-efficient design features and directly addressing issues like equipment performance testing and system integration; and
3. Verify that building staff members are well-trained and possess the documentation they need to operate and maintain the building's systems and equipment after turnover.

4.10.3 Architectural, Engineering, and Other Services

- A. Architectural, engineering, project management, construction management, financial, and other professional services shall be procured by the Districts for all projects.
- B. The Facility Analysis must include an analysis of the energy use (electric and heating and/or cooling) of the facility for at least the last two years, a survey of the facility systems, and recommendations for improving energy efficiency. The use of Energy Star Portfolio Manager or ComCheck software systems to benchmark the facility against other buildings or the Rhode Island Building Energy Code is highly encouraged.

4.10.3 Timelines

The District must meet the timelines established in the Memorandum of Agreement. If the District does not meet said timelines, RIDE reserves the right to rescind project approval and the District may reapply for the Project in a subsequent fiscal year.

4.10.4 Construction Bidding Documents

The District shall maintain bidding information and tabulation sheets and shall provide them and any other documentation upon request by RIDE.

4.10.5 Project Files

- A. The District shall maintain a project file that shall include, but not be limited to, the following documents:
 1. All documents related to the project approval process, including project siting, land acquisition, real estate documents (deeds, leases, title report including searches for easements, mortgages, judgments, liens, unpaid taxes, water and sewer, or property description by metes and bounds) surveys, school board resolutions, referendum ballot questions or municipal debt ordinances, and all public notices.
 2. All documents related to the financing of the project including:

- a. Selection and payment of professionals, such as bond counsel and other attorneys, underwriters, financial and investment advisors, trustees, official printers, and bond insurers;
 - b. Structuring of the financing, such as the method(s) of borrowing considered, complete financing estimates and cash flows, all number runs including escrow sufficiency, if applicable, and yield calculations, the rationale for the plan of financing (resulting in the issuance of obligations under terms most advantageous to the District), long-range plans or models, computerized models, private uses, and costs of issuance; and
 - c. Issues of debt, such as general, series and supplemental bond resolutions, trust indentures, trust agreement, preliminary official statement, all disclosure materials, Official Notice of Sale or Purchase Contract, arbitrage certificate, tax regulatory agreement, IRS Form 8083, as appropriate, Disclosure Agreement, and TEFRA Notice, if applicable
 3. All documents related to the bidding process, evaluation of bids, award, and execution of contracts, the specifications, request for proposal (“RFP”) or other invitations to bidders, the advertisements or public notices of the opportunity to bid, logs of the bids received and the bids opened, bid evaluation worksheets, notices of contract award, and the executed construction contract documents;
 4. All documents related to the construction of school facilities, including the documents required to be kept by the construction contract documents, specifications, change orders, alternate submissions, approvals or rejections, unit prices, product data, time of performance schedules, construction photographs, quality control management reports, value engineering information, up-to-date project accounting system, intermediate and final audits, “as built” or other drawings documenting the actual facilities built and fixtures installed, close-out documentation on forms provided by RIDE, related correspondence, vouchers, and certifications;
 5. All payroll certifications filed with the District by all contractors and subcontractors; and
 6. All documents a District is legally required to make, maintain, or keep on file as part of a construction project.
- B. The documents above shall be maintained in a readily accessible place for review and inspection by the RIDE and any other related agencies for the duration of the school facilities project and three years thereafter or, if litigation

concerning any aspect of the school facilities project is instituted, until completion of all litigation, whichever is later.

4.11 Enforcement of Regulations and Compliance with the Memorandum of Agreement

- A. During design, RIDE will review schematic design and design development documents as indicated in § 4.9.3 of this Part. During construction, RIDE may visit the construction site to determine that the project is being built as approved. RIDE will review periodic construction progress reports. RIDE will review construction documents at the 60% completion stage and review change orders exceeding 10% of the original approval to determine that the project is proceeding as approved and in compliance with these regulations. The cost of change orders, which result in elements that diverge from or exceed the provisions of the Design and Educational Program and/or the Memorandum of Agreement, may be deemed ineligible for reimbursement. RIDE may inspect the completed facility, in operation, to ensure the project has been completed and is operating consistent with project approval by the Council and pursuant to the terms of the Memorandum of Agreement. RIDE or its representative reserves the right to conduct an Audit. Audit Materials, as defined in § 4.3 of this Part, shall be provided as requested.
- B. In order to determine the eligible costs of an Approved Project, Districts will submit fiscal records to RIDE as prescribed by the Council to ensure that only eligible costs are included in the school housing aid reimbursement. Districts shall cooperate with RIDE or its designee, if any, in the conduct of a fiscal review. Such cooperation shall include, but not be limited to, scheduling, provision of adequate work space, requests for documents, access to personnel with knowledge of the Approved Project, access to Approved Project-related materials stored electronically, or any other requirement for the thorough and expeditious conduct of the review.
- C. Except as provided herein, the cost of an audit shall be borne by RIDE. If RIDE determines that the District has not reasonably cooperated in the conduct of a review, is responsible for any delay in the review, or is determined to be making frivolous or non-meritorious appeals, RIDE may, in its sole discretion, deduct all or a portion of the cost of conducting the fiscal review from the District's school housing aid reimbursement.
- D. Applicants shall maintain all records related to an Application and an Approved Project pursuant to the requirements established in § 4.10 of this Part.

4.12 Asset Protection and Maintenance of Facilities

4.12.1 Asset Protection Plans and Building Maintenance

- A. Each school District shall develop, implement, and maintain a comprehensive asset protection plan for every school building, not just buildings for which school housing aid is sought or received. The plan must include a full analysis of the building's current condition, the need for repairs if any, the costs associated with the repairs, and the nature and cost of annual maintenance for each building. The asset protection plan must be submitted to RIDE annually and will be reviewed by a certified licensed professional to determine that the plan is adequate. The plans must address regularly scheduled preventive maintenance to prevent premature failure and to maximize the useful life of a facility. If the plan submitted by the District is determined to be inadequate, Districts will be notified by RIDE and required to submit a revised plan within thirty (30) days. Districts must submit annual updates to these plans to RIDE that list all maintenance performed and expenditures pursuant to the plan for the previous year.
- B. The asset protection plan and annual expenditures pursuant thereto must meet the following minimum requirements:
1. All facilities and structures shall be maintained in a safe, sound, and energy efficient condition. All service equipment, means of egress, devices, and safeguards which are required by the state building code in a building or structure, when erected, altered, or repaired, shall be maintained in good working order;
 2. For each facility, the plan shall itemize anticipated annual expenditures for required maintenance;
 3. Capital maintenance expenditures shall be itemized and be consistent with the District's approval capital improvement plan; and
 4. The plan shall itemize costs for the replacement of all approved temporary facilities in the District with permanent structures.
- C. RIDE will not approve a school construction application for a District that does not have a budget for that fiscal year which provides for full funding of its asset protection plan. RIDE will also not approve a school construction application for any District that has not spent at least fifty percent (50%) of its asset protection budget pursuant to its asset protection plan in each of the previous three years prior to application.
- D. If a District receiving school housing aid fails to maintain compliance with the asset protection requirements of these regulations or any guidelines, policies or procedures established by the Council, the District may be prohibited from receiving school housing aid for at least one year and prior to reinstatement of school housing aid payments shall be subject to a review by RIDE to determine that the District is in compliance with these regulations.

4.12.2 Certified Educational Facilities Manager

- A. No person shall be employed by a District to supervise buildings and grounds unless the candidate meets one of the following criteria:
 - 1. Has completed a minimum of two (2) years' experience in the field of buildings and grounds supervision; or
 - 2. Has been certified an educational facilities manager through an industry accepted certification offered at a regionally accredited institution of higher education or an approved postsecondary institution located within or outside Rhode Island; or
 - 3. Has a college degree in a field related to facilities management.
- B. When a vacancy occurs in a position in which the duties of a supervisor of buildings and grounds are performed, the District may select, for a period not to exceed six months from the date of the vacancy, a person who does not meet the requirements noted above to perform on an interim basis the duties of a supervisor of buildings and grounds.

4.13 Housing Aid Reimbursement and Incentive

4.13.1 General

RIDE shall annually award school housing aid within the amounts and at such times as authorized by R.I. Gen. Laws §§ 16-7- 35 through 16-7-47. State funding shall be awarded to completed projects according to statutes and regulations governing school housing aid. No payment of school housing aid for an Approved Project shall be made before the completion of the project and submission of the forms as prescribed by the Regents. School housing aid will be paid on interest only for bonds issued through the RIHEBC.

4.13.2 Energy and Water Efficiency Incentive

- A. Additional reimbursement funds are available to approved new construction projects that demonstrate energy and water efficiency cost reduction beyond the minimum school construction threshold requirements as defined in the Northeast-CHPS.
- B. Districts are eligible for two percent (2%) additional reimbursement funds for projects that achieve energy efficiency thirty percent (30%) above the RI Building Energy Code; 3% additional reimbursement for energy efficiency forty percent (40%) above the RI Building Energy Code; and four percent (4%) additional reimbursement for energy efficiency fifty percent (50%) above the RI Building Energy Code.
- C. Compliance with increased energy efficiency levels is demonstrated through submission of results of energy modeling and analysis reports during the Necessity for School Construction application process as prescribed in § 4.9.2 of

this Part and Plan Review upon completion of schematic design, design development, and construction documents as outlined in these regulations. The submission must be reviewed and certified by a licensed professional engineer and approved by RIDE.

- D. Energy efficiency performance must be documented each year through the submission of yearly reports that include: monthly utility bills, summary of energy consumption for the previous year, and energy consumption compared to the baseline design. The District may submit benchmark energy software programs (such as ENERGY STAR Portfolio Manager) to demonstrate compliance.
- E. Buildings that are not able to maintain energy efficiency over time must meet with RIDE officials to review the materials and explain any discrepancies. Should non-compliance persist, RIDE may reduce any further reimbursement by the percent of the incentive.

4.14 Program Integrity

Where RIDE determines that false or intentionally misleading information or documentation was submitted by an applicant in support of any effort to obtain acceptance of an application, approval for a Project, reconsideration of an appeal, granting of waiver or any other action or forbearance by RIDE, or a District commits any other act affecting the integrity of the Program, RIDE may permanently revoke any and all payments due to a District, RIDE may take steps to recover any previous payments made to a District and/or said District shall be prohibited from receiving school housing aid for a period of time to be determined by RIDE.

4.15 Closing Schools

- A. A District must notify RIDE in writing six months prior to the sale, lease, demolition, or other removal from service of any school facility in the District's jurisdiction. The notification must include the District's plan for accommodating any displaced school programs or services and a plan for accommodating District students within remaining school buildings as a result of this sale, lease or removal from service.
- B. Where a building that has received school construction payments from RIDE for a building that has not remained in service for fifty (50) years, RIDE may recapture at its discretion a portion of the housing aid reimbursement.
- C. In the event of a proposed closure, a District shall inform neighboring Districts of the proposed action in the event that the second District may wish to acquire the building for its own use.

4.16 Waiver

Any request for a waiver of any of the provisions of these regulations shall be made to RIDE's Commissioner.

Section 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Abbreviations and Acronyms.
- B. Definitions.
- C. Sustainability Requirements.
- D. Reference Standards.

1.2 ABBREVIATIONS AND ACRONYMS

- A. The following list of common abbreviations are referenced in individual specification sections. This list is provided for convenience to the Contractor and is not intended to define all abbreviations use in the Contract Documents.

1. Abbreviations for contract and specifications.

| | |
|---------|----------------------------------------------------------------------------|
| EPA | United States Environmental Protection Agency |
| IAQ | Indoor Air Quality |
| IEQ | Indoor Environmental Quality |
| HVAC | Heating, ventilating, and air conditioning |
| NE-CHPS | Northeast Collaborative for High Performance Schools Criteria, Version 4.0 |
| NIC | Not In Contract |
| OFCI | Owner Furnished, Contractor Installed |
| OFI | Owner Furnished and Installed |
| SDS | Safety Data Sheet (formerly MSDS) |
| VOC | Volatile Organic Compounds |

2. Abbreviations for measurements and quantities.

| | |
|----------------------|------------------------|
| C | Celsius |
| cm | Centimeter |
| F | Fahrenheit |
| Hrs | Hours |
| Kg | Kilogram |
| L | Liter |
| M | meter |
| m ² or SM | square meter |
| m ³ or CM | cubic meter |
| mm | Millimeter |
| Mths | Months |
| psi | Pounds per square inch |
| t | ton |

3. Abbreviations for Drawings.

REFERENCES

01 42 00 - 1

CONSTRUCTION DOCUMENTS

CALCUTT MIDDLE SCHOOL - FEI

Ai3 Architects, LLC

Central Falls, Rhode Island

BID PACKAGE #2

| | |
|-------|-------------------------|
| A | Acre |
| AC | Air Conditioning |
| ACST | Acoustical |
| ACT | Acoustical Ceiling Tile |
| AD | Area Drain |
| ADD | Addendum |
| ADDL | Additional |
| ADJ | Adjustable, Adjacent |
| AFF | Above Finish Floor |
| AGGR | Aggregate |
| AHU | Air Handling Unit |
| ALT | Alternate |
| ALUM | Aluminum |
| ANOD | Anodized |
| AP | Access panel |
| APRX | Approximate |
| ARCH | Architectural |
| AVG | Average |
| & | And |
| < | Angle |
| @ | At |
| BC | Brick Course |
| BD | Board |
| BG | Below Grade |
| BL | Building Line |
| BLDG | Building |
| BLK | Black |
| BLKG | Blocking |
| BLR | Boiler |
| BM | Beam, Bench Mark |
| BTM | Bottom |
| BTU | British Thermal Unit |
| BOW | Bottom of Wall |
| CAB | Cabinet |
| CB | Chalkboard |
| CBN | Catch Basin |
| CJ | Control Joint |
| CL | Center Line |
| CLG | Ceiling |
| CLKG | Caulking |
| CLOS | Closet |
| CLR | Clear |
| CLSRM | Classroom |

REFERENCES

01 42 00 - 2

CONSTRUCTION DOCUMENTS

CALCUTT MIDDLE SCHOOL - FEI

Ai3 Architects, LLC

Central Falls, Rhode Island

BID PACKAGE #2

| | |
|-------|--------------------------|
| CMT | Ceramic Mosaic Tile |
| CMTB | Ceramic Mosaic Tile Base |
| CMU | Concrete Masonry Unit |
| COL | Column |
| COMP | Compressible |
| CONC | Concrete |
| CONST | Construction |
| CONT | Continuous |
| CONTR | Contractor |
| CORA | Corridor |
| CPT | Carpet |
| CRS | Course |
| CT | Ceramic Tile |
| CTB | Ceramic Tile Base |
| CTR | Center |
| CUH | Cabinet Unit Heater |
| CW | Coldwater |
| [| Channel |
| D | Deep |
| DBL | Double |
| DEG | Degree |
| DEMO | Demolition |
| DEPT | Department |
| DET | Detail |
| DF | Drinking Fountain |
| DIA | Diameter |
| DIFF | Diffuser |
| DIM | Dimension |
| DISP | Dispenser |
| DIV | Division |
| DN | Down |
| DPFG | Damp Proofing |
| DR | Door |
| DRW | Drawer |
| DS | Downspout |
| DWG | Drawing |
| E | East |
| EA | Each |
| EJ | Expansion Joint |
| EL | Elevation |
| ELEC | Electrical |
| ELEV | Elevator |
| EMER | Emergency |

REFERENCES

01 42 00 - 3

BID PACKAGE #2

| | |
|-------|---------------------------------|
| ENCL | Enclosure |
| ENTR | Entrance |
| EP | Electrical Panel, Epoxy Paint |
| EQ | Equal |
| EQU | Equipment |
| EWC | Electric Water Cooler |
| EX | Existing |
| EXCV | Excavation |
| EXP | Exposed |
| EXT | Exterior |
| EXTR | Extruded |
| FA | Fire Alarm |
| FAB | Fabricate |
| FAAF | Fluid-Applied Athletic Flooring |
| FB | Flat Bar |
| FD | Floor Drain |
| FDVC | Fire Department Valve Cabinet |
| FE | Fire Extinguisher |
| FEC | Fire Extinguisher Cabinet |
| FEJ | Floor Expansion Joint |
| FF | Finish Floor |
| FH | Fire Hydrant |
| FIN | Finish |
| FINGR | Finish Grade |
| FIX | Fixed |
| FIXT | Fixture |
| FLASH | Flashing |
| FLEX | Flexible |
| FLOUR | Fluorescent |
| FLR | Floor |
| FND | Foundation |
| FPRF | Fire Proofing |
| FRT | Fire Retardant Treated |
| FS | Food Service |
| FT | Foot, Feet |
| FTG | Footing |
| FTR | Finned Tube Radiation |
| FURN | Furniture |
| FURR | Furring |
| FUT | Future |
| GA | Gauge |
| GALV | Galvanized |
| GC | General Contractor |

REFERENCES

01 42 00 - 4

BID PACKAGE #2

| | |
|-------|----------------------------------------|
| GEN | General, Generator |
| GFRG | Glass Fiber Reinforced Gypsum |
| GFRP | Glass Fiber Reinforced Plaster |
| GL | Glass |
| GND | Ground |
| GWB | Gypsum Wall Board |
| GYP | Gypsum |
| H | High |
| HC | Hollow Core |
| HDW | Hardware |
| HM | Hollow Metal |
| HORZ | Horizontal |
| HP | High Point |
| HR | Hour |
| HT | Height |
| HVAC | Heating Ventilation & Air Conditioning |
| HW | Hot Water |
| HWD | Hardwood |
| ID | Inside Diameter |
| IN | Inch, Inches |
| INCL | Include, Inclusive |
| INSUL | Insulation, Insulated |
| INT | Interior |
| INV | Invert, Inverse |
| JAN | Janitor |
| JT | Joint |
| KD | Knocked Down |
| KEC | Kitchen Equipment Contractor |
| KIT | Kitchen |
| KW | Kilowatt |
| KWH | Kilowatt Per Hour |
| L | Left, Long |
| LAM | Laminate, Laminated |
| LAV | Lavatory |
| LB | Pound |
| LF | Linear Foot, Linear Feet |
| LH | Left hand |
| LP | Low Point |
| LT | Light |
| LTG | Lighting |
| MAT | Entrance Mats, Entrance Grate |
| MATL | Material |
| MAX | Maximum |

REFERENCES

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BID PACKAGE #2

| | |
|------|---------------------------------------|
| MB | Marker Board |
| MECH | Mechanical |
| MEMB | Membrane |
| MFR | Manufacturer |
| MIN | Minimum |
| MISC | Miscellaneous |
| MO | Masonry Opening |
| MR | Moisture Resistant |
| MTD | Mounted |
| MTG | Mounting, Meeting |
| MTL | Metal |
| MUL | Mullion |
| N | North |
| NAT | Natural |
| NIC | Not In Contract |
| NO | Number |
| NOM | Nominal |
| NRC | Noise Reduction Coefficient |
| NTS | Not To Scale |
| OA | Overall |
| OC | On Center |
| OD | Outside Diameter |
| OFI | Owner Furnished Item |
| OFCI | Owner Furnished /Contractor Installed |
| OH | Overhead |
| OPER | Operable |
| OPNG | Opening |
| OPP | Opposite |
| OZ | Ounce |
| P | Paint |
| PAR | Parallel |
| PERF | Perforated |
| PERP | Perpendicular |
| PG | Paint Grade |
| PL | Plate |
| PLAM | Plastic Laminate |
| PLBG | Plumbing |
| PLAS | Plaster |
| PNL | Panel, Paneling |
| POL | Polished |
| PPT | Porcelain Paver Tile |
| PPTB | Porcelain Paver Tile Base |
| PR | Pair |

REFERENCES

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CONSTRUCTION DOCUMENTS

CALCUTT MIDDLE SCHOOL - FEI

Ai3 Architects, LLC

Central Falls, Rhode Island

BID PACKAGE #2

| | |
|-------|-----------------------------------|
| PRFB | Prefabricated |
| PRTBD | Particle Board |
| PSI | Pounds Per Square Inch |
| PT | Pressure Treated |
| PTD | Painted |
| PTN | Partition |
| PWD | Plywood |
| QR | Quarter Round |
| QT | Quarry Tile |
| QUAL | Quality |
| QUAN | Quantity |
| R | Radius, Riser, Rubber |
| RB | Rubber Base |
| RCPT | Receptacle |
| RD | Roof Drain |
| REC | Recessed |
| RECT | Rectangular |
| REF | Reference |
| REFL | Reflected |
| REFR | Refrigerator |
| REINF | Reinforced |
| REQD | Required |
| RESIL | Resilient |
| REV | Revise, Reverse |
| RH | Right Hand |
| RHR | Right Hand Reverse |
| RL | Rain Leader |
| RLG | Railing |
| RO | Rough Opening |
| RR | Rubber Riser |
| RIT | Right |
| RTR | Rubber Tile, Rubber Tread |
| S | South |
| SC | Solid Core |
| SCHD | Schedule |
| SCRF | Static Control Resilient Flooring |
| SECT | Section |
| SEG | Segment |
| SF | Square Foot |
| SH | Shelf |
| SHT | Sheet |
| SHR | Shower |
| SHVT | Seamless Sheet Vinyl |

REFERENCES

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BID PACKAGE #2

| | |
|------|-----------------------------------|
| SIM | Similar |
| SLH | Slotted Horizontal |
| SLV | Slotted Vertical |
| SMFL | Seamless Flooring |
| SPEC | Specification |
| SQ | Square |
| SQIN | Square Inch |
| SS | Stainless Steel |
| SSM | Solid Surface Material |
| ST | Street |
| STA | Station |
| STC | Sound Transmission Classification |
| STD | Standard |
| STL | Steel |
| STOR | Storage |
| STR | Structure |
| STRL | Structural |
| SUB | Subcontractor |
| SUSP | Suspended |
| SWD | Softwood |
| SYM | Symmetrical |
| SYN | Synthetic |
| SYST | System |
| T | Tread |
| T&G | Tongue and Groove |
| TB | Tack Board |
| TC | Top of Curb |
| TEL | Telephone |
| TEMP | Temporary, Temperature |
| TFE | Thin-Film Epoxy Flooring |
| THK | Thick |
| THR | Threshold |
| TLT | Toilet |
| TO | Top of |
| TOB | Top of Blocking |
| TOC | Top of Concrete |
| TOF | Top of Foundation / Footing |
| TOS | Top of Steel |
| TRK | Track |
| TS | Tube Steel |
| TV | Television |
| TW | Top of Wall |
| TYP | Typical |

REFERENCES

01 42 00 - 8

BID PACKAGE #2

| | |
|------|------------------------------------|
| TZ | Terrazo |
| UC | Undercut |
| UL | Underwriters Laboratory |
| UNO | Unless Noted Otherwise |
| UR | Urinal |
| UV | Unit Ventilator, Ultraviolet |
| VB | Vinyl Base |
| VCT | Vinyl composite tile |
| VERT | Vertical |
| VEST | Vestibule |
| VIF | Verify in field |
| VP | Veneer plaster |
| VTR | Vent through roof |
| VWC | Vinyl Wallcovering |
| W | West, Wide, Width |
| W/ | With |
| W/O | Without |
| WAB | Wood Athletic Flooring Vented Base |
| WAF | Wood Athletic Flooring |
| WC | Water Closet |
| WD | Wood |
| WEJ | Wall Expansion Joint |
| WF | Wide Flange |
| WH | Water Heater |
| WP | Work Point |
| WPGF | Water Proofing |
| WSF | Wood Strip Flooring |
| WT | Weight, Wt (Steel Shape) |
| XBAR | Crossbar |
| XH | Extra Heavy |
| XL | Extra Large |
| YD | Yard |
| YR | Year |
| YS | Yield Strength |
| Z | Modulus of Section |
| ZN | Zinc |

1.3 DEFINITIONS

- A. Definitions of contracting parties (Owner, Owner's Project Manager, General Contractor, and Architect): Refer to Section 01 10 00 –SUMMARY.
- B. Definitions for terms utilized in the Contract Documents:
 - 1. "As necessary," "as directed," "when directed," "satisfactory," "good and sufficient," "approved," or other general qualifying terms are used on the

REFERENCES

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Drawings: These terms are deemed to be followed by the words, "in the opinion of the Architect," or "by the Architect," as the case may be."

2. "Addenda": written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Bidding Documents, including the Drawings and Specifications, by additions, deletions, clarifications or corrections.
 3. "Approval," "approved," "approved equal," "or equal," or "other approved" means as approved by the Architect."
 4. The terms "Contractor" and "General Contractor" as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. These terms refer to the same entity.
 5. The term "Day": is defined as the following:
 - a. The term "calendar day" is a full 24 hour period, starting from 12 AM (midnight), and includes all weekends and legal holidays.
 - b. The term "working day" shall mean any calendar day except Saturdays, Sundays, and legal holidays at the place of the building.
 - c. Where the term "day" is used without the adjective of "calendar" or "working", it shall mean "calendar day".
 6. "Furnish and Install" or "Provide": items identified shall be furnished and installed under this Contract. The term "Furnish", when used separately, shall mean that the items referred to shall be furnished, only. Similarly the term "install", when used separately, shall mean that the items referred to shall be installed, only.
 7. "Knowledge," "recognize" and "discover," their respective derivatives and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize) and discovers (or should discover) in exercising the care, skill and diligence required by the Contract Documents. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a Contractor familiar with the Project and exercising the care, skill and diligence required of the contractor by the Contract Documents.
 8. "Not in Contract" or "N.I.C.": equipment, furnishings, or other materials not included as a part of this Contract.
 9. "Product": materials, systems and equipment.
- C. Definitions pertaining to sustainable development: As defined in ASTM E 2114 - *Standard Terminology for Sustainability Relative to the Performance of Buildings*, and as specified herein.
1. "Biobased Materials": As defined in the Farm Security and Rural Investment Act, for purposes of Federal procurement of biobased products, "biobased" means a "commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials." Biobased materials also include fuels, chemicals, building materials, or electric power or heat produced from biomass as defined by The Biomass Research and Development Act of 2000.

REFERENCES

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- a. "Biobased Content": The amount of biobased carbon in the material or product as a percentage of weight (mass) of the total organic carbon in the material or product.
2. "Chain-of-Custody: Process whereby a product or material is maintained under the physical possession or control during its entire life cycle.
3. "Composite panel products": Manufactured wood products including, but are not limited to particle board (PB), Medium Density Fiberboard (MDF), wheatboard and strawboard and similar manufactured products
4. "Deconstruction: Disassembly of buildings for the purpose of recovering materials.
5. "DfE (Design for the Environment)": A technique that includes elements of resource conservation and pollution prevention as applied in various product sectors. A technique that incorporates approaches which are part of product (or assembly) concept, need and design. Considerations involve material selection, material and energy efficiency, reuse, maintainability and design for disassembly and recyclability. Refer to ISO Guide 64, and EPA's website at <http://www.epa.gov/dfe/> for additional clarification on Design for the Environment for additional clarification
6. "Environmentally preferable products": Products and services that have a lesser or reduced effect on the environment in comparison to conventional products and services. Refer to EPA's Final Guidance on Environmentally Preferable Purchasing for more information <<http://www.epa.gov/epp/guidance/finalguidancetoc.htm>>.
7. "Non-Renewable Resource": A resource that exists in a fixed amount that cannot be replenished on a human time scale. Non-renewable resources have the potential for renewal only by geological, physical, and chemical processes taking place over of millions of years. Examples include: iron ore, coal, and oil.
8. "Perpetual Resource": A resource that is virtually inexhaustible on a human time scale. Examples include solar energy, tidal energy, and wind energy.
9. "Recycled Content Materials": Products that contain preconsumer or post-consumer materials as all or part of their feedstock. Recycled content claim shall be consistent with Federal Trade Commission (FTC) Guide for the Use of Environmental Marketing Claims.
10. "Renewable Resource": A resource that is grown, naturally replenished, or cleansed, at a rate which exceeds depletion of the usable supply of that resource. A renewable resource can be exhausted if improperly managed. However, a renewable resource can last indefinitely with proper stewardship. Examples include: trees in forests, grasses in grasslands, and fertile soil.

1.4 SUSTAINABILITY REQUIREMENTS

- A. Sustainability Requirements: The following sustainability requirements are hereby made a part of this Project by reference thereto:
 1. High Performance Schools Exchange, Northeast Energy Efficiency Partnerships NE-CHPS, Version 4.0, May 2022 Edition (referred to herein as "NE-CHPS").
 2. Link: <https://neep.org/ne-chps-40>

REFERENCES

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1.5 REFERENCE STANDARDS

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by DATE OF ISSUE for Contract Documents, current on date of Owner-Contractor Agreement.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- D. The contractual relationship to the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.
- E. Schedule of References
 1. Listed below are abbreviations for the names and titles of trade association names, federal government agencies and similar organizations which are referenced in the individual specification sections. The addresses and phone numbers provided are for the Contractor's convenience and are believed to be current and accurate, however addresses and phone numbers frequently change, and no assurance is made on their accuracy:

| | |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AA | Aluminum Association 900 19th Street N.W., Suite 300 Washington, DC 20006 www.aluminum.com |
| ABAA | Air Barrier Association of America 1600 Boston-Providence Highway Walpole, MA 02081 www.airbarrier.org |
| AAMA | American Architectural Manufacturer's Association 1827 Walden Office Sq., Suite 104 Schaumburg, IL 60173-4268 www.aamanet.org |
| AASHTO | American Assoc. of State Highway & Transportation Officials 444 N. Capitol Street NW, Suite 249 Washington, DC 20001 www.aashto.org |
| ACI | American Concrete Institute, International 38800 Country Club Drive, Farmington Hills, Michigan 48331 www.aci-int.org |
| ACPA | American Concrete Pipe Association 222 West Las Colinas Boulevard, Suite 641, Irving TX www.concrete-pipe.org |
| ADC | Air Diffusion Council 104 S. Michigan Ave, Suite 1500, Chicago, IL 60603 www.flexibleduct.org |
| AFPA | American Forest & Paper Association (Formerly NFPA National Forest Products Association) 1111 19 th St. N.W., Suite 800, Washington, DC 20036 www.afandpa.org |
| AGA | American Gas Association Inc. 1515 Wilson Blvd. Arlington, VA 22209-2469 www.agagas.com |
| AGAI | American Galvanizers Association Inc. 12200 E.Liff Ave, Suite 204, Aurora, CO 80014-1252 |

REFERENCES

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| | www.galvanizeit.org |
| AIA | American Institute of Architects 1735 New York Avenue, N.W., Washington, DC 20006-5292 www.aia.org |
| AISC | American Institute of Steel Construction 1 E. Wacker Dr., Suite 3100, Chicago, IL 60601-2001 www.aisc.org |
| AMCA | Air Movement and Control Association 30 W. University Drive, Arlington Heights, IL 60004-1893 www.amca.org |
| ANSI | American National Standards Institute 11 W. 42 nd Street, 13 Floor, New York, NY 10036 www.ansi.org |
| APA | APA - The Engineered Wood Association (formerly APA - American Plywood Association) P.O. Box 11700, Tacoma, WA 98411-0070 www.apawood.org |
| ARI | Air-Conditioning and Refrigeration Institute 4301 N. Fairfax Dr., Suite 425, Arlington, VA 22203 www.ari.org |
| ASCA | Architectural Spray Coaters Association 230 West Wells Street, Suite 311, Milwaukee WI 53203 www.aecinfo.com |
| ASCE | American Society of Civil Engineers 1015 15 th St. N.W., Washington, DC 20005 www.asce.org |
| ASHRAE | American Society of Heating, Refrigerating, and Air-Conditioning Engineers 1791 Tullie Circle NE, Atlanta GA.30329 www.ashrae.org |
| ASME | American Society of Mechanical Engineers 345 East 47th Street, New York, NY 10017-2392 www.asme.org |
| ASTM | American Society for Testing and Materials 100 Barr Harbor Drive, West Conshohocken, PA 19428 www.astm.org |
| AWI | Architectural Woodwork Institute 1952 Isaac Newton Square W., Reston, VA 20190 www.awinet.org |
| AWPA | American Wood Preservers' Association P.O. Box 286, Woodstock, MD 21163-0286 www.awpa.com |
| AWPI | American Wood Preservers' Institution 1945 Old Gallows Rd., Suite 150, Vienna, VA 22182 www.oas.org |
| AWS | American Welding Society 550 LeJeune Road, N.W., Miami, FL 33126 www.aws.org |
| BHMA | Builders Hardware Manufacturers Association, Inc. 355 Lexington Ave., 17 Floor New York, NY 10017 www.buildershardware.com |
| CDA | Copper Development Association 260 Madison Ave., 16 th Floor, New York, NY 10016 |

REFERENCES

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| | www.copper.org |
| CISCA | Ceilings & Interior Systems Construction Association 579 W. North Ave., Suite 301, Elmhurst, IL 60126 www.cisca.org |
| CRI | Carpet and Rug Institute 310 Holiday Ave, Dalton, GA 30720 www.carpet-rug.com |
| CRSI | Concrete Reinforcing Steel Institute 933 N. Plum Grove Road, Schaumburg, IL 60173-4758 www.crsi.org |
| DHI | Door and Hardware Institute 14170 Newbrook Dr., Chantilly, VA 22021-2223 www.dhi.org |
| FM | Factory Mutual Engineering & Research Corp. 1151 Boston-Providence Turnpike Norwood, MA 02062 www.fmglobal.com |
| FSC | Forest Stewardship Council (United States Chapter) 1155 30th Street NW, Suite 300, Washington, DC 20007 www.c-f-c.com |
| GA | Gypsum Association 810 First Street, N.E., Suite 510 Washington, DC 20002 www.gypsum.org |
| GANA | Glass Association of North America 2945 S.W. Wanamaker Dr., Suite A, Topeka, KS 66612-5321 www.glass.org |
| GICC | Glazing Industry Code Committee 3310 Harrison St., Topeka, KS 66611-2279 www.glazingcodes.net |
| IGCC | Insulating Glass Certification Council 3933 US Route 11, PO Box 2040, Cortland, NY 13045 www.igcc.org |
| LSGA | Laminators Safety Glass Association 3310 Harrison Street, Topeka KS 66611-2279 www.glass.org |
| MCAA | Mason Contractors Association of America 1910 S. Highland Ave. Suite 101, Lombard, IL 60148 www.masoncontractors.org |
| MFMA | Maple Flooring Manufacturers Association 60 Revere Drive, Suite 500, Northbrook, IL 60062 www.maplefloor.org |
| MIL | Military Specifications and Standards Naval Publications and Forms Center 5801 Tabor Avenue, Philadelphia, PA 19120 www.milspec.com |
| NAAMM | National Association of Architectural Metal Manufacturers 8 South Michigan Avenue, Suite 1000, Chicago, IL 60603 www.naamm.org |
| NCMA | National Concrete Masonry Association 2302 Horse Pen Road, Herndon, VA 20171-3499 www.ncma.org |
| NEBB | National Environmental Balancing Bureau 8575 Government Circle, Gaithersburg, MD 20877-4121 |

REFERENCES

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| | |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | www.nebb.org |
| NEMA | National Electrical Manufacturers' Association 1300 N. 17 th St., Suite 1846, Rosslyn, VA 22209 www.nema.org |
| NFPA | National Fire Protection Association 1 Battery March Park, PO Box 9101, Quincy, MA 02269 www.nfpa.org |
| NFSHSA | National Federation of State High School Associations PO Box 20626, Kansas City MO. 64195 www.nfhs.org |
| NRCA | National Roofing Contractors Association O'Hare International Center 10255 W. Higgins Road, Suite 600, Rosemont, IL 60018-5607 www.nrca.net |
| PCA | Portland Cement Association 5420 Old Orchard Road, Skokie, IL 60077-1083 www.cement.org |
| PEI | Porcelain Enamel Institute 4004 Hillsboro Pike, Suite 224B, Nashville, TN 37215 www.porcelainenamel.com |
| PS | Product Standard U. S. Department of Commerce www.omg.org |
| SDI | Steel Deck Institute P.O. Box 25, Fox River Grove, IL 60021-0025 www.sdi.org |
| SDI | Steel Door Institute 30200 Detroit Road, Cleveland, OH 44145-1967 www.steeldoor.org |
| SGCC | Safety Glass Certification Council RMS, P.O. Box 9 Henderson Harbor, NY 13651 www.sgcc.org |
| SIGMA | Sealed Insulating Glass Manufacturers Association 401 N. Michigan Ave., Suite 2400, Chicago, IL 60611 www.glasschange.com |
| SMACNA | Sheet Metal and Air Conditioning Contractors' National Association 4201 Lafayette Center Dr., Chantilly, VA 22022-1209 www.smacnapa.org |
| SSMA | Steel Stud Manufacturer's Association 8 South Michigan Avenue, Chicago IL 60603 www.ssma.com |
| SSPC | The Society for Protective Coatings 40 24 th Street, 6 th Floor, Pittsburgh PA 15222-4623 www.sspc.org |
| SWRI | Sealant, Waterproofing & Restoration Institute 2841 Main Street, Suite 585, Kansas City, MO 64108 www.swrionline.org |
| TCNA | Tile Council of North America, Inc. 100 Clemson Research Blvd., Anderson, SC 29625 www.tileusa.com (formerly TCA, Tile Council of America) |
| UL | Underwriters' Laboratories, Inc. 333 Pfingston Road, Northbrook, IL 60602 |

REFERENCES

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www.ul.com

USGBC United States Green Building Council
1800 Massachusetts Avenue NW, Suite 300
Washington DC 20036
www.usgbc.org

WDMA Window & Door Manufacturers Association
(formerly National Wood Window & Door Association, NWWDA)
205 E. Touhy Avenue, Suite G-54, Des Plaines, IL 60018
www.nwwda.org

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 45 00
QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. General quality assurance and control of installation.
- B. Site safety, worker safety and training.
- C. Contractor's quality control (QC) program
- D. Source quality control.
- E. Field samples and mock-ups.
- F. Manufacturer's field services and quality control.
- G. Field quality control, Owner's right for confirmation.

1.2 GENERAL QUALITY ASSURANCE AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including performance of each step in sequence. Notify Architect when manufacturers' instructions conflict with the provisions and requirements of the Contract Documents; obtain clarification before proceeding with the work affected by the conflict.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate high standards or more precise workmanship.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.3 SITE SAFETY, WORKER SAFETY AND TRAINING

- A. General: The Contractor (and subcontractors) shall, at all times, exercise reasonable precautions for the safety of all persons. All rules, regulations, and laws concerning safety that are in effect at the work site, and in particular, all applicable regulations of the Occupational Safety and Health Administration (OSHA) of the U.S. Government, in addition to specified requirements shall be complied with in all respects.
 - 1. Contractor's responsibility for safety shall apply continuously twenty four (24) hours per Day during the term of this Contract and is not limited to normal working hours.
- B. Contractor's safety program: Prior to commencement of the Work, the Contractor shall develop and implement a Safety and Health Plan to comply with the Occupational Safety and Health Administration (OSHA) standards for the

Construction Industry and all other applicable Federal, State, local laws and regulations. Contractors Safety and Health Plan, and included health and safety procedures and policies, shall be submitted to the Architect and Owner's Representative within fifteen (15) Days after the date of Notice to Proceed and in no event later than commencement of the Work, whichever occurs first.

1. Perform pre planning to ensure access is provided to Fire Department for all areas of the work site throughout the duration of the Contract. The Contractor shall provide the Fire Department site access maps, updated regularly, to reflect changes in the layout of the work site and shall notify the Fire Department when each update is made
2. Post and maintain, at prominent locations throughout the Project site, emergency telephone numbers and shall insure that all personnel on site are continuously aware of this information.
3. Ensure safe access to the Work for the Owner, Architect, Architect's consultants, their designated representatives, and all others charged with inspection, testing and monitoring of the Work, and visitors to the site. The Contractor shall furnish site visitors with safety equipment, test equipment, safety apparel and instructions that are required to insure their safety on site, and in the performance of their duties related to the Work of this Contract

- C. All employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration (OSHA) that is at least 10 hours in duration. The OSHA training and certification course shall occur at the time each employee begins work. Furnish documentation to Owner and Architect, for each employee documenting successful completion of the OSHA safety training and certification course. Submit with the first certified payroll report. Comply fully with all laws and regulations applicable to awards made subject to *RHODE ISLAND BUILDING CODE*, Regulation RISBC-1.

1.4 CONTRACTOR'S QUALITY CONTROL PROGRAM

- A. Procedures: Contractor and each subcontractor shall include all labor, materials, equipment, services and incidental items necessary to implement quality control procedures to the extent necessary to demonstrate and maintain compliance with the Contract Documents.
- B. Quality Control Plan: Within 20 days after Notice to Proceed, the Contractor shall submit a Quality Control (QC) Plan to the Owner's Representative and Architect for approval. The plan shall address the following, as a minimum:
1. The Contractor's commitment to quality and implementing and managing the QC program.
 2. Identification of the Contractor's onsite QC Manager, with name, qualifications, duties and responsibilities. The QC Manager shall have the authority to direct the removal and replacement of non-conforming work. The QC Manager shall be present for all QC meetings, inspections and tests during the project.
 3. Procedures for addressing and commenting QC with Contractor's staff, all subcontractors and suppliers, and Owner, Architect and Owner's representative.
 4. Procedures for review of submittals and submittal status, and documentation of same.

BID PACKAGE #2

5. Procedures for pre-installation meetings and documentation of same.
 6. Procedures for inspections of deliveries and documentation of same.
 7. Procedures for benchmark inspections, defined as initial installations, and documentation of same.
 8. Procedures for mockup inspections and documentation of same.
 9. Procedures for equipment in place, inspections and documentation of same.
 10. Procedures for inspections prior to closures of concealment and documentation of same.
 11. Procedures for start-up and commissioning and documentation of same.
 12. Procedures for turnover and documentation of same.
 13. Procedures for identifying, recording, tracking correcting and reporting items requiring rework, using a Rolling Completion list chronological item number, phase area, date listed, description, party responsible for correction, date notified, and date corrected.
 14. Procedures for testing and documentation of same.
 15. Procedures for corrective action on Architect's Field Reports and Testing Agency reports and documentation of same.
- C. Procedures for reporting on all of the above on a monthly basis as a condition precedent to review of the Contractor's application for payment.

1.5 SOURCE QUALITY CONTROL

- A. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Product Labeling: Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code(s).
1. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
 - a. Model number.
 - b. Serial number.
 - c. Performance characteristics.

1.6 FIELD SAMPLES

- A. Install field samples demonstrating quality level for the Work, at the site by individual specifications Sections for review and acceptance by Architect. Remove field samples prior to date of Final Inspection, or as directed.

BID PACKAGE #2

1.7 MOCK-UPS

- A. Where requested by Architect, or as specified in individual specification sections, assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes. Remove mock-up assemblies prior to date of Final Inspection, or as directed.
- B. Mock-ups, when approved by the Architect, will be used as datum for comparison with the remainder of the Work for the purposes of acceptance or rejection.
- C. Demolish and remove from site prior to requesting inspection for certification of Substantial Completion, all Mock-ups which are not permitted to remain as part of the finished work.

1.8 MANUFACTURER'S FIELD SERVICES AND REPORTS

- A. When called for by individual Specification Sections, provide at no additional cost to the Owner, manufacturers' or product suppliers' qualified staff personnel, to observe site conditions, start-up of equipment, adjusting and balancing of equipment, conditions of surfaces and installation, quality of workmanship, and as specified under the various Sections.
 - 1. Individuals shall report all observations, site decisions, and instructions given to applicators or installers. Immediately notify Architect of any circumstances which are supplemental, or contrary to, manufacturer's written instructions.
 - 2. Submit full report within 30 calendar days from observed site conditions to Architect for review.

1.9 FIELD QUALITY CONTROL

- A. The Owner reserves the right to take samples and perform, at random, tests of approved materials delivered to the job site to verify compliance of actual materials with specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. General requirements for temporary facilities and controls.
- B. Temporary utilities.
- C. Construction facilities.
- D. Temporary construction.
- E. Construction aids.
- F. Vehicular access and parking.
- G. Temporary barriers and enclosures.
- H. Site and environment controls.
 - 1. Noise control procedures.
- I. Fire prevention measures.
- J. Security measures.
- K. Project identification and temporary signage.
- L. Removal of temporary utilities, controls, and facilities.

1.2 GENERAL REQUIREMENTS

- A. The General Contractor shall provide and maintain all temporary facilities, controls, and construction aids as specified herein, until they are replaced by permanent work, or until Project Substantial Completion, as appropriate.
 - 1. Additional temporary facilities and controls which may be specified under individual Bid sections are the responsibility of the respective Subcontractors.
 - 2. Temporary facilities removed from the Project shall remain the property of the Contractor, except as otherwise specified.
- B. Except where specifically noted otherwise, cost or use charges for temporary facilities, utility services, controls, and construction aids and similar items specified in this Section or as required to perform the Work, are not chargeable to the Awarding Authority or Architect, and will not be accepted as a basis of claims for a Change Order.
- C. Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the Work. Terminate use and remove facilities at earliest reasonable time when they are no longer needed, or when permanent facilities have, with authorized use, replaced the temporary facilities.
 - 1. Locate temporary facilities where they will serve Project adequately and result in minimum interference with performance of the Work.

1.3 SUBMITTALS

- A. Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
1. Reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.
 2. Schedule showing implementation and termination of each temporary utility within 15 days of commencement of the Work.
 3. Shop drawings:
 - a. Temporary signage.
 - b. Site Plan: Show temporary facilities, utility hookups, and staging areas.

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
1. ANSI A 10 - Safety Requirements for Construction and Demolition.
 2. NFPA 70 - National Electrical Code.
 3. NFPA 241 - Building Construction and Demolition Operations.

1.5 TEMPORARY WEATHER PROTECTION

- A. General, Protect building interior and all materials and equipment from weather at all times. Where removal of, or penetration of building envelope materials, including roofing, windows, doors, and other items is necessary to accomplish work, have materials and workmen ready to provide adequate and approve temporary covering of exposed areas.
1. Temporary coverings shall be attended as necessary to insure effectiveness and to prevent displacement.
 2. Contractor shall repair or replace all elements of the building damaged by failure to properly protect them from the weather to the satisfaction of the Architect at no additional cost to the Owner.
- B. Weather Protection Standards:
1. Definition of Weather Protection: "Weather Protection" means temporary protection of work which may be adversely affected by moisture, cold, heat, and wind by the use of temporary covers, enclosures, and heat. Maintain at least the minimum temperatures specific. Comply with specific requirements which are specified within individual Specification Sections.
 - a. Temperature at the working surface shall be at least forty degrees Fahrenheit (40 degrees F). This provision does not supersede any specific greater requirements for methods of construction for application of, or curing of, materials.
 2. General Contractor's Responsibilities:
 - a. The General Contractor shall furnish and install all "weather protection". The General Contractor is responsible to ensure that protection is

provided for the building INTERIOR and all materials and equipment from weather at all times (year round).

- b. At completion of work, the General Contractor shall remove temporary weather protection and restore all surfaces to first class condition.
3. Proposed Plan: The General Contractor shall within 30 calendar days after Award of Contract, submit three copies of a typewritten proposed plan for "Weather Protection" and obtain the Architect's and Owner's written approval.
4. Reporting Requirements:
 - a. Within thirty calendar days after Contract award, the General Contractor shall submit in writing to the Owner for approval, three copies of its proposed plan for weather protection.
 - b. The General Contractor shall furnish and install accurate Fahrenheit digital recording thermometers at places designated by the Owner to determine whether the required temperature is being maintained.
5. Weather protection materials, equipment, and the installation thereof, shall comply with all the safety rules and regulations including provisions for adequate ventilation and fire protection devices.
6. Use of Permanent Heating System(s): The General Contractor may choose, if the Owner approves, to use the permanent heating system for temporary heat after the building is enclosed and the system has been tested and is ready to operate.
 - a. The General Contractor shall thoroughly clean and restore to first class condition, acceptable to the Owner, all portions of the permanent heating system that are used for heating during construction.
 - b. Use of the permanent heating system for weather protection shall not affect any heating system guarantee that may be due to the Owner; such guarantee shall begin to run only when the Owner accepts the building.
- C. Additional weather protection requirements: The General Contractor is responsible to ensure that the protection is provided by for the building interior and all materials and equipment from weather at all times (year round).
 1. Temporary coverings shall be attended as necessary to insure effectiveness and to prevent displacement.
 2. Contractor shall repair or replace all elements of the building damaged by failure to properly protect them from the weather to the satisfaction of the Architect at no additional cost to the Owner.

1.6 TEMPORARY UTILITIES, GENERAL

- A. General temporary utility installation:
 1. Engage the local utility companies to install temporary service or connect to existing service. All costs of connecting to public utility lines, and furnishing of utilities during construction shall be without additional cost to the Owner.
 2. Provide adequate capacity at each stage of construction.
 3. Prior to temporary utility availability, provide 'trucked-in' services.
 4. Obtain and pay for required permits and licenses required from authorities prior to commencing installation of temporary services. Arrange for authorities having jurisdiction to inspect and test each temporary utility before use.

1.7 TEMPORARY UTILITIES, ELECTRICITY

- A. Temporary electricity: The General Contractor will pay for all electrical energy required for temporary light and power. The Electrical Subcontractor is required to provide temporary feeders of sufficient capacity from the utilities power lines, at the point coordinated with the local utility, to provide for the electric light and power requirements for the Project while under construction. Additional requirements are specified under Division 26 - ELECTRICAL, and as follows:
- B. Temporary electricity: The Electric Subcontractor shall be responsible for installation and maintenance of all temporary power as defined above and further specified as follows.
1. The General Contractor will pay for all electrical energy used on the Project from the beginning of construction operations to the Date of Substantial Completion of the Work. The Owner will pay for all electrical energy drawn from normal metered building supply used on the Project after the Date of Substantial Completion of the Work. The Contractor shall install a separate meter for recording the Construction Electricity.
 2. Temporary electricity used for construction will be required between the hours of 7:00 a.m. and 5:30 p.m. and during additional work hours as determined by the General Contractor. No additional charge shall be made by the Electrical Subcontractor for switching the system on and off to meet this time requirement.
 - a. Protective night lighting is required at all times (24 hours a day, seven days a week) and shall be on separate switching from temporary electricity service used for construction.
 3. Responsibility of compliance with local, state and national codes for installation of the Construction Electric service shall be borne by the Electrical Subcontractor.
 4. Replacement lamps shall be provided by the Electrical Subcontractor during the Construction Electric period. All lamps in permanent fixtures which have been used during the Interim Electric period shall be replaced with new lamps by the Electrical Subcontractor at his expense just prior to the Date of Substantial Completion.
 5. The following Construction Electricity shall be included by the Electrical Subcontractor in his subcontract price. This schedule will not necessarily provide for all requirements of the General Contractors or all Subcontractors. The General Contractor or any Subcontractor having requirements for power, lighting, or service other than those provided herein, shall make the necessary arrangements to obtain such power, lighting, or service at his own expense.
 - a. The Electrical Subcontractor shall obtain all necessary permits and shall connect to public utility line as a source for temporary electrical power, shall furnish and install the temporary electrical power and lighting systems, and shall pay for all labor, materials, and equipment required therefor. All such temporary electrical work shall meet the requirements of the Rhode Island Electrical Code and OSHA.
 - b. The Electrical Subcontractor shall furnish and install a feeder, or feeders, of sufficient capacity for the requirements of each floor.
 - 1) Provide sufficient additional wiring outlets and lamps shall be installed to insure proper lighting in stairwells, corridors and passage areas.

- 2) Temporary power, in addition to the lighting requirements (specified herein), shall be provided throughout the building for electrically operated tools, based on a minimum of 0.50 watts per sq. ft.
- c. All necessary cables, load centers, switches and accessories required for the temporary light and power installation shall be provided and installed by the Electrical Subcontractor.
- d. The Electrical Subcontractor shall furnish and install all lamps, both initial and replacement until the date of Substantial Completion.
- e. Temporary light and power requirements herein required is for the use of all trades working at the site.
- f. All Contractors and subcontractors shall, individually, furnish any extension cords and lamps therefor, sockets, motors and accessories required for their work.
- g. The General Contractor, and other subcontractors, shall reimburse the Electrical Subcontractor for the following:
 - 1) Any temporary wiring of a special nature, other than that specified above, required for their work.
 - 2) Any temporary wiring of construction offices and buildings used by them.
 - 3) Any temporary wiring for protective night lighting.
6. All temporary wiring, service equipment, and accessories thereto shall be removed by the Electrical Subcontractor when directed by the General Contractor.
7. The provisions of the Rhode Island Electric Code shall be strictly complied and the following precautions shall be taken:
 - a. Open conductors shall be fastened at ceiling height at minimum of 10 R. intervals. Conductors may not be laid on the floor, and receptacles or fixed equipment circuits shall contain a separate equipment grounding conductor run as open wiring. Receptacles shall be of the grounding type. Branch circuits, unless installed in a complete metallic conductor and receptacles electrically connected to the grounding conductor. No bare conductors nor earth returns shall be used for wiring of any temporary circuits. Grounding circuits shall never be interrupted.
 - b. All 15 ampere and 20 ampere receptacle outlets on single phase circuits which are used for construction purposes shall have approved ground-fault circuit protection for personnel, as required by Article 210 of the Rhode Island Electrical Code.
- C. Interim Electricity: The Electrical subcontractor shall be responsible for interim electricity as defined above and further specified as follows.
 1. The permanent electric power and lighting system in a given area shall be completely installed as designed before the system may be used in such area.
 2. At the termination of the use of the permanent electrical light and power system for interim electric, all panelboards shall be inspected and cleaned, and all permanent lighting fixtures which have been used shall be thoroughly cleaned and provided with new lamps, bulbs, fluorescent tubes to provide like new performance.

1.8 TEMPORARY UTILITIES, LIGHTING

- A. Temporary lighting: The Electrical subcontractor shall provide lighting with local switching to fulfill security requirements and provide illumination for construction operations and traffic conditions. Maintain lighting and provide routine repairs. Permanent building lighting may be utilized during construction.
1. Temporary lighting shall be based on the following requirements:
 - a. Rooms or spaces under 250 sq. ft.: Two (2) 100 watt lamps.
 - b. Rooms or spaces over 250 sq. ft. and under 500 sq. ft.: Four (4) 100 watt lamps.
 - c. Rooms or spaces 500 square feet and over: Two (2) 200 watt lamps for spaces 500 square feet to 1000 square feet and two (2) 200 watt lamps for every 1000 square feet or fraction thereof after.
 2. Permanent building lighting may be utilized. Immediately prior to the Architect's inspection for substantial completion. The Electrical Subcontractor is required to replace all used lamps which are broken or have burned out.
- B. Protective night lighting is required at all times (24 hours a day, seven days a week). Contractor is required to arrange for adequate outdoor lighting to illuminate stagings, stockpiles, trenches, dangerous projections, excavations and similar conditions and as additionally required to protect the safety of workmen, other personnel, and the public and as an aid in the protection against theft and vandalism.
1. Provide shielding of night lighting to restrict extent of lighting to project site. Shield lighting from illuminating abutter's properties.

1.9 TEMPORARY UTILITIES, TELEPHONE/INTERNET

- A. Temporary telephone service: Provide telephone service at time of project mobilization, and pay all costs for installation, maintenance, and removal. Maintain specified service for duration of work, until Owner's occupancy precludes need for Contractor to continue service. The General Contractor shall pay service charges for local calls; toll charges shall be paid by party who places call. Service and equipment required includes the following:
1. For Owner's Project Manager's Field Office
 - a. Provide three direct lines and touch-tone phones, dedicated for use by the Architect, Owner's Representative, the Architect's engineering consultants and other authorized agents of the Owner.
 - 1) Phones to be three lines each, with intercom, hands free speaker phone and 25 foot coiled cords connecting instrument's base and receiver. Instruments shall be connected to wall mounted jacks with cords not less than 10 feet long. A minimum of one phone shall have speaker phone function.
 - b. Provide telephone instrument and telephone service with unlimited long distance calling.
 - c. Costs of temporary phone service setup prior to installation of trailer offices shall be provided by the Owner's Representative.
 2. For Contractor's Field Office.
 - a. Provide two direct lines dedicated for use by the Contractor, subcontractors, and personnel engaged in construction.

- b. One answering machine having remote message retrieval separate incoming and outgoing tape cassettes, time and date message stamp and call monitoring.
 - c. Cellular (mobile) phone service for Contractor's Superintendent, continuously maintained until Project Substantial Completion.
 - B. Temporary internet service: Provide internet service at time of project mobilization, and pay all costs for installation, maintenance, and removal. The General Contractor shall pay for, and maintain service until Owner's occupancy precludes need for Contractor to maintain service.
 - 1. For Contractor's Field Office, General Contractor shall provide and maintain internet and email service. Internet service shall include e-mail account allowing a minimum of 5mb attachments to ensure exchange of all construction related e-mail to Contractor's field office.
- 1.10 TEMPORARY UTILITIES, WATER
 - A. Temporary water: The General Contractor shall provide and maintain water service and distribution piping of sizes and pressures adequate for construction, including water meter and hose bib(s) at location(s) to be determined by Contractor so that water is available throughout the construction by the use of hoses.
 - 1. Exercise measures to conserve water.
 - B. Protect piping and fittings against freezing.
- 1.11 TEMPORARY UTILITIES, FUEL OIL
 - A. Provide all fuel oil for temporary heating systems at no additional cost to the Owner.
- 1.12 TEMPORARY HEATING AND COOLING
 - A. Temporary heat: Provide heat for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Provide vented self-contained liquid propane gas or fuel oil heaters with individual space thermostatic control, UL approved and acceptable to local fire department. Use of gasoline-burning space heaters, open flame, or salamander type units is prohibited.
 - 1. Vent heaters directly to outside air, in areas where concrete is less than 15 days old.
 - 2. In enclosed building interior areas, maintain a minimum ambient temperature of 50 degrees Fahrenheit; provide higher temperatures where required by individual specification sections. General Contractor is required to provide enclosures necessary to maintain specified temporary heat.
- 1.13 TEMPORARY VENTILATION AND HUMIDITY CONTROL
 - A. General:
 - 1. Humidity Control: Monitor and regulate relative humidity as required for the installation of all interior products. Relative humidity shall be maintained within the limits set by manufacturers of all interior materials and equipment. Refer to individual specification sections in Divisions 6, 8, 9, 10, 11 and 12 for additional environmental requirements.

- a. Contractor shall enclose interior work areas, protect from weather, and maintain specified temperature and humidity prior to commencement of construction activities relating to interior finishes.
2. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.
 - a. During construction, Contractor shall meet or exceed the minimum requirements of the SMACNA IAQ Guideline for Occupied Buildings under Construction - 1995.
- B. Monitor Humidity: Provide Hygrometer to measure temperature and relative humidity in each construction area.
 1. Provide dehumidifier(s), as required to maintain humidity of enclosed areas below 70 percent. Humidity level shall be maintained in all areas where interior finish work is being performed, and all areas where interior finishes has been completed.
 2. Provide fans as specified herein, and as required to eliminate significant variation in humidity levels within enclosed spaces.
- C. Temporary Construction Ventilation: Contractor shall maintain sufficient temporary ventilation of areas where materials are being used that emit VOC's and maintain ventilation continuously during installation and until emissions dissipate after installation. If continuous ventilation is not possible via the building's HVAC system(s) then Contractor shall supply ventilation via open windows and temporary fans, sufficient to provide no less than three air changes per hour.
 1. Vent all areas directly to outside. Areas shall not be vented to other enclosed areas.
 2. During dust producing activities (e.g. drywall installation and finishing) Contractor shall turn off ventilation system and protect openings in supply and return HVAC system from dust infiltration. Provide temporary ventilation as required.
 3. Dissipation of VOC's: The period after installation shall be sufficient to dissipate odors and elevated concentrations of VOCs. A minimum time period of 72 hours is required except where longer periods of time are specified under individual specification sections.
- D. Preconditioning: Prior to installation, Contractor shall allow products which have odors and VOC emissions to off-gas in dry, well-ventilated space outside of building for 14 calendar days, in order to allow for reasonable dissipation of odors and emissions.

1.14 FIELD OFFICES AND SHEDS

- A. General:
 1. Availability: Provide Contractor's Field Office. Provide offices ready for occupancy within 15 days after date fixed in Notice to Proceed.
 2. Field offices: Provide furnished, insulated, weathertight, office(s) which shall be portable or mobile building(s), or buildings constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

- a. Securely support trailer on temporary masonry or preservative treated wood piers and not on trailer wheels. Anchor trailer to prevent overturning due to wind or other causes.
3. Location: The location of the field office(s) and storage areas for equipment and materials shall be upon cleared portions of the job site or areas to be cleared, and shall require review and written acceptance of the Architect. Submit plans showing field office and storage facilities for equipment and materials for acceptance by the Architect.
 - a. Offices and sheds located within the construction area, or within 30 feet of building lines shall be of noncombustible construction. Comply with requirements of NFPA 241.
 - b. Construction of offices shall have sound insulation adequate to exclude sounds of routine construction activities and reduce server noise to less than 70 dB.
 - c. Access to trailers shall conform to RISBC-1 Rhode Island Building Code.
4. General:
 - a. Contractor shall provide weekly periodic cleaning and maintenance of field offices and storage areas to the satisfaction of the Awarding Authority and the Owner's Project Manager or more frequently as required or requested.
 - b. Provide air conditioning and heating to maintain a temperature range of 65 to 78 degrees F.
 - c. Provide sufficient lighting for 50 foot candles at desk top level over 100 percent of floor area.
 - d. Excluding computer, computer software and related equipment; all other non-consumed furnishings and equipment, will be returned to the Contractor upon project completion.
 - e. The Contractor shall provide all necessary office supplies to run both field offices on a day to day basis including but not limited to paper, pen, pencils, filing equipment, manila folders, envelopes, toilet paper and paper towels.
- B. Contractor's field office(s): Provide habitable office(s) or space, of size to accommodate personnel, include as a minimum the following:
 1. Size: Contractor field office shall be not less than 12 by 50 foot long office trailer. Sectioning of trailer shall be as required by Contractor. Each section of trailer shall have direct access to an exterior locking door and a communicating door.
 2. Furnishings:
 - a. Conference table of sufficient size with seating to accommodate personnel and anticipated visitors for specified conferences and weekly progress meetings. Conference table shall comfortably seat not less than 20 people.
 - b. Racks and files for Contract Documents, submittals and Project Record Documents.
 3. Outdoor weather thermometer with high/low readings.
 4. Hard-hats for site visitors.
 5. Duplex convenience outlets, at least one per wall.

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6. Telephone service as specified herein above.
 7. Other equipment and furniture as the Contractor deems necessary.
- C. Storage and fabrication sheds: Provide sheds, equipped to accommodate materials and equipment involved.
1. Subcontractor's are responsible for their own storage facilities, coordinate locations.
- D. Maintain approach walks to field office and storage/fabrication sheds free of mud, water, and snow.
- E. When permanent facilities are enclosed with operable utilities, relocate offices and storage into building, with written agreement of Awarding Authority, and remove temporary buildings.

1.15 SANITARY FACILITIES

- A. Sanitary facilities: Provide self-contained single occupant chemical toilet units, wash facilities and drinking water fixtures.
1. Sanitary facilities shall be located within the fenced construction zone.
- B. Provide toilet tissue, paper towels, paper cups, cleaning compounds and similar materials.
- C. Maintain facilities, throughout term of construction, and keep clean, provide covered waste containers for used material.

1.16 CANTEEN SERVICES

- A. Canteen vehicles must access the worksite at predetermined times coordinated with the Owner, and are limited to service within the construction site only.

1.17 FIRST AID AND FIRE EXTINGUISHERS

- A. First aid supplies: Comply with governing regulations.
- B. Fire extinguishers: Provide and maintain on site, adequate fire extinguishers UL rated for A-B-C type fires. Provide red-painted plywood standards for each extinguisher. Additionally provide a dry chemical fire extinguisher at each location where welding, torch cutting and other similar hazardous work is in progress.

1.18 CONSTRUCTION AIDS - TEMPORARY HOISTS AND CRANES

- A. Hoisting equipment and machinery: Furnish all hoisting equipment, crane services and lift machinery required to perform the Work of this Contract, except that required by subcontractors. Install, operate and maintain in safe condition.
1. Do not charge applicators and installers for these services during normal working hours.
 2. Subcontractors are responsible for their own hoisting equipment, crane services and lift machinery required to perform the Work of their respective trade.

1.19 CONSTRUCTION AIDS - SCAFFOLDING, PLATFORMS, STAGING, CHUTES

- A. Provide ladders, ramps, runways, platforms, railings, chutes, and other mounted or installed construction aids as specified herein to facilitate the Work. Furnish and erect construction aids and maintain in safe condition for the use of all subcontractors, installers and applicators.
- B. Furnish and erect scaffolds, staging, and maintain in safe condition, dismantle when no longer required. The General Contractor and subcontractors shall provide scaffolds, staging, and other similar raised platforms, required to access the Work, per the following
 - 1. Scaffolds and staging shall be erected and maintained in safe condition, dismantle when no longer required.
 - 2. Scaffolding required for used by Subcontractors shall be furnished, erected, maintained, and dismantled, by the Trade requiring such scaffolding.
 - a. Each Subcontractor is responsible to provide, maintain and remove at dismantling, all tarpaulins and similar protective measures necessary to cover scaffolding for inclement weather conditions and as additionally required for dust control.
 - 3. Scaffolding of any height, required for used by installers and applicators of non-filed trades, shall be furnished, erected, and maintained by the General Contractor.
- C. Ladders, temporary stairs, platforms and railings, shall comply with OSHA guidelines.
 - 1. Provide and maintain temporary stairs until permanent stairs are in place and functional. When permanent stairs are erected, provide temporary railings and guards. Protect permanent stairs with temporary covers and protective treads.
 - 2. Portable ladders and mobile platforms of all required heights, shall be provided by individual users.

1.20 VEHICULAR ACCESS AND PARKING

- A. Provide and maintain access to fire hydrants free of obstructions. Provide unimpeded access for emergency vehicles. Maintain 20 foot width driveways with turning space between and around combustible materials.
 - 1. Parking on public streets: On-street parking is available. The Contractor's personnel are fully responsible to abide by all Municipal Laws and Regulations for on street and public parking. The Contractor and its personnel are additionally fully responsible for all costs incurred by the Contractor or its personnel for parking.

1.21 VEHICULAR TRAFFIC CONTROL

- A. The Contractor shall not close or obstruct any portion of any street public or private, without obtaining permits therefore from the proper authorities.
 - 1. Provide and pay for police traffic details at anytime that construction takes place in a public street (right of way). The Contractor is responsible for coordinating, requesting, and paying the prevailing rate of wage for police traffic details directly with the Central Falls Police Department.

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- B. Vehicle and Equipment Security: Lock all unattended vehicles including construction machinery and equipment. Do not leave vehicles or equipment unattended accessible to public with the motor running, or with keys easily accessible.
- C. Haul routes: Consult with governing authorities and establish public thoroughfares which will be used as haul routes and site access. Confine construction traffic to designated haul routes.
 - 1. Confine construction traffic to designated haul routes.
 - a. Arrival/Departure: Refer to Section 01 14 00 - WORK RESTRICTIONS.
 - 2. Provide traffic control at critical areas of haul routes to expedite traffic flow and to minimize interference with normal public traffic.
 - 3. Travel through neighborhoods is prohibited.

1.22 DUST CONTROL

- A. Provide positive means to prevent air-borne dust from dispersing into atmosphere.
 - 1. Take all necessary measures and provide equipment and materials to minimize dust from rising and blowing across the site and also to control surface water throughout the operation so that it does not run onto paved ways without being filtered. Control all dust created by construction operations and movement of construction vehicles, both on site and on paved ways.
 - 2. During the progress of the work, maintain the areas of construction activities including sweeping and sprinkling of streets as necessary. Provide and use calcium chloride for more effective dust control, when deemed necessary by regulatory agencies, without additional cost to the Owner.
- B. Prevent air-borne dust from dispersing into ducts (air supply and return) during construction. Seal all open ends of completed ductwork, and overnight work-in-progress. Inspect ducts on daily basis to ensure seals are intact. Protect ductwork waiting, to be installed with surface wrapping.
 - 1. Ductwork protection during construction is a joint responsibility between the General Contractor and HVAC subcontractor.
 - 2. HVAC subcontractor is responsible to wipe down internal surfaces of ductwork immediately prior to installation to remove all dust and debris.
- C. Prevent air-borne dust from dispersing into Owner occupied spaces (after partial Owner-occupancy, if occurs). Provide interior dust-tight temporary partitions as may be required, at no additional cost to Owner.
 - 1. Provide air filters over openings and grilles in air-return ducts occurring within construction areas.
 - 2. Provide openings in temporary partitions where air-return grilles occur outside of work areas. In each opening, provide standard 2 inch thick, throw-away type filter having a rated efficiency of 35 percent. Review with Architect size requirements of filtered openings, locations of openings and how many are required.
 - 3. Replace air filters as required to maintain their efficiency.

1.23 NOISE CONTROL

- A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
 - 1. The Contractor shall schedule and conduct demolition and construction operations in a manner that will minimize, to the greatest extent possible, any noise disturbance to the public in areas adjacent to the Work and to occupants of buildings or structures in the vicinity of the Work.
 - 2. Configure the construction site in a manner to locate loud equipment and activities as far away as possible from noise-sensitive locations.
 - 3. Submit proposed noise abatement program to the Owner's Project Manager and Architect for review.

- B. The Contractor shall use all reasonable efforts to implement noise reduction methods to minimize construction noise emission levels. Noise reduction methods shall include, but are not be limited to:
 - 1. Execution of construction work by methods and by use of equipment which will reduce excess noise.
 - 2. Equip air compressors with silencers, and power equipment with mufflers.
 - 3. The local power grid shall be used wherever feasible to limit generator use. No generators larger than 25 KVA shall be used and, where a generator is necessary, it shall have maximum available noise muffling capacity.
 - 4. Attaching noise-deadening material to the inside of hoppers and chutes.
 - 5. Limit the number and duration of equipment idling on the site, the use of annunciators or public address systems and the use of air or gasoline-driven hand tools.
 - 6. Manage vehicular traffic and scheduling to reduce noise:
 - a. Engine idling for trucks is limited to 5 minutes maximum.
 - b. Use barrels or signage to detour traffic away from plated trenches.
 - c. Minimize noise from backup alarms using measures that meet OSHA regulations including the use of self-adjusting ambient-sensitive backup alarms, manually-adjustable alarms on low setting, use of observers, and scheduling of activities so that alarm noise is minimized.
 - 1) Configure construction site to minimize backup alarm noise.
Develop site access in a manner to permit vehicular movement through the site in a forward manner without the need to back up.

- C. Interior work involving cutting, drilling, hammering or noise generating procedures shall be completed during times scheduled with the Owner in advance.

1.24 TEMPORARY BARRICADES

- A. Provide barriers and barricades to prevent unauthorized entry to construction areas.
 - 1. Comply with standards and code requirements for erection of barricades, where required provide lighting, including flashing lights.
 - 2. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against.

3. Provide special barriers necessary to protect entrances and areas around building and to prevent persons from coming in contact with material or construction operations.
- B. Provide temporary enclosures, for protection of construction from exposure to weather, other construction operations and similar activities. Where heat is needed and the building envelope is incomplete, provide enclosures where there is no other provision for containment of heat.
1. Provide doors with self-closing hardware and locks.
 2. Provide barricades and protective entrances at least 48 inches high around openings in floors, escalators and elevators.
- C. Provide temporary roofing as needed to maintain the building water tight.

1.25 TEMPORARY FENCES

- A. Construction fence: Provide a 6 foot high commercial grade chain link fence in areas designated on the phasing plans to provide a secure perimeter around the construction site; equip with vehicular and pedestrian gates and locks.
1. Relocation of all fences and gates as required due to construction phasing. Relocations shall be provided at no additional cost to the Owner.
 2. Vehicular and Pedestrian Gates: Build into fence at approved locations. Provide gates with cross-bracing, and hung on heavy strap hinges with post and hook for double gates. Provide heavy hasps and padlocks.
 3. Visual Barrier: Provide a continuous 'solid visual barrier' at all fencing. Solid barrier shall be constructed approved by Architect by use of an opaque applied scrim. Barrier shall be a height of 6 feet above grade for full length of barrier.
- B. Emergency Key Cabinet: Provide emergency access key cabinet ("Knox Box"): medium duty, surface mounted. Locate emergency key cabinet in readily-accessible location outside of fence line. Provide keys for emergency key cabinet to Owner's designated representative(s).
1. Inside emergency key cabinet maintain keys for fence entrance gates, and construction core keys for building, once it is closed in.
 2. Inside emergency key cabinet include the Emergency Contact List as specified under Section 01 33 00 – SUBMITTAL PROCEDURES.
- C. Fence, General: Fence shall be industrial-grade, heavy-duty construction: Galvanized fabric with galvanized frame.
1. Chain link fabric shall be made of coated-steel, 9 gage (0.148 inch) core wire woven in 2-inch uniform mesh, height (roll width) to suit fence height, with bottom selvage knuckled, top selvage twisted, with woven fabric having a minimum breaking strength of 1290 pounds.
 2. Framework: Posts and rails shall be sized as detailed on the drawings, Type 1 seamless steel pipe, ASTM A-120, standard weight schedule 40, hydrostatic testing waived.
 3. Gate Posts: Standard weight pipe 2-7/8 inches OD nominal weight, 5.79 pounds per foot.

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4. Gate Frames: 2 inches OD standard weight pipe, 2.73 pounds. per foot with heavy malleable iron or pressed steel corner fittings securely riveted. Fabric to match the fence shall be installed in the frame by means of tension bars and hook bolts. Each frame to be equipped with 3/8 inches diameter adjustable truss rods.
 5. Bottom hinges to be ball and socket type designed to carry the weight of the gate on the post footing. Upper hinge to be wrap around adjustable type. All gates to be equipped for padlocking and with semi-automatic outer catches to secure gates in opened position.
 6. Fittings: Pressed steel or malleable iron, hot-dipped galvanized conforming to the requirements of ASTM A153. Tie wires shall be minimum nine-gage galvanized wire,. Attachment bolts shall be galvanized.
 7. Post Settings: Driven into ground. Temporary concrete bases may be considered where fencing is scheduled for relocation.
- D. Snow Fence: Provide continuous orange plastic "snow" fence.
1. Scope and Extent: If not otherwise indicated, provide "snow fence" for all fencing except where "chain link security fence" is required.
 2. Height: Minimum 4 feet above grade.
 3. Posts: Provide painted steel posts set at least 24 inches into the ground. Space posts not more than 8 feet on center. Erect and maintain posts plumb. Tie plastic fabric to posts at least three times per post.

1.26 TREE AND PLANT PROTECTION

- A. Comply with requirements specified in Section 01 56 39 - TREE PROTECTION AND TRIMMING, and as specified herein.
1. Provide temporary guards or fencing to protect trees and vegetation to be left standing. Protect plant life by placing boards, planks, poles or fencing around tree driplines.
 2. A reasonable sum (cost of equivalent replacement) will be deducted from the Contract Sum for any permanent damage to existing trees or plantings which are outside the construction site area but on the Owner's property or within the construction site area, and areas designated to be protected. Damage to trees and plants off the Owner's property shall be fully the responsibility of the General Contractor.

1.27 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by, the discharge of noxious substances from construction operations.
1. Comply with all applicable Federal, State, County, and municipal laws regarding pollution.
 2. Prevent pollution of streams, lakes, or reservoirs with fuels, oils, bitumens, calcium chloride, acids, waste products, effluents, chemicals or other harmful substances. Prevent from such substances from entering storm drains and sanitary sewers.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillage and to remove contaminated soils or liquids.

1. Excavate and legally dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.

1.28 PEST CONTROL

- A. Provide rodent control as necessary to prevent infestation of construction and storage areas. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.
- B. Provide marked metal containers with lids for all edible rubbish and enforce their use by all employees. Empty containers and legally dispose of contents off site to maintain rodent control.
- C. If the Contractor's basic rodent control program proves to be ineffective, obtain the services of a professional exterminator, at no additional cost to the Awarding Authority.
- D. Should rodenticides be considered necessary, submit copies of proposed program to Awarding Authority and Architect. Use of rodenticide shall comply with manufacturer's published instructions and recommendations. Clearly indicate:
 1. Area or areas to be treated.
 2. Rodenticides to be used.
 3. Manufacturer's printed instructions.
 4. Pollution preventive measures to be employed.

1.29 FIRE PREVENTION MEASURES

- A. Prior to commencement of work at the site, the Owner's Project Manager, and General Contractor shall meet with the Central Falls Fire Marshal to plan site and building access in the event of fire.
 1. Access paths for heavy fire fighting equipment shall be laid out and maintained.
 2. Free access from streets to fire hydrants and to outside connections for standpipes, sprinklers or other fire extinguishing equipment shall be provided and maintained.
- B. The Contractor shall take all necessary precautions for the prevention of fire during construction. Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes. Ascertain and comply with requirements of Project insurance carrier, local fire department and the state fire marshal.
 1. Maintain the area within contract limits orderly and clean.
 - a. Remove combustible rubbish promptly from the site and when required, store combustible materials in containers in fire-safe locations.
 2. Maintain clear access to exits from within the building.
 3. Smoking is not permitted on-site.
- C. Establish procedures for fire protection for welding, cutting and open torch work, and other potentially hazardous operations. Obtain permission from local

authorities having jurisdiction for such work as required by law. Provide special fire extinguishers at welding and torch cutting work.

1. After Owner occupancy: Maintain a fire watch when fire protection and warning systems have been temporarily de-activated. Maintain watch during all working hours for full period of de-activation.
 2. The Contractor will assign personnel to inspect all construction areas at the end of each day's work for fire hazards prior to lock-up.
- D. Provide for outside storage of gas tanks, sufficiently clear of any structure. Promptly remove welding and cutting equipment from the building when no longer required. Do not store welding or cutting materials within the building when work is not being performed.
- E. Permanent fire protection system may be activated to meet these requirements. Replace fusible link heads and other expended or discharged components at time of Substantial Completion.

1.30 SECURITY MEASURES

- A. Protect Work, and Awarding Authority's operations from theft, vandalism, and unauthorized entry. Initiate a security program at job mobilization.
- B. Maintain security program throughout construction period until Awarding Authority occupancy
- C. Provide entry control:
1. Restrict entrance of persons and vehicles into Project site.
 2. Allow entrance only to authorized persons with proper identification.
 3. Maintain log of workmen and visitors, make available to Awarding Authority on request.

1.31 PROJECT IDENTIFICATION AND TEMPORARY SIGNAGE

- A. General: Signs other than those specified herein are not permitted, except those required by law or expressly authorized by the Awarding Authority.
1. At all times during the project, signage must clearly direct occupants and the general public in the safe use of the building. Signs must clearly indicate areas of no admittance, and further must clearly define and direct users to building entries, exits, school offices and other important destinations. All such interim signage must be painted by a professional sign painter on 3/4-inch medium density overlay plywood with letters no less than 3 inches in height. Coordinate required signage with Architect.
- B. Project sign:
1. Provide 8 foot wide by 4 foot high foot project sign of exterior grade MDO plywood and wood frame construction, painted, with self-adhesive color printed text with reproduction of building rendering. Architect will provide signage design.
 - a. Color prints for rendering shall be 3M Scotchprint marking film series 8640 or equal, 4 mil thickness, "ControlTac" vinyl film as manufactured by 3M company having a positionable pressure activated pigmented adhesive.

- b. Overlay protecting film, Scotchprint Film, clear overlaminating film, as manufactured by 3M company.
 2. List title of project, names of Awarding Authority, Owner's Project Manager, Architect, engineering sub-consultants, and Contractor and Subcontractors.
 - a. Text of project sign shall include the statement "This Project funded by the Central Falls School District".
 3. Erect on site at location established by Architect.
- C. Signage at perimeter of construction site: Provide clear and visible warning signage with appropriate language such as: "Prohibited Access – Hard Hat Only – No Admittance – Authorized personnel Only".

1.32 REMOVAL OF TEMPORARY UTILITIES, CONTROLS, AND FACILITIES

- A. Remove temporary above grade and buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
 1. Do not remove erosion control devices until after all disturbed earth has been paved or vegetated.
- B. Remove underground work and compacted materials to a depth of 2 feet; fill and grade site as specified.
- C. Restore permanent facilities used during construction to specified condition.
- D. Clean and repair damage caused by installation or use of temporary work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Definition of Terms
- B. Basic product requirements.
- C. General environmental requirements for products.
- D. Owner's proprietary products.
- E. Recycled content of materials.
- F. Owner furnished products.
- G. Product delivery requirements.
- H. Product storage and handling requirements.
- I. Construction waste management.

1.2 RELATED REQUIREMENTS

- A. Section 01 25 13 - PRODUCT SUBSTITUTION PROCEDURES:
 - 1. Product options.
 - 2. Product substitution procedures.

1.3 DEFINITIONS

- A. "Products" is defined as new material, machinery, components, equipment, fixtures, and systems used in the Work. Products do not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for re-use.
- B. "Materials" are products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
- C. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.
- D. "Fasteners" include all products required for mechanical connections and include, but are not limited to: nails, screws, bolts, expansion bolts, chemical bolts, epoxy anchors, pins, powder-actuated devices, and similar fasteners, anchors, and connections.
- E. Definitions in this article are not intended to negate the meaning of other terms used in Contract Documents, including "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction", and similar terms, which are self-explanatory and have recognized meanings in the construction industry.

1.4 BASIC PRODUCT REQUIREMENTS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 - 1. Where possible utilize materials harvested and manufactured regionally, within a 500-mile radius of the project site.
- B. To the fullest extent possible, provide products of the same kind, from a single source.
- C. Provide interchangeable components of the same manufacturer, for similar components.
- D. When the Contractor has the option of selecting two or more products, ensure that products selected shall be compatible with products previously installed or approved.
- E. Provide all products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
- F. Galvanic Corrosion: Install materials in manner which will effectively isolate dissimilar metals which may potential for galvanic corrosion. Use non-absorptive dielectric material, isolation coatings, or other protective isolator approved by Architect.
- G. Fasteners, Anchors, and Connections: Provide all fasteners, anchors, and connections needed to safely, securely, and appropriately secure all Work permanently in place.
 - 1. General: The Contractor is solely responsible for the capacity, suitability, adequacy, and safety of all welded, fastened and anchored connections.
 - a. Comply with applicable code requirements regarding fastener selection and installation.
 - b. Provide at least two fasteners for each individual item being fastened.
 - c. Utilize fastener manufacturer's published load tables for working loads to assist in determining fastener size and space. Do not use ultimate load capacity in determining fastener selections.
 - d. Provide a minimum safety factor of 4.
 - e. Select and utilize fasteners having minimum galvanic corrosion factor.
 - f. Hydrogen embrittlement prevention:
 - 1) Do not use high-strength and low-alloy fasteners which have been subjected to an acid pre-treatment (because they can become brittle and fail), utilize instead equivalent capacity and size bi-metal, stainless steel or high strength aluminum fasteners, as appropriate to the conditions and materials where being used.
 - 2) Utilize low-hydrogen electrodes for welding high-strength steels to prevent hydrogen embrittlement.
 - 2. To permit the Contractor control over means and methods, some fastener conditions may not be fully defined in the Contract Documents. In particular, individual specification sections that require delegated independent

engineering. In such instances the Contractor is fully responsible to determine method of fastening appropriate for each condition. The Contractor shall take into consideration substrate material(s) and product(s) being fastened, live and dead loading, and both atmospheric and visual exposure considerations. Contractor is responsible to determine fastener type, material, finish, size, diameter, length and spacing.

3. Torque structural fasteners as recommended by fastener manufacturer, or as otherwise specified in the Contract Documents.

H. Permanent Labels and Nameplates:

1. Restrictions:
 - a. Do not provide exposed-to-view labels, nameplates, or trademarks which are not required by code, or regulations.
 - b. Do not expose manufacturers, suppliers, or installer's name, logo, or trade names on normally visible surfaces.
 - c. Do not provide labels, nameplates or trademarks when individual specification sections specifically exclude them.
 - d. All exposed-to-view advertising and name-brand labels shall be fully removed without damage to substrate finish.
2. Location for required labels: Required labels, approval plates and stamps shall be located on a concealed surface, or where required for observation after installation on accessible non-conspicuous surface.
3. Data Plates: Provide permanent data plate on each item of service-connected or power-operated equipment.
 - a. Data Plate Information: Include manufacturer, model, serial number, date of manufacture, capacity, ratings, power requirements, and all other similar essential data.
 - b. Locate data plates on easily accessible surface that is inconspicuous in occupied spaces.

1.5 GENERAL ENVIRONMENTAL REQUIREMENTS FOR PRODUCTS

- A. General: Prohibit the use of or incorporation into the work of materials which contain toxic, hazardous and harmful materials.
 1. Hazardous materials: Defined as pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA), the International Agency for Research on Cancer (IARC) or regulated under OSHA Hazard Communication Standard, 29 CFR 1910.1200.
 2. Harmful materials: Defined as materials which contain the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances; or degrade the utility of the environment for aesthetic, cultural, or historical purposes.
 3. Owner restricted materials: Defined as all products to which the Owner has a reasonable objection because of its content, composition, properties, or characteristics.
- B. Vapors, Gases, Fumes, Odors:
 1. General: Comply with all state and federal VOC requirements. Wherever possible use non-VOC materials.

- a. Limit use of products to the greatest extent possible which have "off-gassing", fumes, flammability, and other harmful characteristics.
 - 1) Prohibit use of products which contain substances that contribute significantly to the production of photochemical smog, tropospheric ozone, or poor indoor-air quality.
 - b. Limit use of ozone-depleting compounds to the greatest extent possible. An ozone-depleting compound is any compound with an ozone-depletion potential greater than 0.01 (CFC 11 = 1).
 - c. Use organic and biodegradable cleaners to the greatest extent possible.
2. Do not install, use for installation, and use for cleaning those materials which may produce objectionable (to Owner and public) vapors, gases, fumes, odors, or similar conditions.
 3. Do not install or use products which may have possible chemical or biological reactions with other on-site materials.
- C. Toxicity of prefabricated wood products (composite wood and agrifiber products): Products shall contain no added urea-formaldehyde resins.
1. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins.
- D. Adhesives: Provide adhesives approved by the manufacturer's of the products being adhered which are low-VOC or non-VOC, non-flammable, water-proof after cured, and odor free.
1. All adhesives, sealants and sealant primers used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits are listed below and correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.
 - a. Architectural Applications VOC Limit [g/L less water]
 - 1) Indoor Carpet Adhesives 50
 - 2) Carpet Pad Adhesives 50
 - 3) Wood Flooring Adhesives 100
 - 4) Rubber Floor Adhesives 60
 - 5) Subfloor Adhesives 50
 - 6) Ceramic Tile Adhesives 65
 - 7) VCT & Asphalt Adhesives 50
 - 8) Gypsum Base & Panel Adhesives 50
 - 9) Cove Base Adhesives 50
 - 10) Multipurpose Construction Adhesives 70
 - 11) Structural Glazing Adhesives 100
 - b. Specialty Applications VOC Limit [g/L less water]
 - 1) PVC Welding 510
 - 2) CPVC Welding 490
 - 3) ABS Welding 325
 - 4) Plastic Cement Welding 250
 - 5) Adhesive Primer for Plastic 550
 - 6) Contact Adhesive 80

PRODUCT REQUIREMENTS

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|-----|----------------------------------|-----|
| 7) | Special Purpose Contact Adhesive | 250 |
| 8) | Structural Wood Member Adhesive | 140 |
| 9) | Sheet Applied Rubber Lining | 850 |
| 10) | Top & Trim Adhesive | 250 |
- c. Sealants VOC Limit [g/L less water]
- | | | |
|----|--------------------------|-----|
| 1) | Architectural | 250 |
| 2) | Nonmembrane Roof | 300 |
| 3) | Roadway | 250 |
| 4) | Single-Ply Roof Membrane | 250 |
| 5) | Other | 420 |
- d. Substrate Specific Applications VOC Limit [g/L less water]
- | | | |
|----|-------------------------------|----|
| 1) | Metal to Metal | 30 |
| 2) | Plastic Foams | 50 |
| 3) | Porous Material (except wood) | 50 |
| 4) | Wood | 30 |
| 5) | Fiberglass | 80 |
- e. Sealant Primers VOC Limit [g/L less water]
- | | | |
|----|--------------------------|-----|
| 1) | Architectural Non Porous | 250 |
| 2) | Architectural Porous | 775 |
| 3) | Other | 750 |
2. Aerosol Adhesives: Green Seal Standard for Commercial Adhesives GS-36 requirements in effect on October 19, 2000.
- a. Aerosol Adhesives VOC Limit [g/L less water]
by weight
- | | | |
|----|-----------------------------------------------|----------|
| 1) | General purpose mist spray | 65% VOCs |
| 2) | General purpose web spray | 55% VOCs |
| 3) | Special purpose aerosol adhesives (all types) | 70% VOCs |
- E. Interior Paints: Provide products that comply with specified VOC limits, refer to Section 09 91 00 – PAINTING for additional requirements.
1. For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24) and the following chemical restrictions:
- a. Flat Paints and Coatings: VOC not more than 50 g/L.
- b. Non-Flat Paints and Coatings: VOC not more than 150 g/L.
- c. Anti-Corrosive Coatings: VOC not more than 250 g/L.
- d. Clear wood finishes:
- | | |
|----|---------------------------------------|
| 1) | Varnishes: VOC not more than 350 g/L. |
| 2) | Lacquer: VOC not more than 550 g/L |
- e. Floor coatings: VOC not more than 100 g/L
- f. Sealers:
- | | |
|----|---------------------------------------------------|
| 1) | Waterproofing sealers: VOC not more than 250 g/L. |
| 2) | Sanding sealers: VOC not more than 275 g/L. |
| 3) | All other sealers: VOC not more than 200 g/L. |

- g. Stains: VOC not more than 250 g/L.
 - F. Sealants: Provide products that comply with specified VOC limits. Refer to Section 07 92 00 – JOINT SEALANTS for additional requirements.
 - 1. Only use sealant and primers that comply with the following limits for VOC content:
 - a. Architectural Sealants: 250 g/L.
 - b. Roofing Sealants: 450 g/L
 - c. Roadway Sealants: 250 g/L.
 - d. Sealant primer: 250 g/L
 - 2. Sealants containing aromatic solvents, fibrous talc, formaldehyde, halogenated solvents, mercury, lead, cadmium, chromium and their compounds, are not permitted.
 - 3. Avoid the use of the following products: Butyl Rubber; Solvent Acrylic; Neoprene; Styrene Butadiene Rubber; Nitril.
 - G. Safety Data Sheets (SDS) {formerly Material Safety Data Sheets, MSDS): Obtain and maintain on-site record data sheets for each product brought onto the Site.
 - 1. Maintain an organized file of Material Safety Data Sheets at the job-site for quick reference.
 - 2. Furnish SDS for all finishes, paints, coatings, curing compounds, sealers, adhesives, mastics, waterproofing, dampproofing, sealants, cleaning chemicals, carpets, upholstery, fabrics and all similar products.
 - H. Cleaning and maintenance products:
 - 1. Provide data on manufacturers' recommended maintenance, cleaning, refinishing and disposal procedures for materials and products utilized. These procedures are for final Contractor cleaning of the project prior to substantial completion and for provided materials and products by the specific specification sections.
 - a. Where chemical products are recommended for these procedures, provide documentation to indicate that no component present in the cleaning product at more than 1% of the total mass of the cleaning product is a carcinogen or reproductive toxicant as defined in the lists in this specification section.
 - b. For purposes of reporting, identification of product VOC contents shall not be limited to those regulated.
 - 2. Avoid cleaning products containing alpha-pinene, d-limonene or other unsaturated carbon double bond alkenes due to chemical reactions with ozone to formaldehydes, acidic aerosols, and ultra fine particulate matter in indoor air.
 - I. Establish written Contractor's safety and emergency response procedures for safety precautions, accidents, emergency conditions, and clean-up methods.
- 1.6 OWNER'S PROPRIETARY PRODUCTS
- A. Owner's proprietary products: The Owner has determined that specific products shall be proprietary for 'sound reasons in the public interest'. This determination

has been made under vote of the City of Central Falls and has been recorded in writing for the public record. The following products are designated as proprietary:

1. Designated Lighting Fixtures Lumenfocus
2. Automatic Temperature Controls KME as available from
Automatic Temperature Controls, Inc.
Cranston RI, 401-946-5780

1.7 RECYCLED CONTENT OF MATERIALS

- A. To the greatest extent possible, all building materials shall have recycled content. As a minimum, post-consumer recycled content plus one-half of pre-consumer recycled content for Project shall constitute a minimum of 10 percent of cost of materials used for Project.
1. Cost of post-consumer recycled content plus one-half of pre-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content plus one-half of pre-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.
 2. Do not include furniture, plumbing, mechanical and electrical components, and specialty items such as elevators and equipment in the calculation.

1.8 OWNER FURNISHED PRODUCTS

- A. Owner Furnished Products: As provided in the General Conditions, the Owner will provide products by others under a separate agreement.
1. Owner's responsibilities regarding Owner furnished products:
 - a. Arrange for and deliver Owner reviewed shop drawings, product data, and samples to Contractor.
 - b. Arrange and pay for product delivery to site.
 - c. On delivery, inspect products jointly with Contractor.
 - d. Submit claims for transportation damage, and replace damaged, defective, or deficient items.
 - e. Arrange for manufacturers' warranties, inspections, and service agreements.
 2. Contractor's responsibilities regarding Owner furnished products:
 - a. Review Owner reviewed shop drawings, product data, and samples to Contractor.
 - b. For Owner-Furnished, Contractor Installed (OFCI) Products: Receive and unload products at site, inspect for completeness or damage, jointly with Owner.
 - c. Handle, store, and provide temporary protection.
 - d. Repair or replace items damaged after receipt.
 - e. As required by this Contract, finish, install, and clean Owner-furnished products.
 - f. Provide protection of installed work.
 - g. When not installed under this Contract, the Contractor shall coordinate Owner installed work with interfacing work of this Contract. The Contractor shall provide temporary protection and final cleaning of Owner installed products, except as directed otherwise.

3. Items noted in Drawings as “Not in Contract” or “N.I.C.”, identify work or products which either exist, or are furnished by Owner; such work requires coordination with the Work of this Contract and may even require installation by this Contractor.

1.9 PRODUCT DELIVERY AND HANDLING REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer’s instructions and as specified in individual specification sections.
 1. Packing: Arrange for the return of packing materials, such as wood pallets, where economically feasible.
 2. Ductwork: All ductwork shall be sealed from time of manufacturer, with seals intact upon delivery to construction site, and remain so, until ready for installation. General Contractor is jointly responsible with Subcontractor to ensure ducts are properly sealed and maintained.
 - a. Store ductwork in clean dry conditions and keep sealed while it is stored.
- B. Packaging: Deliver materials in recyclable or in reusable packaging such as cardboard, wood, paper, or reusable blankets, which will be reclaimed by supplier or manufacturer for recycling.
 1. General: Minimize packaging materials to maximum extent possible while still ensuring protection of materials during delivery, storage, and handling.
 - a. Unacceptable Packaging Materials: Polyurethane, polyisocyanurate, polystyrene, polyethylene, and similar plastic materials such as “foam” plastics and “shrink-fit” plastics.
 - b. Reusable Blankets: Deliver and store materials in reusable blankets and mats reclaimed by manufacturers or suppliers for reuse where program exists or where program can be developed for such reuse.
 - 1) Non-returnable containers should be donated to local and community organizations to the greatest extent possible to reduce quantity of disposed materials.
 - c. Pallets: Where pallets are used, suppliers shall be responsible to ensure pallets are removed from site for reuse or for recycling. Avoid use of virgin wood pallets whenever possible. It is preferable that pallets be manufactured from recycled wood and recycled plastic.
 - d. Corrugated Cardboard and Paper: Where paper products are used, recycle as part of construction waste management recycling program, or return to material’s manufacturer for use by manufacturer or supplier.
 - e. Sealants, Paint, Primers, Adhesives, and Coating Containers: Return to supplier or manufacturer for reuse where such program is available.
 2. Purchase materials in bulk where possible. Take measures to avoid individual packaging for volume purchases.
- C. Labeling of plastics used for packaging: Plastic is marked by manufacturers for type of plastic material in accordance with the Society of Plastic resin codes. Maintain marks, or sort by manufacturer’s resin codes for recycling purposes.
 1. Type 1: Polyethylene Terephthalate (PET, PETE).
 2. Type 2: High Density Polyethylene (HDPE).
 3. Type 3: Vinyl (Polyvinyl Chloride or PVC).

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4. Type 4: Low Density Polyethylene (LDPE).
 5. Type 5: Polypropylene (PP).
 6. Type 6: Polystyrene (PS).
 7. Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.
- D. Schedule deliveries to avoid delays in installation of products, to minimize long-term storage, to prevent overcrowding of construction spaces and to limit potential damage to stored materials. Coordinate with installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
- E. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- F. Provide equipment and personnel to handle and store products by methods to prevent soiling, disfigurement, or damage.

1.10 PRODUCT STORAGE AND PROTECTION REQUIREMENTS

- A. Store and protect products in accordance with manufacturer's instructions and as specified in individual specification sections.
1. Provide all necessary equipment and personnel to store products by methods to prevent soiling, disfigurement and damage.
 2. Avoid excessive material handling and potential product damage, locate storage areas convenient to work areas.
 3. Store and protect products with seals and labels intact and legible.
 4. Store and handle materials in a manner as to prevent loss from weather and other damage.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
1. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
 2. Store sensitive products in weather-tight, climate controlled enclosures.
 3. Prevent contact with material that may cause corrosion, discoloration, or staining.
- D. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.
- E. Store heavy materials in locations and in a manner that will not damage or disfigure existing, or new construction.

1.11 MOLD PROTECTION

- A. General

1. Keep building materials dry to prevent the growth of mold and bacteria, including, but not limited to: gypsum wallboard, wood, porous insulation, paper, and fabric.
2. Cover materials to prevent rain damage, and if resting on the ground, use spacers to allow air to circulate between the ground and the materials.
3. Thoroughly dry all water damaged materials within 24 hours from time of moisture damage. Materials that have been damp or wet for more than 24 hours shall be jointly reviewed by General Contractor and Architect, or Owner's Project Manager to determine whether damp/wet materials need to be disposed.
 - a. Review moisture damaged materials for signs of mold and mildew, including any with moisture stains, from the site and properly dispose of them.
 - b. Replace water damaged and moldy materials with new, undamaged materials.

1.12 CONSTRUCTION WASTE MANAGEMENT

- A. General: Comply with requirements of Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. Source separation: Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in order to prevent contamination of materials and to maximize recyclability and salvageability of identified materials.
- C. Return: Set aside and protect incorrectly delivered and substandard products and materials and return to supplier for credit.
- D. Reuse and Salvage: Set aside, sort, and protect separated products and materials for collection, re-use by Owner, as designed for re-use on-site or designated for salvage by Owner's separate waste recycling contractor.
- E. Recycling: Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 73 00

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Examination of existing conditions and acceptance of conditions.
- B. Project preparation.
- C. Surveying and field engineering.
- D. Execution of the Work.
- E. Cutting and patching of in-place work
- F. Cleaning.
- G. Protecting installed work.

1.2 EXAMINATION OF AND ACCEPTANCE OF EXISTING CONDITIONS

- A. The General Contractor, and its subcontractors shall inform themselves of existing conditions before submitting his bid, and shall be fully responsible for carrying out all work required to completely and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed, except those conditions described in the General Conditions.

1.3 SURVEYING AND FIELD ENGINEERING

- A. Employ a Land Surveyor or Professional Engineer registered in the State of Rhode Island and acceptable to the Architect.
 - 1. Submit evidence of Surveyor's Errors and Omissions (E&O) Insurance coverage in the form of an Insurance Certificate.
- B. Submittals.
 - 1. Submit name, address, and telephone number of at least three proposed Land Surveyors and obtain Architect's acceptance before starting survey work.
 - 2. On request, submit documentation verifying accuracy of survey work.
 - 3. Submit a copy of registered site drawing and certificate signed by the Land Surveyor, that the elevations and locations of the Work are in conformance with the Contract Documents.
- C. Examination.
 - 1. Verify locations of survey control points prior to starting work.
 - 2. Promptly notify Architect of any discrepancies discovered.
- D. Survey Reference Points.

1. General Contractor shall locate and protect survey control and reference points.
 2. Control datum for survey is that established by Owner provided Survey.
 3. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
 4. Promptly report to Architect/Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
 5. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to the Architect.
- E. Survey Requirements.
1. Provide field engineering services. Utilize recognized engineering survey practices.
 2. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer and water service piping.
 - a. The existence and location of underground utilities and construction indicated on Drawings as existing are not guaranteed. Before beginning sitework, verify the existence and location of underground utilities and other construction.
 3. Establish a minimum of 2 permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on Project Record Documents.
 4. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - a. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - b. Grid or axis for structures.
 - c. Building foundation, column locations, and ground floor elevations.
 5. Periodically verify layouts by same means.
- F. Surveys for Measurement and Payment
1. Perform surveys to determine quantities of unit cost work, including control surveys to establish measurement reference lines. Notify Architect prior to starting work.
 2. General Contractor's Engineer shall sign surveyor's field notes or keep duplicate field notes, and shall calculate and certify quantities for payment purposes.
- G. Project Record Documents.
1. As-built survey, progress submissions: Surveyor shall develop an as-built survey for the work-in-place. Copies of survey shall be submitted along with request for payments for foundation work, site utilities and paving work.
 2. Surveyor's log: Maintain a complete and accurate surveyor's log of control and other surveys, required by Owner and authorities having jurisdiction. Make this log available for reference.
 3. Submit Final Property Survey and log under the provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.

1.4 PROTECTION OF ADJACENT ELEMENTS

- A. Protect installed Work and provide special protection where called for in individual specification Sections.
- B. Protect existing facilities and adjacent properties from damage from construction and demolition operations. Provide temporary and removable protection for installed products and occupied areas.
- C. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials. Coordinate with requirements under individual specification sections.
- D. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- E. Protect all existing landscape areas not indicated to be cleared. Do not deface, injure, or destroy trees or other plant life. Do not remove or cut trees or other plant life, without authorization from the Owner. Do not attach any anchorages, ropes, cables or guys to any trees scheduled to remain.
 - 1. Prohibit traffic from landscaped areas.
- F. Protect non-owned vehicles, stored materials, site and structures from damage.
- G. Refer to respective Sections for other particular protection requirements.

1.5 PROTECTION OF INTERIOR CONCRETE SLABS

- A. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential for areas scheduled to receive concrete stains and sealers, specified under Division 3.
 - 1. All hydraulic powered equipment must be diapered to avoid staining of in-place concrete.
 - 2. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, drop cloths will be placed under vehicles at all times.
 - 3. No pipe cutting machine will be used on the inside floor slabs.
 - 4. Steel will not be placed on interior slabs to avoid rust staining.

1.6 EXECUTION REQUIREMENTS FOR INSTALLATION, APPLICATION AND ERECTION

- A. Inspection of conditions: The Installer of each component shall inspect the substrate and conditions under which Work is performed. Do not proceed until unsatisfactory conditions have been corrected.
- B. Resource Efficiency of Materials:
 - 1. Use construction practices such as material reduction and dimensional planning that maximize efficient use of resources and materials.
 - a. Recheck measurements and dimensions, before starting installation.
 - 2. Provide materials that utilize recycled content to maximum degree possible without being detrimental to product performance or indoor air quality.

3. Where possible and feasible, provide for non-destructive removal and re-use of materials after their service life in this building.
- C. Manufacturer's instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that they are more stringent than requirements in Contract Documents.
 - D. Inspect material immediately upon delivery and again prior to installation Reject damaged and defective items.
 - E. Install each component during weather conditions and project status that will ensure the best results. Isolate each part from incompatible material as necessary to prevent deterioration.
 - F. Coordinate temporary enclosures with inspections and tests, to minimize uncovering completed construction for that purpose.
 - G. Limiting exposures: Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure. Such exposures include:
 1. Excessive static or dynamic loading.
 2. Excessive internal or external pressures.
 3. Excessive weathering.
 4. Excessively high or low temperatures or humidity.
 5. Air contamination or pollution.
 6. Water or ice.
 7. Chemicals or solvents.
 8. Heavy traffic, soiling, staining and corrosion.
 9. Rodent and insect infestation.
 10. Unusual wear or other misuse.
 11. Contact between incompatible materials.
 12. Theft or vandalism.
 - H. Provide attachment and connection devices and methods necessary for securing each construction element. Secure each construction element true to line and level. Allow for expansion and building movement.
 - I. Visual effects: Provide uniform joint widths in exposed Work. Arrange joints to obtain the best effect. Refer questionable choices to the Architect for decision.
 - J. Mounting heights: Where mounting heights are not indicated, review heights with Architect, prior to commencement of Work.
 - K. Cleaning and protection: During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
 - L. Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

EXECUTION

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1.7 CUTTING AND PATCHING OF IN-PLACE WORK

- A. Scope: General Contractor is responsible for coordination and quality of all cutting and patching work. Performance of cutting and patching work shall be by trades requiring such work, except as specified otherwise within this Article 1.8, Paragraph G below. Cutting and patching of the Work includes, but is not limited to:
1. All cutting, altering, patching, and fitting as necessary for the Work to comply with the Contract Documents.
 - a. Make all products and their components of the Work fit together properly.
 - b. Fully integrate all cutting and patching, to present the visual appearance of an entire, completed, and unified project in compliance with the Contract Documents.
 2. Provide openings in elements of the Work, and the patching of same, for penetrations required by all trades, including but not limited to mechanical, plumbing, fire protection and electrical work.
 - a. Individual Subcontractors are responsible for designated types of coring and drilling penetrations for piping, conduit, ducts and other penetrations.
 3. Uncover work to provide for installing, inspecting, or both, of ill-timed work;
 4. Remove and replace work not conforming to requirements of the Contract Documents or as otherwise determined to be defective.
 5. Patch and match all surfaces and products disturbed or damaged.
 6. Remove samples of in-place construction as specified for testing.
- B. Structural elements: Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Always obtain written approval of the cutting and patching proposal before cutting and patching structural elements.
1. Do not drill through structural beams, slabs or columns. Core drilling through concrete block walls and stair platforms must be approved by the Architect.
 2. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the structure.
- C. Exposed elements: Employ appropriate tradesperson to perform cutting and patching for weather exposed and moisture resistant elements, and sight exposed surfaces.
- D. Penetrating elements: Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with fire rated materials in accordance to applicable codes and regulations, and compatible to surrounding construction.
- E. Visual requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
- F. Operational and safety limitations: Do not cut and patch operating elements or safety components in a manner that would reduce their capacity to perform as

intended, or would increase maintenance, or decrease operational life safety of the building when occupied.

- G. General requirements of cutting and patching:
1. Submit written proposals to perform cutting and patching when cutting work affects the following:
 - a. Structural integrity of any element in the project.
 - b. Integrity of weather-exposed or moisture-resistant elements.
 - c. Aesthetic and visual qualities of exposed-to-view elements.
 - d. Work of Owner or work performed under separate Contract.
 2. Cutting: Cut in-place construction using methods least likely to damage elements of as-built construction.
 3. Coring and Drilling of holes incidental to work of individual sections shall be performed by the trade requiring the penetration:
 - a. Coring and drilling of holes greater than 8 inches in diameter in masonry, concrete decks and slabs, exterior walls and roof decking shall be performed by the Subcontractor or subcontractor requiring the same. All penetrations shall be marked for approval by the General Contractor before performing and coring or drilling.
 - b. Coordination of all coring and drilling and resultant patches necessary for the completion of this Contract and for the quality and appearance of all patch Work in exposed-to-view finished materials.
 4. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break; for assemblies, refinish entire unit.

1.8 PROGRESS CLEANING AND DISPOSAL OF WASTE MATERIALS

- A. General: Maintain site in a clean and orderly condition. Maintain work and surrounding areas free of waste materials, debris, and rubbish; remove from site on a on-going basis through-out the term of construction.
1. Adjacent Areas: Keep adjacent areas, neighboring properties, public ways, and all nearby areas clean and free of construction debris and dirt including wind blown debris.
 2. Subcontractors are responsible for cleanup and removal of their own rubbish, debris, shipping materials and waste materials through-out the term of their work.
 - a. Subcontractors are responsible to comply with requirements of Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 3. General Contractor shall furnish dumpsters and provide general site cleaning services, except as explicitly specified otherwise under individual Sections of the Specifications.
- B. Control accumulation of waste materials and rubbish; periodically dispose of off-site. The General Contractor shall bear all costs, including fees resulting from such disposal.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws. Comply with the requirements of Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

BID PACKAGE #2

1. Do not burn or bury rubbish and waste materials on site.
 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 3. Do not dispose of wastes into streams or waterways.
 4. Comply with requirements of authorities having jurisdiction including, without limitation, requirements related to fire prevention, rodents, pests, vermin, waste storage, waste trucking, waste removal, waste disposal, street cleaning, truck tire cleaning, and other requirements.
- D. Clean interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finishing operations.
- E. Maintain project in accordance with all local, Rhode Island State, and Federal Regulatory Requirements.
- F. Store volatile wastes in covered metal containers, and remove from premises daily.
- G. Prevent accumulation of wastes which create hazardous conditions.
- H. Provide adequate ventilation during use of volatile or noxious substances.
1. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
 2. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- I. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
- J. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- K. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.
- L. General Contractor shall provide on-site containers (dumpsters) for collection and containment of, waste materials, debris and rubbish.
1. Trash Barrels and Containers: Use containers with tightly fitting lids. Use only steel containers and lids when there is any evidence of rodent or pest activity.
 2. Returnables: Provide special, labeled containers for deposit returnables such as soda cans.
- M. Remove waste materials, debris, and rubbish from site at least once weekly, and dispose off-site. Comply with NFPA 241 for removal of combustible waste.
- N. Handle material in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
- O. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not damage surrounding surfaces.

EXECUTION

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1.9 SITE MAINTENANCE AND CLEANING

- A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow, and ice.
 - 1. Provide means of removing mud from vehicle wheels before entering public streets and Owner's parking areas and access.
- B. Maintain existing and permanent paved areas used for construction.
 - 1. If any street or private way shall be rendered unsafe by the General Contractors operations, the General Contractor shall make such repairs or provide such temporary ways or guards as shall be acceptable to the governing authority.
 - 2. Promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

1.10 FINAL CLEANING

- A. Scheduling: Perform final cleaning immediately prior to the Architect's review of the project for issue of the Certificate of Substantial Completion.
 - 1. Re-clean all surfaces, materials and products of the Work immediately prior to Owner's occupancy of the Project.
 - a. Should the Owner occupy any portion of the Work prior to completion of the Contract, the responsibilities for interim and final cleaning shall be in accordance with the General Conditions.
- B. Qualifications: Commercial cleaning firm, with a minimum of 3 years experience specializing in the post-construction cleaning of facilities.
- C. Protection: During the operation of final cleaning, protect surrounding materials and finishes against undue damage by the exercise of reasonable care and precautions. Clean, or repair all products and surfaces which are soiled or otherwise damaged by Work of this Section, to match original profiles and finishes. Materials and finishes which cannot be cleaned, or repaired shall be removed and replaced with new work in conformance with the Contract Documents.
- D. General cleaning requirements:
 - 1. Control accumulation of waste materials and trash. Recycle or dispose of off-site at intervals approved by the Owner and in compliance with waste management procedures specified in Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 - 2. Remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste.
 - 3. Remove all advertising matter and temporary instructional material from exposed surfaces throughout.
 - 4. Use only methods and cleaning materials which are compatible with and as recommended by the manufacturer of the material being cleaned.
 - 5. Finished surfaces: Remove paint smears, spots, marks, dirt, mud and dust and similar disfigurement created by the Work, from all exposed to view existing or new interior and exterior finished surfaces.

6. Polished surfaces: Apply the polish recommended by the manufacturer of the material being polished.
 7. Cleaning Materials: Only non-hazardous cleaning materials shall be used in the final cleanup.
- E. Waste Management and Recycling during Final Cleaning:
1. Recycle, salvage, and return construction and demolition waste from Project in accordance with requirements in Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 2. Arrange for pick-up of salvageable materials in accordance with the Waste Management Plan.
 3. Disposal Operations: Promptly and legally transport and dispose of all trash. Do not burn, bury, or otherwise dispose of trash on the Project site.
- F. Exterior building surfaces:
1. Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
 2. Remove all traces of splashed materials from adjacent surfaces.
 3. If necessary to achieve a uniform degree of cleanliness, hose down the exterior of the structure.
 4. In the event of stubborn stains not removable with water, the Architect may require light sandblasting or other cleaning at no additional cost to the Owner.
 5. Concrete: Clean exposed concrete free of all foreign matter. If, in the opinion of the Architect, further cleaning of specific areas is required, they shall be scrubbed with water or other cleaning agents. Acid cleaners shall not be used, except as may otherwise specifically permitted in the trade sections.
- G. Bright metal: Clean metal surfaces, hardware, fixtures, appliances, equipment, and similar items free of all foreign matter. Lightly scrub specific stains with clean water, mild soap, and soft rags, thoroughly rinsed and wiped with clean, soft white rags. Do not use abrasive cleaners.
- H. Glass: Replace broken, chipped and defective glass. Remove from glass: stains, spots, marks, paint smears; dirt and foreign materials. Clean and polish both surfaces of all interior and exterior glass. Clean and polish mirrors.
- I. Carpet: Vacuum clean carpet and remove all spots and stains.
- J. Hardware: Clean and polish finished hardware, remove marks, stains, scratches and blemishes.
- K. Tile: Clean and polish floor and wall tile, remove grout film and excess grout.
- L. Cabinetry and woodwork: Dust and clean architectural woodwork, modular casework, and finish woodwork items, remove all stains, spots, and foreign matter using methods and cleaning agents which will not harm the various finishes.
- M. Site: Sweep exterior paved surfaces broom clean; rake clean unpaved surfaces.
- N. Equipment: Thoroughly clean all items of food service, mechanical and electrical equipment; remove excess oils and grease from exposed surfaces.

1. Clean permanent filters and replace disposable filters if ventilating units were operated during construction.
2. Clean ducts, blowers and coils, if units were operated without filters during construction.

1.11 PROTECTING INSTALLED WORK

- A. Protect all built, and in-place Work. In addition to requirements specified elsewhere, the General Contractor shall protect all installed work from subsequent damage or deterioration from construction activities, and atmospheric damage until Owner's Substantial Completion and occupancy precludes the need for protection activities. No attempt is made in this Section to list all elements requiring protection or to describe how each element will be protected. It is the responsibility of the General Contractor to determine for itself the scope and nature of protection required.
1. Protection of some products/building elements may be required to remain in place for a large portion duration of the project. As such, materials should be installed to provide adequate protection throughout the full extent of construction activities. Repair or reinstall protection throughout the duration of construction.
- B. Finish Products: Some finishes may need to be physically isolated from construction operations by means of protective barriers and coverings.
1. General: After installation, provide coverings to protect products from damage due to traffic and construction operations. Replace protective coverings which may become wet, torn, or ineffective. Remove coverings when no longer needed.
 2. Doors, door frames and hardware: Protect from damage due to traffic and construction operations.
 3. Floor and Finished Surfaces Protection: Protect against construction traffic, rolling loads, static loads, damage from material movement and storage, or similar causes of damage.
 4. Walls: Protect from impact, dents, marks, water damage, and similar damage.
 5. Glass: Protect from damage including etching and staining. Keep glass clean.
 6. Protect products sensitive to water damage from becoming wet.
 7. Protect products sensitive to ultra-violet exposure and atmospheric exposure by limiting exposure to within limits recommended by respective product manufacturer.
 8. Protect products from biological growth, molds and mildew.
 9. Protect products from rodents and other animals, birds and insect damage.
- C. Roofing and waterproofing systems: Protect and isolate from traffic and construction operations. Protect from chemicals. Work and traffic directly upon roofing and waterproofing is prohibited, provide temporary walkways and platforms.
- D. General Protection from chemicals:
1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's

written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

2. Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 3. Neutralize and collect alkaline and acid wastes and dispose of off-site.
 4. Dispose of runoff from chemical operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- E. Save plastic coverings. At completion of Project, reuse if practical; if not, then recycle if local market exists.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 73 29
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Examination of existing conditions and acceptance of conditions.
- B. Administrative and procedural requirements for cutting and patching, including attendant excavation and backfill as required to complete the Work. General Contractor is responsible for all cutting and patching work, including but not limited to:
 - 1. Perform all cutting, altering, patching, and fitting of the Work (new and existing) as necessary for the Work and the existing improvements. Fully integrate with existing and new construction, all cutting, alterations and patching, to present the visual appearance of an entire, completed, and unified project.
 - a. Make all products and their components of the work fit together properly.
 - 2. Provide openings in elements of the Work, and the patching of same, for penetrations required by all trades, including but not limited to mechanical, plumbing, fire protection and electrical work.
 - a. Individual trades are responsible for designated types of coring and drilling penetrations for piping, conduit, ducts and other penetrations as defined elsewhere in this Section.
 - 3. Uncover work to provide for installing, inspecting, or both, of ill-timed work;
 - 4. Remove and replace work not conforming to requirements of the Contract Documents or as otherwise determined to be defective.
 - 5. Patch and match all surfaces and products disturbed or damaged by the Work.
 - 6. Remove samples of installed work as specified for testing.

1.2 RELATED REQUIREMENTS

- A. Section 02 41 19 - SELECTIVE DEMOLITION: Demolition of selected portions of the building for new construction.
- B. Individual product specification Sections:
 - 1. Cutting and patching of not-exposed-to-view materials incidental to work of the Section.
 - 2. Core drilling (up to 8 inches in diameter) of interior building components, incidental to work of individual Sections.
 - 3. Cutting and Patching work of particular exposed-to-view finish work, performed by trades as specified herein.

1.3 SUBMITTALS

- A. Submit written proposals to perform cutting and patching under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES. Describe cutting and patching procedures in advance of the time cutting and patching.

1. Submit a written request when cutting work affects the following:
 - a. Structural integrity of any element in the project.
 - b. Integrity of weather-exposed or moisture-resistant elements.
 - c. Integrity of any fire suppression, fire alarm, or life safety system.
 - d. Interruption or disturbance of utilities service. List utilities that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - e. Efficiency, maintenance, or safety of operational elements and systems.
 - f. Aesthetic and visual qualities of exposed-to-view elements.
 - g. Efficiency, operational life, maintenance, or safety of operational elements.
 - h. Work of Owner or work performed under separate Contract.
 - i. Owners on-going operations or schedule.
2. Include in the request:
 - a. Identification of project.
 - b. Location and description of affected work.
 - c. Necessity for cutting or alteration.
 - d. Alternatives to cutting and patching.
 - e. Scope of proposed cutting, patching, alteration or excavation.
 - f. List of tradespeople who will execute the work.
 - g. Description of products to be used.
 - h. Extent of refinishing and cleaning to be performed.
 - i. Effect on work by Owner or work performed under separate Contract, and written permission of affected party.
 - j. Date and time cutting and patching is scheduled to be executed.
 - k. Cost proposal, when applicable.
 - l. Written permission of separate contractor(s) whose work will be affected.
3. Review by the Architect does not waive the Architect's right to later require complete removal and replacement of Work found to be unsatisfactory.
4. Should conditions of Work or the schedule indicate a change of products from original installation, Contractor shall submit a request for substitution in accordance with Section 01 25 13 - PRODUCT SUBSTITUTION PROCEDURES.

1.4 QUALITY ASSURANCE

- A. Only tradespersons skilled and experienced in cutting and patching shall perform such Work.
- B. In performing Work which requires cutting, fixing, or patching, Contractor and subcontractors shall utilize best efforts to protect and preserve the visual appearance and aesthetics of the Project to the reasonable satisfaction of both Owner and Architect.

1.5 PERFORMANCE REQUIREMENTS

- A. General performance requirements: Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- B. Structural elements: Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Always obtain written approval of the cutting and patching proposal before cutting and patching structural elements.
 - 1. Do not drill through structural beams, slabs or columns. Core drilling through concrete block walls and stair platforms must be approved by the Architect.
 - 2. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.
- C. Exposed elements:
 - 1. Employ original installer of new construction to perform cutting and patching for weather exposed and moisture resistant elements, and sight exposed surfaces.
 - 2. Employ an appropriate tradesperson to perform cutting and patching of existing weather-exposed and moisture-resistant construction, and exposed-to-view surfaces.
- D. Penetrating elements: Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with fire rated materials in accordance to applicable codes and regulations, and compatible to surrounding construction.
- E. Visual requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
 - 1. General: Restore work with new products in accordance with the requirements of the Contract Documents.
 - 2. Engage a firm recognized and experienced in the trade or specialty operation required to cut and patch the exposed-to-view work listed below.
 - a. Processed concrete finishes, including cast stone and pre-cast architectural concrete.
 - b. Concrete masonry and brick masonry concrete.
 - c. Stonework concrete.
 - d. Matched-veneer woodwork.
 - e. Preformed metal panels.
 - f. Windows, storefront and curtain wall system .
 - g. Portland Cement plaster .
 - h. Gypsum and ornamental plaster .
 - i. Acoustical ceilings .
 - j. Gymnasium wood flooring.

- k. Carpeting.
 - l. HVAC enclosures, cabinets, or covers .
 3. Engage a firm recognized and experienced in firestopping for patching of existing firestopping, smoke seals and firesafing in compliance with applicable codes and as additionally required by authorities having jurisdiction. Comply with requirements of Section 07 84 00 - FIRESTOPPING.
- F. Operational and safety limitations: Do not cut and patch operating elements or safety components in a manner that would reduce their capacity to perform as intended, or would increase maintenance, or decrease operational life or safety.
 1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
 - a. Primary operational systems and equipment.
 - b. Fire resistance rated barriers and smoke barriers.
 - c. Fire protection systems.
 - d. Noise and vibration control elements and systems.
 - e. Control systems.
 - f. Communication systems.
 - g. Electrical wiring systems.

1.6 WARRANTY

- A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void existing applicable warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Patching Materials: Use patching materials identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible. Use materials whose installed performance will equal or surpass that of the existing materials. Comply with specifications and standards for each specific product involved.
 1. All materials used shall be approved by the Architect for consistency with the existing surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Pre-bid examination: General Contractor and its subcontractors shall inform themselves of existing conditions before submitting bids, and are fully responsible for carrying out all work required to completely and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions which are inconsistent with those assumed, except for fully concealed conditions.

BID PACKAGE #2

- B. Examination - General: Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, inspect conditions affecting performance of work. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

3.2 PREPARATION

- A. Protection:
 - 1. Provide temporary supports to ensure structural integrity of the Work.
 - 2. Protect existing construction during cutting and patching to prevent damage.
 - 3. Provide protection from adverse weather conditions.
 - 4. Provide protection from elements for areas which may be exposed by uncovering work.

3.3 GENERAL CUTTING AND PATCHING

- A. Performance: Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive repairs, patching, and finishing.
- B. Execute cutting, fitting, and patching, including excavation and fill, to complete the work.
 - 1. Cut rigid materials using masonry saw or core drill. Pneumatic tools are not permitted without prior approval, from Architect
 - 2. Fit products together, to integrate with other work.
 - 3. Uncover work to install ill-timed work.
 - 4. Remove and replace defective or non-conforming work.
 - 5. Remove samples of installed work for testing, when requested.
 - 6. Provide openings in the work for penetration of mechanical and electrical work.
- C. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
 - 1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
 - 4. Comply with requirements of applicable Division 31 - EARTHWORK Sections where cutting and patching requires excavating and backfilling.
 - 5. Where services are required to be removed, relocated, or abandoned, bypass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

3.4 FINISHING OF PATCHED AREAS:

- A. General: Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break; for assemblies, refinish entire unit.
 - 1. Patching: Patch with durable seams that are as invisible as possible, showing no evidence of patching and refinishing. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction. Comply with specified tolerances.
 - a. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with fire rated materials in accordance to applicable codes and regulations, and compatible to surrounding construction.
 - b. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Provide vapor and air seal when penetrating existing vapor and air seals.
 - c. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 - 2. Where removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat. Extend re-painting to entire surface plane up to where plane changes direction.
 - 3. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.5 CORING AND DRILLING

- A. Coring and Drilling of holes incidental to work of individual sections shall be performed by the trade requiring the penetration, except as follows:
 - 1. Coring and Drilling of holes greater than 8 inches in diameter in concrete decks and slabs.
 - 2. The General Contractor is responsible for performing core drilling in wall and roof surfaces leading to, or from, the outside of the Building.
 - 3. The General Contractor is responsible for coordination of all coring and drilling and resultant patches necessary for the completion of this Contract and for the quality and appearance of all patch Work in exposed-to-view finished materials.

3.6 CLEANING

- A. Cleaning patched areas: Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove paint, mortar, oils, putty and similar items.

End of Section

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CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Special administrative and procedural requirements for the General Contractor and subcontractors as required for the Project waste management and recycling activities and as described herein.
1. Recycling goals and waste management program intent.
 2. List of recyclable materials.
 3. Waste management plan.
 4. Waste management plan implementation.
 5. Waste management reporting.

1.2 RECYCLING GOALS AND WASTE MANAGEMENT PROGRAM INTENT

- A. Waste Stream Diversion Program Goal: It is the Owner's determination that this Project shall generate the least amount of construction waste possible, and to salvage and recycle as much nonhazardous demolition waste as possible. This program goal shall be accomplished by the following processes:
1. Demolition and Construction Waste Diversion Requirement: **Minimum 50% waste diversion is mandatory for this project.**
 2. Efficiently use demolition waste materials to the maximum extent as economically feasible:
 - a. Reuse and renovation of existing structures in lieu of demolition as shown in the Contract Documents.
 - b. Segregate and salvage existing materials and items for salvage and reuse on site where possible.
 - c. Segregate demolished materials for salvage and recycling, or to be recycled as mixed debris.
 3. Ensure the reduction of waste generated due to errors, poor planning, breakage, mishandling, contamination, or other factors shall be employed.
 4. Efficiently use waste material to the fullest extent possible in the completion of this Project, including the following.
 - a. Reuse of materials on site where possible.
 - b. Recycling of waste generated during the construction processes.
 5. The Contractor is encouraged to include additional resource efficient methods in the Project.
 6. In the management of waste consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates.
- B. Contractor Participation: The Contractor shall take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort.

1. The Contractor is responsible for implementation of special programs involving rebates or similar incentives related to recycling of waste.
 2. Revenues or other savings obtained for salvage, or recycling shall accrue to the Contractor. Firms and facilities used for recycling, reuse, and disposal shall be appropriately permitted for the intended use to the extent required by federal, state, and local regulations.
- C. Waste disposal:
1. In no case is the Contractor or subcontractors permitted to utilize Central Falls School District waste dumpsters.
 2. In no case shall material be disposed of in a landfill or incinerator where an approved and less costly recycling or reuse alternative exists. Waste disposal in landfills and incinerators shall be minimized and shall be considered the alternative of last resort.

1.3 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Commingled: Materials of varied types deposited into the same receptacle or pile, or mixed together during demolition.
- C. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
1. Construction and demolition waste includes excess or otherwise unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work.
- D. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosiveness, toxicity or reactivity.
- E. Hazardous Waste: Any material or byproduct of construction whose handling, storage and disposal is regulated by the Environmental Protection Agency.
- F. Non-hazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosiveness, toxicity, or reactivity.
- G. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- H. Off-Site Separation: Sorting and separating commingled waste at a location other than the construction jobsite, that location having been established for the purpose of recycling.
- I. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- J. Recycle: To remove a waste material from the Project site to another site for remanufacture into a new product for reuse by others.

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- K. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- L. Return: To give back reusable items or unused products to vendors for credit.
- M. Reuse: To reuse a construction waste material in some manner on the Project site.
- N. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.
- O. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- P. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- Q. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- R. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- S. Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through outgassing: solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in particleboard, fiberboard, and some plywoods; and foam insulation.
- T. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled.
- U. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.4 LIST OF RECYCLABLE MATERIALS.

- A. Materials to be recycled, salvaged, or reused during this project include, but are not limited to, the following:
 - 1. Asphaltic paving.
 - 2. Asphalt / bituminous roofing.
 - 3. Beverage containers.
 - 4. Brick.
 - 5. Carpet and carpet pad trim.
 - 6. Cement fiber products, including shingles, panels, siding.
 - 7. Concrete, concrete block, concrete masonry units (CMU), slump stone (decorative concrete block), and rocks.
 - 8. Fluorescent light tubes, per local regulatory requirements.
 - 9. Furnishings.
 - 10. Glass.
 - 11. Green materials (i.e. tree trimmings and land clearing debris).

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12. Gypsum wallboard.
13. Insulation.
14. Metals including, but not limited to: stud trim, ductwork, piping, reinforcing steel (rebar), roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze. (ferrous and non-ferrous).
15. Paint.
16. Paper, including bond, newsprint, cardboard, mixed paper, packing materials, and packaging.
17. Plastics, plastic buckets and plastic sheeting.
18. Porcelain plumbing fixtures.
19. Rigid foam insulation and packing materials.
20. Soils and land clearing debris.
21. Wood, including clean dimensional wood, pallet wood, plywood, oriented strand board (OSB), particle board.

1.5 RESOURCES

- A. Resources: The following sources may be useful in development of the specified Waste Management Plan:
 1. Licensed or Registered Construction and Demolition Debris Processing Facilities: The following list from the RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, contains licensed and registered construction and demolition debris processing facilities.. This list is provided for information only and is not necessarily comprehensive; other processors and markets are acceptable. For more information, contact: Rhode Island Department of Environmental Management, Office of Waste Management, 235 Promenade Street, Providence RI 02908 (telephone 401-222-2797).
 - a. Construction and Demolition Debris Processing Facilities:
 - Coastal Recycling
 - 431 Allens Avenue
 - Providence, RI 02905
 - Pond View Recycling, Inc, C&D Facility
 - 1 Dexter Road
 - East Providence, RI 02914
 - RIRRC - Plainfield Pike Facility
 - 2550 Plainfield Pike
 - Cranston, Rhode Island
 - Waste Management Transfer Station and C&D Debris Processing Facility
 - 65 O' Keefe Lane
 - Warwick, Rhode Island 02888

1.6 SUBMITTALS

- A. Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Waste Management Plan: Submit draft(s) and Final Waste Management Plan, as specified herein under the Article entitled "Waste Management Plan".

2. Recycling Facilities List: Submit list of names, addresses, and telephone numbers for all proposed recycling facilities and obtain Architect's acceptance prior to use of recycling facilities. Additionally, with submittal, include for each recycling facility a certification letter on recycling facility letterhead which is signed by responsible party at recycling facility containing the following information:
 - a. End use of each recycled material handled by facility.
 - b. Recycling rate of the recycling facility.
 3. Monthly recycling analysis reports: Submit monthly with each Application for Payment, recycling analysis report. Include separate reports for demolition and construction waste. Include the following information:
 - a. Material category.
 - b. Generation point of waste.
 - c. Total quantity of waste in tons).
 - d. Quantity of waste salvaged, both estimated and actual in tons.
 - e. Quantity of waste recycled, both estimated and actual in tons.
 - f. Total quantity of waste recovered (salvaged plus recycled) in tons.
 - g. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
 - h. Tracking Report and Projections: Monthly recycling analysis reports shall additionally include updated projections for end-of-project recycling rates, salvage rates, and landfill rates demonstrating that the specified mandatory percentage of the construction waste will be diverted (recycled or salvaged) by date of Substantial Completion.
- B. Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.
1. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
 - a. Record Keeping for Donations, Recycling and Landfill Disposal: Submit a complete materials audit and include the additional information specified following:
 - 1) Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
 - 2) Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
 - 3) Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices. Include documentation for backcharge fees, if any, for improperly segregated waste.
 - 4) Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.7 WASTE MANAGEMENT PLAN

- A. Draft Waste Management Plan: Within 14 calendar days after receipt of Notice of Award of Bid, and prior to any waste removal, the Contractor shall submit a Draft Waste Management Plan to both Architect and Owner. Submit draft Waste Management Plan and obtain approval from Architect and Owner prior to engagement of waste or recycling subcontractors. The Draft Waste Management Plan shall include as a minimum the following:
1. Analysis of the jobsite waste expected to be generated, categorized by material types and approximate quantities.
 - a. List specific waste materials that will be salvaged for resale, salvaged and reused, or recycled.
 - b. Estimated percentage of waste diverted by this Plan.
 - c. Identification of materials that cannot be recycled or reused
 2. Disposal options: The name of all landfills and incinerators proposed for trash disposal, the respective tipping fees for each of these disposal options including transportation costs, and the projected cost of disposing of all Project waste in the landfills.
 3. Alternatives to Incineration or Landfill Disposal: A list of each material proposed to be salvaged, reused, or recycled during the course of the Project. Include the following information:
 - a. The proposed end use or market for each material.
 - b. The respective tipping fees for each end use or market (including transportation costs).
 - c. The estimated net cost savings or additional costs resulting from separating and recycling each material (versus landfilling or other disposal).
 - 1) "Net" means that the following have been subtracted from the cost of separating and recycling: (a) revenue from the sale of recycled or salvaged materials and (b) landfill tipping fees saved due to diversion of materials from the landfill.
- B. Final Waste Management Plan: Once the Owner has reviewed the draft Waste Management Plan and made appropriate suggested modifications, the Contractor shall submit, within 14 calendar days of receiving such suggested modifications, a Final Waste Management Plan, incorporating Owner's input. The Final Waste Management Plan shall contain the following:
1. Analysis of the jobsite waste expected to be generated, categorized by material types and approximate quantities.
 - a. List specific waste materials that will be salvaged for resale, salvaged and reused, or recycled.
 2. Materials Handling Procedures: A description of the means by which any waste materials identified to be salvaged, reused, or recycled, will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.
 3. Markets: A list of the markets or other on-site or off-site end uses that will be used for each material that will be separated for reuse, salvage, or recycling.

- a. Identify (and utilize) local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks, and Habitat for Humanity.
4. Transportation: Describe the means of transportation of the recyclable materials and destination of all waste materials.
 - a. Transported materials includes:
 - 1) Materials that will be site-separated and hauled to designated centers
 - 2) Mixed materials will be collected by a waste hauler and removed from the site).
 - 3) Mixed materials that will be removed from site and later separated for recycling.
5. Disposal options: The name of all landfills and incinerators proposed for trash disposal, the respective tipping fees for each of these disposal options including transportation costs, and the projected cost of disposing of all Project waste in the landfill(s).
 - a. Alternatives to Incineration or Landfill Disposal: A list of each material proposed to be salvaged, reused, or recycled during the course of the Project.
6. Cost of Reuse, Salvage, or Recycling. An estimate of the cost, including separation, transportation, and marketing, to reuse, salvage, or recycle the materials identified.
7. Schedule of special meetings to required to address waste management implementation.

1.8 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Manager: The Contractor shall designate a specific party (or parties) responsible for instructing workers in recycling and overseeing and documenting results of the Waste Management Plan for the Project.
- B. Distribution: The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner, and the Architect.
- C. Instruction: The Contractor or his designated waste manager shall provide on-site instruction regarding appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all involved parties at the appropriate stages of the Project.
- D. Separation facilities: As appropriate during each stage of the Project, the Contractor shall lay out and label a specific area(s) to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
- E. Hazardous wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.

1.9 WASTE MANAGEMENT REPORTING

- A. Application for Progress Payments: The Contractor shall submit with each Application for Progress Payment, a Summary of Waste generated by the Project. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The Summary shall be submitted on a form acceptable to the Owner and shall contain the following information:
1. The amount (in tons or cubic yards) of material landfilled from the Project, the identity of the landfill, the total amount of tipping fees paid, transportation costs (if separate) and the total disposal cost. Include manifests, weight tickets, receipt, and invoices.
 2. For each material recycled, reused, or salvaged from the Project, the amount (in tons or cubic yards), the date removed from the jobsite, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvage or recycling each material. Attach manifests, weight tickets, receipts, and invoices.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 GENERAL WASTE MANAGEMENT

- A. Use detailed material estimates to reduce risk of unplanned and potentially wasteful cuts.
- B. Arrange for vendors and material suppliers is to take back shipping and packing materials for re-use or recycling to the maximum extent economically feasible.
1. Include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Insure that subcontractors require the same provisions in their purchase agreements.
- C. Provide clearly labeled containers for recycled waste that is to be recycled, with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
1. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
 2. Separate and recycle waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
 3. Place materials defined as hazardous or toxic waste in designated containers.
- D. Provide labeled containers for all recycled waste that is to be disposed in a landfill.
- E. Handle and transport recyclable materials in manner to prevent contamination of materials from incompatible products and materials.

- F. Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

3.2 SOURCE SEPARATION

- A. General: Separate recyclable materials from general construction waste. Separate recyclable materials by type.
 - 1. Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from weather.
- B. Source Separation Methods:
 - 1. Waste products and materials that are recyclable shall be separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing.
 - 2. Comingled Method: Recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed.
 - a. Do not put recycled waste that will be disposed in a landfill into a comingled waste recycling container.
 - 3. Other Methods: Other methods proposed by the Contractor may be used when approved by the Architect and Owner.
- C. Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling whenever economically feasible.

3.3 REMOVAL OF CONSTRUCTION AND DEMOLITION WASTE MATERIALS

- A. Remove recycled waste materials from project site on a regular basis. Do not allow recycled waste to accumulate on-site.
- B. Transport recycled waste materials off Owner's property and legally dispose of them.
 - 1. Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

End of Section

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Section 01 75 00
STARTING AND ADJUSTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Testing, adjusting, and balancing.
- B. Operation, maintenance, and service.

1.2 TESTING, ADJUSTING, AND BALANCING

- A. General: Adjust operating products and equipment to ensure smooth and unhindered operation.
- B. Contractor will employ services of an independent firm to perform testing, adjusting and balancing. Submit to Owner at least three qualified testing firms for Owner's review and acceptance.
- C. The independent firm will perform services specified under Division 21 - Fire Suppression, Division 22 - Plumbing, and Division 23 - Heating, Ventilating, and Air Conditioning.
- D. Reports will be submitted by the independent firm to the Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

1.3 AIR QUALITY TESTING

- A. Air quality testing: The Owner reserves the right to employ the services of an independent testing agency to perform air quality testing. Testing will occur prior to Contractor's request for inspection for Substantial Completion. The intent of testing is to certify that the building is "Clear" of airborne contaminants.

1.4 OPERATION, MAINTENANCE, AND SERVICE

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect/Engineer and Owner 7 days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of responsible Contractors' personnel in accordance with manufacturers' instructions.

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- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01 77 00 - CLOSEOUT PROCEDURES that equipment or system has been properly installed and is functioning correctly.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Closeout of incomplete work (punch list) requirements.
- B. Closeout procedures.
- C. Conferences occurring after Substantial Completion.

1.2 RELATED REQUIREMENTS

- A. Section 01 78 00 - CLOSEOUT SUBMITTALS: Requirements for project record documents.
- B. Section 01 78 36 - WARRANTIES: Administrative and procedural requirements for warranties, guarantees and bonds.

1.3 PUNCH LIST REQUIREMENTS AND PROCEDURES

- A. Definitions:
 - 1. General Contractor's Punch List: Complete list of incomplete and incorrect Work prepared by the General Contractor prior to request of Architect's inspection for Certification of Substantial Completion. As a minimum the List shall include the following information for each work item:
 - a. Location identification organized by Building, Area, Room Number, or combination thereof as appropriate to project.
 - b. Clear identification of each incomplete work item, including all subcontractor's work.
 - c. Estimated value of each incomplete work item.
 - d. A short statement of why work is not complete.
 - e. Identify subcontract responsibility, as appropriate to each item.
 - 2. Architect's Punch List: A list of incomplete and incorrect Work prepared by the Architect, which modifies the General Contractor's Punch List, following review and acceptance of the General Contractor's Punch List.
- B. Pre-Closeout requirements: Prior to requesting initial Architect's inspection for Certification of Substantial Completion, submit to the Architect a full and complete list of all incomplete work items (General Contractor's Punch List).
- C. Punch list procedures at Substantial Completion:
 - 1. Architect will review submitted General Contractor's Punch List and determine whether it is suitable to proceed with the Substantial Completion Process.
 - a. If the Architect determines that the amount of completed work is insufficient to be considered for Substantial Completion, the Architect will not proceed with the Punch lists process until sufficient completion of the Project is achieved.

- b. The Architect will review the General Contractor's Punch List and if the Architect determines that it does not reflect proper identification of the incomplete and incorrect work, he/she will request revision and resubmission of the General Contractor's Punch List.
 - c. If the Architect determines that the amount of work indicated on the General Contractor's Punch List is excessive, the Architect will suspend its review until the scope of Work identified in the General Contractor's Punch is reduced to a level satisfactory to the Architect.
 - d. When the Architect reviews and accepts the General Contractor's Punch List as being an accurate reflection of incomplete and incorrect work; the Architect will prepare and issue to the General Contractor the "Architect's Punch List".
 - 1) The Architect's Punch List will be based on the General Contractor's Punch List with modifications and additions as may be required.
 - 2) The Architect's Punch List includes Work which must be completed and corrected prior to Final Completion.
2. Upon receipt of the Architect's Punch List, the General Contractor shall immediately distribute the list to all subcontractors.
- D. Completion of Punch List Work: Make reasonable efforts to ensure that all "Architect's Punch List" items are completed or corrected within 14 calendar days from the date of the Architect's Punch List" or within the Contract Time, whichever is earlier.
- E. Architect's Final Inspection and review of Punch List Work:
1. After General Contractor certification that all punch list Work has been properly completed the Architect will then perform the Final Inspection.
 - a. Incomplete Items: If the Architect discovers any incomplete or incorrect "Architect's Punch List" items or any other deficiency in the work, the Architect will prepare a "Revised Punch List" which may also include other incomplete Contract requirements such as record documents, owner's operation and maintenance manuals, warranties, and other Contract requirements. Architect's site reviews of the Work for this "Revised Punch List" and any subsequent revised Punch Lists shall be performed as additional service to Owner, back-charged to the General Contractor.
 - b. The Architect may assign a dollar value for each item of incomplete or incorrect work remaining.
- F. Additional Inspections and related additional services fee: The Architect and the Architect's consultants will provide two site inspections, one at Substantial Completion, and one to confirm that the "Architect's Punch List" has been completed.
1. "Revised Punch List: If the Architect prepares and issues a "Revised Punch List: because of the General Contractor's failure to complete the Work, then the Owner shall compensate the Architect and the Architect's consultants for their additional services and additional inspections. The payment for additional services and inspections will be back-charged to General Contractor. The Owner will deduct the amount of the Architect's additional services fee from final payment to the General Contractor by Change Order.

1.4 CLOSEOUT PROCEDURES - SUBSTANTIAL COMPLETION

- A. Prior to requesting inspection for certification of Substantial Completion, complete the following:
1. On Application for Payment, show 100 percent completion for portions of work claimed as substantially complete.
 - a. Submit list of incomplete items (Punch List), value of incomplete work, and reasons work is not complete.
 2. Obtain evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
 - a. Certificate of Final Inspections, "signed off" by authorities having jurisdiction.
 - b. Certificate of Occupancy.
 3. Submission of product and installation warranties, workmanship bonds, maintenance agreements, installer certifications and similar documents specified in individual sections.
 4. Submission of test/adjust/balance reports.
 5. Change-over permanent locks and transmit keys to the Owner.
 6. Remove temporary facilities and services that are no longer required.
 7. Remove mock-ups, field samples and similar items.
 8. Complete Final Cleaning, including repair and restoration, or replacement of damaged Work.
 9. Remove surplus materials, rubbish and similar elements.
 10. Documentation of completed flush out procedures.
 11. Application for reduction of retainage.
 12. Consent of Surety.
 13. Advise the Owner of the change-over in security provisions.
 14. Notification of shifting insurance coverage.
 15. Final progress photographs.
 16. All commissioning functional testing.
- B. Within 2 weeks after receipt of the notice of Substantial Completion from the General Contractor, the Architect will inspect to determine status of completion.
1. Should the Architect determine that the Work is not substantially complete:
 - a. The Architect will notify the General Contractor in writing, stating the reasons therefore.
 - b. The General Contractor shall remedy the deficiencies and send a second written notice of Substantial Completion to the Architect, requesting re-inspection.
- C. When the Architect concurs that the Work is substantially complete:
1. The Architect will prepare AIA Document G 704 - CERTIFICATE OF SUBSTANTIAL COMPLETION, in accordance with the requirements of the GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS, accompanied by the General Contractor's list of items to be completed or corrected, as verified by the Architect.

2. The Architect will submit the Certificate to the Owner, and to the General Contractor, for their written acceptance of the responsibilities assigned to them in the Certificate.

1.5 CLOSEOUT PROCEDURES - FINAL ACCEPTANCE

- A. Prior to requesting inspection for certification of Final Acceptance and final payment, perform the following:
 1. Completion of incomplete Work. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.
 2. Prove that all taxes, fees and similar legal obligations have been paid.
 3. Submit final payment requests with release of all liens, and supporting documentation.
 4. Provide written assurances that all unsettled claims are in the process of and will be resolved.
 5. Submit final meter readings for utilities, a record of stored fuel, and similar data, taken on date of Substantial Completion.
 6. Submit updated final statement, including accounting for final additional changes to the Contract Sum. Show additional Contract Sum, additions and deductions, previous Change Orders, total adjusted Contract Sum, previous payments and Contract Sum due.
 7. Submit consent of surety to Final Payment.
 8. Submit evidence of continuing insurance coverage complying with insurance requirements.
 9. Transmit certified property survey.
 10. Remove remaining temporary facilities and services.
 11. Deliver to Owner and obtain receipts for:
 - a. Operation and Maintenance Manuals for items so listed in individual Sections of the Specifications, and for other items when so directed by the Architect.
 - b. Project Record Documents (as-builts), including autocad format drawings on discs.
 - c. Warranties and bonds specified in individual Sections of the Specifications.
 - d. Keys and keying schedule.
 - e. Spare parts and materials extra stock.
 - f. Pest Control Inspection Report.
 - g. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights weekends, and holidays.
 12. Submit Certification stating Work has been inspected for compliance with the Contract Documents.
 13. Submit Certification stating equipment and systems have been tested in presence of Owner's representative and are fully operational.

14. Submit Certification stating that Work is 100 percent complete and ready for final inspection.
- B. Within 2 weeks after receipt of the request for Final Acceptance from the General Contractor, the Architect will inspect to determine status of completion.
 1. Should the Architect determine that the Work is incomplete or defective:
 - a. The Architect will notify the General Contractor in writing, stating the reasons listing the incomplete or defective work.
 - b. The General Contractor shall take immediate steps to remedy the deficiencies and send a second written notice of request for Final Acceptance to the Architect.
 - c. Costs relative to the Architects re-inspection due to failure of Work to comply with claims made by the General Contractor, will be compensated by the Owner, who will deduct the amount of such compensation from the Final Payment due to the General Contractor.
 - C. After the Architect finds the Work acceptable, the Architect will review the Final Close-out submittals.
 - D. Application for Final Payment: Submit Application for Final Payment in accordance with procedures and requirements of the General Conditions and Supplementary Conditions.
 1. The Architect will prepare a Final Change Order, reflecting approved adjustments to the Contract Sum not previously made by other Change Orders.

1.6 CONFERENCES AFTER SUBSTANTIAL COMPLETION

- A. The Owner reserves the right to call for conferences commencing with the date of Substantial Completion and continuing for one year thereafter, for purposes of inspecting the Work and to plan correction of any deficiencies or failures discovered during this period.
 1. Attendance is required by General Contractor's Project Manager, Architect, Owner's Project Manager and each applicator, installer, and supplier as the Owner may direct or the General Contractor may wish to have present. All representatives attending such meetings shall be the same persons, or shall have the same powers and authority, as those attending progress meetings occurring prior to the Date of Substantial Completion.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 78 00
CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Project record documents.
- B. Record Project Manual.
- C. Project Record Drawings (As built drawings).
- D. Final Site Survey.
- E. Operation and maintenance data, preventive maintenance instructions.
- F. Materials and finishes manual.
- G. Product warranties and bonds.
- H. Maintenance contracts.
- I. Spare parts and maintenance materials.
- J. Attic stock.

1.2 RELATED SECTIONS

- A. Section 01 31 00 - PROJECT MANAGEMENT AND COORDINATION:
 - 1. Coordination Drawing Requirements.
 - 2. CAD File Requirements for base sheets to prepare Project Record Drawings (As built drawings).
- B. Section 01 78 36 – WARRANTIES: Administrative and procedural requirements for warranties, guarantees and bonds.

1.3 PROJECT RECORD DOCUMENTS

- A. General: Record documents shall reflect actual “as-built” condition and the products installed. Include all changes and deviations from original Contract Documents, and incorporate information from:
 - 1. Original Contract Documents.
 - 2. Addenda.
 - 3. Change orders.
 - 4. Construction change directives.
 - 5. Field directives, and instructions from the Owner, Architect or regulatory authorities having jurisdiction.
- B. Project Record Documents include, but are not limited to:
 - 1. Record Project Manual.
 - 2. Project record drawings (as-builts).

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3. Final Site Survey.
4. Operation and maintenance data, preventive maintenance instructions.
5. Materials and finishes manual.
6. Product warranties and bonds.
7. Maintenance contracts.
8. Record of all test reports and inspections.
9. Wall charts and data such as valve diagrams, electrical panel board directories, and similar information.
10. List of all attic stock, spare parts, maintenance and extra materials turned over to the Owner. List shall be organized and sorted by specification section, and have fields for product description and quantity. A separate list shall be provided for each school building and include items from the General Contractor, subcontractors and their respective sub-subcontractors.

C. Labeling and identification of Record Documents

1. Clearly label all record documents with name of Project and the words "Record Document".
2. Date progressive entries of information as appropriate.
3. Date Record Documents with the final submission date.

1.4 SUBMITTAL QUANTITY REQUIREMENTS

A. Furnish Architect with the following quantities of each submittal:

1. Record Project Manual: 4 bound copies.
2. Project record drawings (as built drawings):
 - a. 2 sets of Drawings in Autodesk Revit (version 2015) and Autocad MEP (version 2015) format.
 - b. 2 "blackline print" sets of Drawings.
3. Final Site Survey: 4 copies.
4. Operation and maintenance data, preventive maintenance instructions: 4 bound copies.
5. Owner Training Video for operation of building systems and major equipment.: 2 copies.
6. Materials and finishes manual: 2 bound copies.
7. Product warranties and bonds: 2 copies
8. Maintenance contracts: 2 copies
9. Record of all test reports and inspections: 4 copies.

1.5 RECORD PROJECT MANUAL

- A. The General Contractor is responsible to maintain a Project Manual reflecting revisions and changes to the Original Issue Project Manual.
 1. Clearly label the Record Project Manual as "Record Document Specifications, in a three ring binder.
 2. Do not use Record Project Manual for construction purposes; protect from loss in a secure location.

3. Record all variations and deviations to the Contract Documents, including changes made by Addenda, Bulletin, Change Order, Change Directive and other modifications to the Contract..
 - a. Cut and paste revisions into their applicable specification section.
 - b. Identify all changes with cross-reference to appropriate Addendum Number, Modification Number, Change Order Number.
 4. In each individual Specification Section, under "*Part 2 – Products*", identify all manufacturers and products which are actually used as part of the Work.
 5. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
- B. Record Project Manual: Provide prior to request for Final Acceptance.
1. Manuals shall be in 8-1/2 by 11 inch pages and bound in 3-ring (D-shape) binders with durable plastic covers. Internally subdivide the binder contents by Division with permanent page dividers.
 2. Label front cover and spine of each binder with laser printed titles, dates, and project information.
 3. All information from "in-progress" manual shall be clearly and completely transferred.
 4. Pages shall be undamaged.

1.6 PROJECT RECORD DRAWINGS

- A. The General Contractor is responsible to maintain a clean, undamaged set of prints of Contract Drawings and shop drawings for preparing the record drawings.
1. Where shop drawings are used, record a cross-reference at the corresponding location on the Contract Documents.
- B. Do not use Record Documents for construction purposes; protect from loss in a secure location. Mark-up these drawings to show clearly and completely the actual installation reflecting all changes made in the Work during construction.
1. Mark whichever drawing is most capable of showing conditions accurately.
 2. Record all variations and deviations to the Contract Documents, including changes made to schedules, details, and all architectural changes to structure, exterior enclosure, interior partitions and ceilings.
 3. Record new information that is important to the Owner, but was not shown on the Contract Drawings or shop drawings.
 4. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
- C. The fire protection, plumbing, mechanical and electrical trades shall be responsible to the General Contractor to keep the record documents for their portions of the work marked currently to record all changes in the mechanical and electrical work made during construction.
- D. The Architect may periodically inspect these record drawings, and their proper maintenance may be a condition precedent to approval of applications for periodic payments.

BID PACKAGE #2

- E. Deliver all Project Record Documents, shop drawings, product data, and samples to the Architect for the Owner's use, upon completion of the Work and prior to request for Final Acceptance of the Work.
- F. In addition at the completion of the work, the General Contractor shall be responsible for the preparation of neat, clean, and complete electronic file of record drawings in AutoCAD format, at no additional costs to the Owner. The Architect shall assist this process by providing the General Contractor with electronic AutoCAD files of all required drawings as they appeared when released as bid documents, and including revisions to reflect addenda, architect's supplemental instructions, and change orders processed by the Architect. The General Contractor will be responsible for making ANY OTHER revisions to these drawings which are required to reflect the as-built construction conditions and any adjustments made during the completion and coordination of construction. This shall include but not be limited to adjustments which occur as a result of the fire protection, plumbing, mechanical, or electrical coordination drawing process. The General Contractor shall deliver these electronic AutoCAD record drawings to the Architect for review and approval at project substantial completion.

1.7 FINAL SITE SURVEY

- A. Under provisions of Section 01 73 00 - EXECUTION, Surveyor shall provide final corrected submission of Final Site Survey (As-built Property Survey) after work has been completed.
 - 1. Final site survey shall show significant features for the Project. Include a certification, signed by the Surveyor, to the effect that metes, bounds, lines and levels of the Project are accurately positioned as shown on the survey.
- B. Survey format shall be in accordance with requirements of the authorities having jurisdiction, and show the following as a minimum:
 - 1. Property boundaries.
 - 2. All required legal descriptions.
 - 3. Bench marks.
 - 4. Completed foundation work.
 - 5. Building extremities.
 - 6. Pad mounted equipment.
 - 7. All paving work.
 - 8. Revisions to wetland areas.
 - 9. Easements and modifications to easements.
 - 10. Underground utilities and all changes in existing utilities.
- C. Record deviations from required lines and levels. Advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Final Site Survey, record deviations that are accepted and not corrected.
- D. Submit signed, sealed and certified copies shall be provided to the architect's office for review prior to filing with authorities having jurisdiction. Ensure information is complete, accurate submitted in a timely fashion.
 - 1. Recording: At Substantial Completion, have the final survey recorded by or with local authorities as the official "Property Survey".

1.8 OPERATION AND MAINTENANCE MANUALS

- A. General: Coordinate content and submission requirements of operation and maintenance manuals with Owner's Commissioning Agent.
- B. Prepare data in the form of an instructional manual. Furnish separate manuals for each of the following groups of equipment:
 - 1. Food service equipment.
 - 2. Elevators.
 - 3. Special equipment and systems.
 - 4. Fire protection system.
 - 5. Utilities and plumbing systems.
 - 6. Heating, ventilation and air conditioning system.
 - 7. Electrical systems.
- C. Furnish bound and properly identified Manuals prior to request for Final Acceptance.
 - 1. Manuals shall be in 8-1/2 by 11 inch pages and bound in three "D ring" capacity binders with durable plastic covers. Internally subdivide the binder contents with permanent page dividers.
 - a. Arrange content by section number and systems, process flow, under section numbers and sequence as listed in the Table of Contents of this Project Manual.
 - b. Drawings: Preferable 11 inches in height bound in with text with reinforced punched binder tab. Fold drawings larger than 8-1/2 by 11 inches to size of text pages. Provide a drawing pocket for Drawings larger than 11 by 17 inches; locate pocket inside rear cover or bound in with text.
 - 2. Each manual shall include the same following minimum information:
 - a. Table of Contents.
 - b. Directory of General Contractor, subcontractors, and major equipment supplies listing addresses, phone numbers and appropriate emergency phone numbers.
 - 1) Include local sources of supplies and replacement parts.
 - c. Directory of Architect and consultants listing addresses and phone numbers.
 - d. Operation and maintenance instructions. Provide schematic diagrams of control systems, circuit directories for each electric panel and charts showing the tagging of all valves.
 - e. Air and water test and balancing reports.
 - f. Maintenance and cleaning instructions for finishes.
 - g. Product and manufacturer's Certificates.
 - h. Photocopies of all extended warranties and bonds.
 - 3. Submit one copy of completed volume in final form 21 days prior to Final Inspection. This copy will be returned after final inspection with Architect's comments; Revise and submit all volumes to Owner.

BID PACKAGE #2

- D. For each item of equipment, include description of equipment, component parts and accessories. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts. Additionally provide the following for each item:
1. Panelboard circuit directories: Provide electrical service characteristics, controls and communications.
 2. Include color coded wiring diagrams as installed.
 3. Operating procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
 4. Maintenance requirements: Include routine procedures and guide for troubleshooting; disassembly, repair, and re-assembly instructions; alignment, adjusting, balancing, and checking instructions.
 - a. Maintenance drawings: Supplement product data to illustrate relation of component parts of equipment and systems, to show control and flow diagrams. Do not use project Record Documents as maintenance drawings.
 5. Provide servicing and lubrication schedule, and list of lubricants required.
 6. Include manufacturer's printed operation and maintenance instructions.
 7. Include sequence of operation by controls manufacturer.
 8. Provide control diagrams by controls manufacturer as installed.
 9. Provide General Contractor's coordination drawings, with color coded piping diagrams as installed.
 10. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 11. Provide original manufacturer's parts (OEM) list, illustrations assembly drawings, and diagrams required for maintenance.
 - a. Provide list of original manufacturer's spare parts (OEM), current prices, and recommended quantities to be maintained in storage.
 - b. Include local source of supplies and replacement parts, and any other data pertinent for procurement procedures.
 12. Additional requirements: As specified in individual specification Sections.
- E. Standards:
1. Measurements: Provide all measurements in U.S. standard units such as feet and inches, pounds, and cfm; provide additional measurements in the "International System of Units" (SI).
 2. Abbreviations: Provide complete nomenclature of all parts of all equipment; include part numbers of all replaceable parts.

1.9 MATERIALS AND FINISHES MANUAL

- A. Furnish bound and properly identified manuals for all materials and finishes prior to request for Substantial Completion review.

1. Manuals shall be in 8-1/2 by 11 inch pages and bound in three "D ring" capacity binders with durable plastic covers. Internally subdivide the binder contents with permanent page dividers and logically organized.
 2. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.
 - a. Arrange content by section number and systems, process flow, under section numbers and sequence as listed in the Table of Contents of this Project Manual.
 - b. Drawings: Preferable 11 inches in height bound in with text with reinforced punched binder tab. Fold drawings larger than 8-1/2 by 11 inches to size of text pages. Provide a drawing pocket for Drawings larger than 11 by 17 inches larger drawings; locate pocket inside rear cover or bound in with text.
- B. Manuals shall include the following:
1. Product data, with catalog number, size, composition, and color and texture designations for all building products, applied materials, and finishes. Provide information for re-ordering custom manufactured products.
 2. Instructions for care and maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
 3. Moisture protection and weather exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
 4. Additional requirements: As specified in individual specification Sections.

1.10 PRODUCT WARRANTIES AND BONDS

- A. Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 2 through 16 of these Specifications:
1. Special Project Warranty (Guaranty): A warranty specifically written and signed by General Contractor for a defined portion of the work; and, where required, countersigned by subcontractor, installer, manufacturer or other entity engaged by General Contractor.
 2. Specified Product Warranty: A warranty which is required by Contract Documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of product into the work, or has written and executed a special project warranty as a direct result of Contract Document requirements.
 3. Coincidental Product Warranty: A warranty not specifically required by Contract Documents (other than as specified in this Section), but which is available on a product incorporated into the work, by virtue of the fact that manufacturer or product has published warranty in connection with purchases and use of product without regard for specific applications except as otherwise limited by terms of warranty.

- B. Commencement of Warranties: All warranties shall commence no sooner than the Date of Substantial Completion of the Project, except as explicitly specified otherwise in individual Specification Sections.
1. Equipment and systems start-up, operation and use, occurring prior to Project Substantial Completion, will not be considered commencement of warranty period under any terms of this Contract.
- C. Refer to individual section of Divisions 2 through 16 for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).
- D. General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform, and against deficient, defective, and faulty materials and workmanship, regardless of sources. Except as otherwise indicated, specific warranties do not cover failures in the work which result from: 1) Unusual and abnormal phenomena of the elements, 2) The Owner's misuse, maltreatment or improper maintenance of the work, 3) Vandalism after time of substantial completion, or 4) Insurrection or acts of aggression, including war.
1. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the General Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the General Contractor.
- E. Related Damages and Losses: In connection with General Contractor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.
1. Consequential Damages: Except as otherwise indicated or required by governing regulations, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.
- F. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement for the following time period, starting on date of acceptance of replaced or restored work.
1. A period of time ending upon date original warranty would have expired if there had been no failure, but not less than half of original warranty period of time.
- G. Replacement Cost, Obligations: Except as otherwise indicated, costs of replacing or restoring failing warranted units or products is General Contractor's obligation, without regard for whether Owner has already benefited from use through a portion of anticipated useful service lives.
- H. Rejection of Warranties: Owner reserves the right, at time of substantial completion or thereafter, to reject coincidental product warranties submitted by General Contractor, which in opinion of Owner tend to detract from or confuse interpretation of requirements of Contract Documents.

- I. General Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or sub-subcontract for material or units of work for project where a special project warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.
- J. Specific Warranty Forms: Where a special project warranty (guaranty) or specified product warranty is required, prepare a written document to contain terms and appropriate identification, ready for execution by required parties. Submit draft to Owner (through Architect) for approval prior to final executions.

1.11 ATTIC STOCK

- A. Provide to the Owner extra materials in quantities specified for individual specification Sections as follows:
 1. Section 08 51 13 – ALUMINUM WINDOWS: Provide additional window components as follows:
 - a. 20 hinges.
 - b. 20 roto-crank assemblies.
 - c. 5 screens for each size of window installed.
 - d. 5 sash gaskets for each size of window installed.
 2. Section 09 51 00 - ACOUSTICAL CEILINGS: 3 percent of each ceiling type and suspension system installed.
 3. Section 09 65 13 - RESILIENT BASE AND ACCESSORIES: 24 linear feet for each color and type of resilient base installed.
 4. Section 09 65 23 - RUBBER FLOORING: 3 percent of each material in each color, and pattern installed. Furnish a quantity of adhesive of each type used in sealed cans or containers sufficient to apply the above materials.
 5. Section 09 65 43 - LINOLEUM FLOORING: 3 percent of each material in each color, and pattern installed. Furnish a quantity of adhesive of each type used in sealed cans or containers sufficient to apply the above materials.
 6. Section 09 68 13 - TILE CARPETING: 3 percent of each color, pattern and type of carpet tile installed. Furnish a quantity of adhesive of each type used in sealed cans or containers sufficient to apply the above materials.
 7. Section 23 00 00 – HEATING, VENTILATING AND AIR CONDITIONING: Provide a minimum of 5 filters of each type and size for all HVAC equipment.

1.12 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver materials to on-site location designated by the Owner; obtain receipt.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

CLOSEOUT SUBMITTALS

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Construction Documents – Bid Package #2 / 06.22.2023

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Section 01 78 36

WARRANTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. General: This Section specifies general administrative and procedural requirements for warranties, guarantees and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties. Warranty, Guarantee and Bond requirements of this Section are applicable to all trades, all Divisions of the Specifications, and applies to all Work performed under this Contract.
 - 1. Warranties required under the Contract are in addition to and not in lieu of any remedy or warranty to which the Owner is entitled under law.
 - 2. Warranties required under the Contract are not a waiver of Owner's legal rights.
- B. General Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or sub-subcontract for material or units of work for project where a special project warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.

1.2 RELATED REQUIREMENTS

- A. General provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Individual Specification Sections contain additional specific requirements for warranties and bonds.
- C. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

1.3 DISCLAIMERS AND LIMITATIONS

- A. General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform, and against deficient, defective, and faulty materials and workmanship, regardless of sources.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the General Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, Subcontractors and subcontractors required to countersign special warranties with the General Contractor.
 - 1. Pro-rating of warranties: Except where explicitly specified otherwise, each warranty issued shall cover the full cost of warranty-related repairs throughout the full term of the warranty.

1.4 DEFINITIONS

- A. Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not

necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 2 through 50 of these Specifications:

1. General Contractor's Comprehensive Warranty: The General Contractor shall provide a comprehensive two-year warranty covering all labor, materials, equipment and work related to the entire Contract, and shall promptly repair or replace defective and deficient work.
2. Special Project Warranty (Guaranty): A warranty specifically written and signed by General Contractor for a defined portion of the work; and, where required, countersigned by subcontractor, installer, manufacturer or other entity engaged by General Contractor. Special Warranties extend time limits provided by standard warranties or to provide greater rights for the Owner.
3. Specified Product Warranty: A warranty which is required by Contract Documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of product into the work, or has written and executed a special project warranty as a direct result of Contract Document requirements.
 - a. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
4. Coincidental Product Warranty: A warranty not specifically required by Contract Documents (other than as specified in this Section), but which is available on a product incorporated into the work, by virtue of the fact that manufacturer or product has published warranty in connection with purchases and use of product without regard for specific applications except as otherwise limited by terms of warranty.

1.5 WARRANTY REQUIREMENTS

- A. Warranty Minimum: The minimum material and workmanship warranty for the project shall be two years.
 1. Equipment and systems start-up, operation and use, occurring prior to Project Substantial Completion, will not be considered commencement of warranty period under any terms of this Contract.
 2. Warranty requirements specified in individual specification sections that specify a required warranty or guarantee greater than two years shall negate this requirement.
 - a. Warranties for Incomplete work: The effective date for warranty of work which has not been completed prior to the Date of Substantial Completion, shall be effective on the date of Final Completion and Owner's acceptance of the Work.
- B. Warranty Period Commencement Date: Effective starting date for Warranty periods is the Date of Substantial Completion for Project.
 1. Equipment and systems start-up, operation and use, occurring prior to Project Substantial Completion, will not be considered commencement of warranty period under any terms of this Contract.
 2. Exceptions: Starting dates for warranties prior to the Project Date of Substantial Completion are not permitted, except for the two conditions below:

- a. Warranty requirements specified in individual specification sections explicitly specify that a required warranty or guarantee shall be effective on date of shipment, date of manufacturer, or date of installation.
 - b. Warranties for Incomplete work: The effective date for warranty of work which has not been completed prior to the Date of Substantial Completion, shall be effective on the date of Final Completion and Owner's acceptance of the Work.
- C. Related Damages and Losses: In connection with General Contractor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.
1. Consequential Damages: Except as otherwise indicated or required by governing regulations, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.
- D. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement starting on date of acceptance of replaced or restored work.
1. Reinstated warranty value: The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
 2. Reinstated warranty period: A period of time ending upon date original warranty would have expired, if there had been no failure, but not less than half of original warranty period of time.
- E. Warranties are Irrevocable: Warranties issued to the Owner are irrevocable.
1. Non-Payment: If warrantor refuses to issue warranty, or attempts to revoke warranty due to lack of payment by any party other than the Owner, the General Contractor shall resolve the payment conflict, and cause the warranty to be issued or reinstated.
 2. Incomplete or incorrect Installation: If warrantor refuses to issue warranty, or attempts to revoke warranty due to improper installation or other deficiency, the General Contractor shall correct the deficiency and cause the warranty to be issued or reinstated.
- F. Transferable Warranties: All warranties shall permit Owner to transfer or assign warranties to future owners or other assignors at no additional cost to the Owner for the full warranty period.
- G. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The General Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.
1. Work repairs or replaced under warranty shall be warranted for the full duration of the original warranty.
- H. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise

available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

- I. Rejection of Warranties:
 - 1. Owner reserves the right, at time of substantial completion or thereafter, to reject coincidental product warranties submitted by General Contractor, which in opinion of Owner tend to detract from or confuse interpretation of requirements of Contract Documents.
 - 2. Owner reserves the right to reject warranties and to limit selection to products with warranties which are not in conflict with the requirements of the Contract Documents.
- J. Owner's right to refuse Work: The Owner reserves the right to refuse to accept work for the project where a special warranty, certification, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.6 COMPREHENSIVE WARRANTY

- A. Comprehensive Warranty: In addition to all other warranties, the General Contractor shall issue a Comprehensive Total Contract Warranty which shall include all work of this Contract, without limitation including consequential damages.
 - 1. Duration of Comprehensive Warranty: Two year from date of Substantial Completion.
 - 2. Consequential damages: Warranty includes consequential damages which relate to a warranty claim, these include without limitation:
 - a. All costs required to uncover and repair all work related to warranty claim.
 - b. All costs relating to repair and restoration of damaged property, resulting from warranty claim.
 - c. All costs resulting from failure to conform to the Contract Documents, and for required rebuilding, construction or reconstruction to correct work.
 - d. Perform to the satisfaction of the Owner all repairs, reconstruction, and restoration to original condition of adjacent and related work affected by damage under a warranty claim.
- B. Warranty Claims: Owner will notify General Contractor in writing of each warranty claim. Warranty repairs shall be completed within 30 days of written notice, except as pre-approved by Owner.
 - 1. In the event of an emergency condition, where in the reasonable opinion of the Owner an immediate repair under warranty is necessary, warranty repairs shall be completed within 14 calendar days from date of notice.
 - 2. Owner's right to correct: In the event the General Contractor fails to respond to a warranty claim within the specified time limits, the Owner reserves the right to make the necessary corrections or repairs and recover all costs and expenses from the General Contractor.
- C. General Contractor's responsibilities under Comprehensive Warranty:

1. Notify in writing each affected warrantor and original subcontractor, installer, vendor as appropriate to the warranty claim.
2. Manage the warranty claim for the Owner.
3. Assist the Owner in obtaining warranty satisfaction.
4. Arrange and manage all warranty related work including work relating to consequential damages.

1.7 SUBMITTALS

- A. Submit written warranties to the Owner prior to the date certified for Substantial Completion. In compliance with requirements specified under Section 01 77 00 – CLOSEOUT PROCEDURES and Section 01 78 00 – CLOSEOUT SUBMITTALS.
 1. When a designated portion of the Work is completed and occupied, or used by the Owner by separate agreement with the General Contractor during the construction period, submit properly executed warranties to the Owner within 14 calendar days of completion of the designated portion of Work.
 2. Refer to individual section of Divisions 2 through 50 for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).
 3. Specific Warranty Forms: Where a special project warranty (guaranty) or specified product warranty is required to be executed, prepare a written document to contain terms and appropriate identification, ready for execution by all required parties (including manufacturers, vendors, and subcontractors). Submit draft to Owner (through Architect) for approval prior to final executions.
- B. Form of Submittal: At Final Completion, compile three (3) copies of each required warranty and bond properly executed by the General Contractor, Subcontractors, subcontractor, supplier or manufacturer. Organize the warranty documents into an orderly sequence based on the Table of Contents of the Project Manual.
 1. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
 2. Provide heavy paper dividers with celluloid-covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
 3. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the project title or name, and the name of the General Contractor.
 4. When operating and manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 SCHEDULE

- A. Provide warranties on products and installations as specified in individual Specification Sections.

End of Section

Section 02 41 19
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. General: The work described in this Section consists of selective demolition, cleaning, removal and legal disposal of all structures, equipment and materials indicated for demolition, or careful removal and temporary storage of materials and equipment indicated for salvage and re-use, or salvage and delivery to Owner. No attempt is made in this Section to list the entire scope of selective demolition required on this project or to describe each element to be removed. Drawings indicate both existing construction and final construction. It is the responsibility of the Contractor to determine for itself the scope and nature of the existing materials, equipment and finishes required for removal or salvage, based on the information provided in the full set of Contract Documents.
 - 1. Comply with requirements of Section 01 35 16 - ALTERATION PROJECT PROCEDURES, and Section 01 73 29 - CUTTING AND PATCHING.
- B. Permits: Obtain and pay for all demolition and construction permits required by local authorities having jurisdiction and other regulatory agencies and utility companies.
- C. Selective demolition and removal work includes the following at indicated locations, but is not limited to:
- D. Selective demolition and removal work includes the following at indicated locations, but is not limited to:
 - 1. Remove existing ceilings.
 - 2. Remove all existing walls/partitions, plumbing fixtures, and casework as indicated.
 - 3. Remove all ceiling grids and tiles in locations noted on plans and coordinated with the room finish schedule.
 - 4. Remove all wall mounted items and prepare surface for new finish.
 - 5. Remove doors and door frames as scheduled.
 - 6. Remove existing doors with frames to remain in situ, as scheduled.
 - 7. Remove existing door transom panels where occur.
 - 8. Remove hardware and salvage for Owner's attic stock.
 - 9. Remove existing casework.

10. Remove display case at Corridor C104
11. Remove wood framed display case at Corridor C100.
12. Remove existing wall mounted, drop down table units.
13. Cut and remove existing concrete masonry trim, adjacent to existing drop down table units.
14. Remove existing lights, diffusers, grilles, speakers and similar equipment where scheduled to be replaced.
Remove all furnishings, utilities, equipment and fixtures, not indicated for salvage or re-use, and abandoned materials of all kinds.
15. Remove from site all abandoned, disconnected and dismantled fire protection, plumbing and mechanical equipment, including piping, conduits, system wiring, meters and other devices.
16. Remove from site all abandoned, disconnected and dismantled electrical fixtures and equipment, including conduits, wiring, meters and other devices.
17. In addition to demolition specifically shown, cut, move or remove existing construction to remain as necessary to provide access or to allow alterations and new work to proceed. Coordinate such relocation's and removal to accommodate the demands and requirements of other trades.
18. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete.

- E. Selective demolition and removal work by individual utility, mechanical and electrical trade subcontractors includes, but is not limited to the following:
1. Each trade subcontractor shall Disconnect cut, cap and make safe all utilities, equipment and fixtures which are not indicated for salvage or re-use, or otherwise indicated to be abandoned in place as well as any abandoned materials of any kind.
 - a. Disconnect cut, cap and make safe, all utility services indicated to be demolished at their primary source. Obtain the approval from authorities having jurisdiction, or applicable service provider prior to the execution of the work.
 - b. Cut, cap and make safe all existing utility services indicated to be abandoned in place, where so indicated on the Drawings.
 2. The fire suppression subcontractor shall disconnect, detach and dismantle all existing abandoned sprinkler/fire suppression components including, but not limited to, sprinkler heads, piping, hangers, valves, and appurtenances.
 - a. Suspended hangers, piping, fixtures and appurtenances scheduled for demolition, shall be disconnected and lowered to floor by the fire suppression subcontractor.
 3. The plumbing subcontractor shall disconnect, detach and dismantle all existing abandoned plumbing systems and equipment including, but not limited to, fixtures, equipment, water heaters, piping, hangers, valves, insulation and appurtenances.
 - a. Piping at slab will be disconnected by plumbing subcontractor.
 - b. Suspended hangers, piping, equipment, fixtures and appurtenances scheduled for demolition, shall be disconnected and lowered to floor by the plumbing subcontractor.

SELECTIVE DEMOLITION

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4. The HVAC subcontractor shall disconnect, detach, dismantle all existing abandoned heating, ventilating, and air conditioning systems including, but not limited to, air handlers, air conditioners, pumps, cabinet unit heaters, unit heaters, radiation, exhaust fans, intakes, louvers, diffusers, grilles, and all related piping, ductwork, controls, and appurtenances.
 - a. Suspended hangers, equipment, ductwork and appurtenances scheduled for demolition, shall be disconnected and lowered to floor by HVAC subcontractor.
 5. The Electrical subcontractor shall disconnect, detach, dismantle all existing abandoned electrical systems and equipment including, but not limited to, panelboards, light fixtures, fire alarm, intercom, speakers, wiring devices, and all related conduit and appurtenances.
 - a. Suspended wiring, conduit, hangers, fixtures, equipment, and appurtenances scheduled for demolition, shall be disconnected and lowered to floor by the Electrical subcontractor.
 6. Remove, salvage and furnish to the General Contractor designated equipment, fixtures or other items so identified. Refer to notes on Drawings.
 7. Identify locations of utilities for work of other sections.
- F. Remove, salvage and provide storage for removed materials, equipment and furnishings indicated for re-use, including but not limited to:
1. Designated light fixtures.
- G. Remove, salvage, and furnish to Owner for maintenance stock, or other future use, the following products. Carefully package and clearly identify prior to delivery to Owner.
1. Door hardware.
- H. Conduct walk-through of existing site prior to commencement of selective demolition work and jointly identify and tag with Owner items required to be salvaged. These products in general would be in addition to those indicated on Drawings.
1. All salvaged products not designated for re-use in project, shall be furnished to the Owner for its own use, carefully packaged and clearly identified.
- I. Identify locations of utilities for work of other sections.

1.3 RELATED REQUIREMENTS

- A. Section 01 35 16 - ALTERATION PROJECT PROCEDURES: Special requirements and considerations for renovation and alternation work.
- B. Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS: Procedural and administrative requirements for temporary facilities and controls, including:
 1. Temporary heat.
 2. Temporary barriers and barricades.
 3. Temporary fire protection.
- C. Section 01 73 29 - CUTTING AND PATCHING:
 1. Procedural and administrative requirements for cutting and patching.

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- D. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- E. Division 21 - FIRE SUPPRESSION:
 - 1. Disconnection, salvage, re-working and re-installation of sprinkler system.
 - 2. Disconnection and dismantling designated fire suppression systems and components.
- F. Division 22 – PLUMBING:
 - 1. Disconnection, salvage, re-working and re-installation of plumbing system.
 - 2. Disconnection and dismantling designated plumbing systems and components.
- G. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING (HVAC):
 - 1. Disconnection, salvage, re-working and re-installation of roof-top ventilator ducts.
 - 2. Disconnection and dismantling designated mechanical systems and components.
- H. Division 26 - ELECTRICAL:
 - 1. Disconnection and dismantling designated electrical systems and components.
 - 2. Disconnection, salvage, and re-installation of designated light fixtures.
- I. Individual specification sections: Cutting and patching incidental to work of individual specification sections shall be performed by respective trades, except as specified in Section 01 73 29 – CUTTING AND PATCHING.
- J. Individual specification sections: Utility shutoffs by respective trades.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ANSI A10.6 – Safety Requirements for Demolition Operations.
 - 2. NFPA 241 – Standard for Safeguarding Construction, Alteration, and Demolition Operations.

1.5 OWNERSHIP OF REMOVED MATERIALS

- A. If during the work, articles of unusual value, or of historical or archaeological significance, are encountered the ownership of such articles is retained by the Owner, and information regarding their discovery shall be immediately furnished to the Architect. Resolution shall be handled as a Change in the Work.

- B. Ownership of materials, equipment and furnishings designated for salvage for re-use in this Project or designated for Owner's use is retained by the Owner.
- C. Ownership of materials, equipment and furnishings to be removed from the Project which are not defined by the above two paragraphs is retained by the Contractor; if any of these are considered of salvageable value to the Contractor, they may be removed from the Project as work progresses.
 - 1. On-site storage or sale of removed items is prohibited.

1.6 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Comply with all requirements of this contract relative to protection, scheduling and coordination with the Owner.
 - 2. Coordinate and arrange with utility, mechanical and electrical trades for their disconnecting, rerouting and maintenance of existing services leading to adjacent occupied buildings, as part of the work of this Contract.
 - 3. Coordinate Work of this Section with related utilities work identified in the Contract Documents.
- B. Pre-Demolition Meeting: At least two weeks prior to commencing the work of this Section, conduct a pre-demolition conference at the Project site. Comply with requirements of Section 01 31 00 - PROJECT MANAGEMENT AND COORDINATION. Coordinate time of meeting to occur prior to installation of work under the related sections named below.
 - 1. Required attendees: Architect, Contractor's project manager and on-site superintendent, demolition subcontractor's project superintendent, and representatives of related utility trades.
 - 2. Conference Agenda:
 - a. Scheduling of demolition operations. Review critical demolition sequencing with other work.
 - b. Coordination of utility service requirements and disconnects.
 - 1) Review functioning utility services which are to remain in service throughout demolition work.
 - 2) Review requirements for marking location of disconnected utilities, and project record (as-built) requirements.
 - c. Review conditions of existing construction to be demolished.
 - 1) Review extent and location of selective demolition.
 - 2) Review special demolition and salvage procedures required for historic building elements.
 - 3) Exploratory demolition and concealed conditions.
 - d. Coordination of demolition work with work of other contracts.
 - e. Review shoring and bracing procedures, and structural load limitations of existing structure.
 - f. Review of site use, staging, and storage locations for salvaged materials and materials for recycling program.
 - g. Emergency weather protection procedures and weather limitations.
 - h. Review conditions of existing construction to be demolished.

- i. Review structural load limitations of existing structure.
 - j. Review extent and location of selective demolition. Review areas where existing construction is to remain and requires protection
 - k. Review special requirements for temporary protection of existing finishes and materials to remain.
 - l. Review requirements of work performed by other trades that rely on substrates exposed by demolition operations.
 - m. Procedures for processing field decisions.
 - n. Review fire protection procedures for cutting torches, and other potentially hazardous operations.
 - o. Review general safety regulations and requirements for demolition work.
- C. Sequencing:
1. Coordinate and arrange with mechanical and electrical trades for their disconnecting, rerouting and maintenance of existing services in the buildings as required, as part of the work of this Contract.
- D. Scheduling:
1. Comply with all requirements of this contract relative to protection, scheduling, phasing, and coordination with the Owner.

1.7 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
1. Schedule: Prior to commencement of work, prepare a schedule indicating proposed methods and sequence of operations for demolition work.
 - a. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection.
 - b. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations. Receive acceptance from Architect prior to commencing work.
 2. Shop drawings: Indicate demolition sequencing and locations of salvageable items.
 3. Design Data: Submit calculations for bracing and shoring, signed and sealed by professional engineer registered in the State of Rhode Island.
 4. Permits: Submit copy of permits required by regulatory agencies for demolition.
 5. Special Procedure Submittals: Submit copies of written agreements from private landowners, landfill operators, or other agencies accepting disposal of demolished materials at least two weeks prior to commencement of demolition work.
- B. Closeout Submittals: Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.
1. Record Documentation: Indicate actual location of capped site utilities.

1.8 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for demolition work, safety of structure, dust control, and disposal of debris.
- B. Obtain and pay for required permits and licenses required from authorities prior to commencing demolition work. Arrange and pay for legal disposal of removed materials and equipment, obtain proper disposal receipts for verification.
- C. Notify affected utility companies and Owner before starting work and comply with utility company requirements.
- D. Do not close or obstruct egress width to exits. Do not disable or disrupt building fire or life safety systems without 3 days prior written notification to the Owner.

1.9 QUALITY ASSURANCE

- A. General: Conduct the work in a manner giving prime consideration to protection of the public; protection from the weather, control of noise, shocks and vibration; control of dirt and dust; orderly access for and storage of materials; protection of existing buildings; protection of adjacent surfaces and property; coordination and cooperation with the Owner at all times.
 - 1. Comply with all requirements of this contract relative to protection, scheduling and coordination with the Owner.
- B. Qualifications:
 - 1. Demolition subcontractor: Company specializing in performing work of this section with minimum 3 years documented experience.
 - 2. Shoring and bracing design: Design shoring, and bracing, under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

1.10 SITE CONDITIONS

- A. Comply with wind and weather conditions established at pre-demolition meeting.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Condition of Structures: Owner assumes no responsibility nor makes any claim as to the actual condition or structural adequacy of any existing construction to be demolished. The Contractor shall investigate and assure himself of the condition of the work to be demolished and shall take all precautions to ensure safety of persons and property.
 - 1. Notify both Owner and Architect, if any type of hazardous chemicals, gases, explosives, flammable material, unmarked containers, or similar dangerous substances are discovered. Cease work in affected areas until directed by Architect. Continue work in other areas.
- B. The Contractor shall have examined the existing conditions per requirements of the Conditions of the Contract and Division 1 - General Requirements, and reviewed

Contract Documents prior to commencement of demolition. Coordinate and verify scope of selective demolition with other portions of work specified in other sections, and under separate Contract. Change orders will not be issued for the removal of any exposed to view materials or equipment, which are either indicated on the Drawings for removal, or not indicated, but necessary to remove for the Work of this Project.

- C. Layout of demolition in masonry construction. After Contractor identifies areas requiring demolition and subsequent patching of masonry. Masonry Filed Subcontractor shall indicate on walls the extent of masonry cutting and demolition work which will be performed by the General Contractor. Necessary finished patching of openings will be performed by the Masonry Subcontractor.

3.2 PREPARATION

- A. General: Provide necessary protection of non-work areas during demolition operations. Provide, erect and maintain temporary barriers as required to protect non-construction related pedestrian and vehicular traffic using the adjacent portions of the site and building.
 - 1. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued Owner occupancy of adjacent facility.
- B. Protect existing structures which are not to be demolished. Protect designated materials and equipment to be removed and retained by Owner.
 - 1. Cover or otherwise protect as necessary existing equipment, furniture and furnishing located beyond the immediate demolition work.
 - 2. Protect existing landscaping materials, structures, and appurtenances which are not to be demolished.
- C. Prevent movement of structure; provide required bracing and shoring.
 - 1. Protect existing active utility services and structures from damage during selective demolition work including during installation of bracing and removal of same. Repair or replace damages to satisfaction of Owner.
- D. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations.

3.3 GENERAL REQUIREMENTS FOR SELECTIVE DEMOLITION

- A. Conduct demolition to minimize interference with adjacent building areas, in compliance with governing laws and buildings, with prime consideration given to the safety, protection and convenience of the public and Owner's personnel.
 - 1. Maintain protected egress and access to the Work at all times.
- B. Perform selective demolition in an orderly and careful manner. Carefully cut materials to be removed to eliminate damage to portions to remain. Protect existing structure designated to remain.
 - 1. Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.
 - 2. Except as otherwise required by Project phasing requirements, proceed with selective demolition systematically, from higher to lower level. Complete

- selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
3. Locate equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 4. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent. Do not throw trash from windows or from roof.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 7. Pull nails and fasteners which remain after removal of attached material. Remove lath, strapping and other substructures associated with finishes to be removed.
 8. Where existing finishes are indicated to be removed, remove down to bare subsurface without causing damage to the subsurface.
 - a. After removal of non-asbestos finish flooring materials, remove underlying mastic and prepare substrate to receive new flooring materials by Shot Blasting method. Create a uniform 20 mil profile. Mechanically scarify areas which cannot be profiled by shot blast method. Thoroughly wash all flooring substrate and leave clean and dry ready for application of new flooring materials.
- C. Remove foundation walls and footings as indicated on Drawings, and where indicated, to a minimum of two feet beyond area of new construction.
- D. Cutting openings and holes: Neatly cut openings and holes plumb, square, and true to dimensions required. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces.
1. All penetrations in floors and roof shall be framed with miscellaneous metal work prior to cutting and demolition of deck and concrete.
 2. Repair damage done to existing elements of building to remain, except repairs specified to be provided under other Sections. Repairs shall be done in such manner as to closely match construction, appearance and quality of original work.
- E. Use of cutting torches:
1. Do not use cutting torches until work area is cleared of flammable materials.
 2. Maintain adequate ventilation when using cutting torches.
 3. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations.
 4. Maintain fire watch and portable fire-suppression devices during flame-cutting operations. Comply with fire prevention measures specified under Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS.

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- F. Carefully observe existing structure during demolition operations, cease operations immediately if structure appears to be in danger. Immediately notify both Architect and Owner's Project Representative. Do not resume demolition operations until directed.
- G. Disconnect, cap and clearly identify designated utilities within demolition areas.
 - 1. Cap and remove abandoned existing utilities back to locations indicated, or to limit line of Contract where terminations are not indicated.
 - a. Pipes to be demolished that require a connection shall be removed to the extent required to install the new connection. Remove pipe sections by saw-cutting, removing a complete pipe section to an existing joint, or other adequate means which results in a clean joint.
 - 2. Protect and maintain conduits, drains, sewers, pipes, and similar utilities that are not to be demolished
- H. Disconnect existing equipment and fixtures to be removed, or services abandoned, and piping, wiring, and conduit which would otherwise be exposed in the finished work. Remove from site disconnected equipment and fixtures and piping not to be reused.
 - 1. Contractor to remove and dispose of all equipment not tagged or scheduled for reuse.
- I. Abandoned Equipment, Utilities, Systems: Remove in their entirety. Abandonment in place is not acceptable, except where an item is specifically indicated to be abandoned in place.
 - 1. "Abandoned" means the item is not operational in the completed Contract.
 - 2. Without limitation, remove abandoned pipes, tubing, conduits, wires, cables, ducts, equipment, machines, and all elements and items related to abandoned work including, without limitation, hangers, connectors, anchors, valves, drains, strainers, sumps, panels, mounting boards, grounding rods, ground connectors, boxes, dampers, plenums, insulation, escutcheons, trims, and all other related items.
 - 3. Where an existing element is indicated to be abandoned in place, the abandoned item shall be cut off and, if hollow, capped.
 - a. Cut off sufficiently below the finished plane to permit space for patching over the abandoned element. The General Contractor shall provide all cutting and chipping required to recess the cut element, and to coordinate depth of cut-offs required for finishing.

3.4 BRACING

- A. Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move a brace, install new bracing prior to removal of original brace. Provide suitable bracing materials which will support loads imposed
- B. Do not place bracing where it will be cast into or included in permanent concrete work, except as otherwise acceptable to Architect.
- C. Install internal bracing, if required, to prevent spreading or distortion to braced frames.

BID PACKAGE #2

- D. Maintain bracing until structural elements are rebraced by other bracing or until permanent construction is able to withstand designed live and dead loads.
- E. Remove bracing in stages to avoid disturbance or damage to existing structure.
- F. Repair or replace adjacent work damaged or displaced through installation or removal of bracing work.

3.5 GENERAL DUST CONTROL

- A. Contractor shall employ dust and pollution prevention procedures at all times.
 - 1. Clean up loose debris daily, or more frequently as required, to prevent the wind spreading debris. Keep dumpsters covered when not in use.
 - 2. Wet down debris (as appropriate) to prevent air pollution by dust rising from demolition work. Wet down dumpsters to prevent fires caused by vandals.
 - 3. Employ tarpaulins on all trucks carrying debris.

3.6 SALVAGE MATERIALS AND PRODUCTS

- A. Carefully salvage and provide safe storage for products designated for salvage, reuse, as indicated on the Drawings, as specified herein, or as requested by Owner for reuse on the project, or to be stored for Owner's future use. Take particular care with finished items and items requiring special handling.
 - 1. Remove items indicated to be salvaged with extreme care to prevent damage.
 - 2. All components and parts of salvaged items shall be saved and packaged.
- B. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area as designated by Owner.
 - 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.7 SELECTIVE DEMOLITION REQUIREMENTS FOR MATERIALS AND SURFACES.

- A. Remove designated at-grade paving, curbs, gutters, sidewalks, access ramps, and driveways. Remove entirely to limits indicated, provide saw-cut where abutting existing-in-situ paving designated to remain. Comply with requirements of Division 31 – EARTHWORK.
 - 1. Where adjacent pavement or concrete designated to remain is broken or deteriorated sufficiently to prohibit a sound replacement, remove the entire deteriorated section to limit determined by the Architect/Engineer.
- B. Floors, General:
 - 1. Completely remove existing flooring located in areas scheduled to receive new flooring surfaces and as additionally indicated. Remove all finish flooring layers of flooring down to the existing substrate.
 - a. Completely remove flooring systems to substrate, including full removal of all setting beds and adhesives.
 - 2. Remove resilient flooring and adhesive in strict accordance with the technical bulletin entitled " Recommended Work Practices for the Removal of Resilient Floor Covering", as issued by Resilient Floor Covering Institute (RFCI).
 - 3. Patching: The Contractor is responsible for patching of flooring substrates and subfloors. Respective finish flooring trades are responsible for patching of finish flooring systems matching abutting surface.
- C. Walls, General:
 - 1. Remove interior walls and partitions as indicated and as needed to accommodate new work.
 - 2. Where existing walls-to-remain are indicated to receive new finishes, completely remove trim and fasteners.
 - 3. Patching: The Contractor is responsible for patching of substrates and back-up systems. Finishes work shall be provided under individual product specification sections.
- D. Ceilings, General:
 - 1. Patching: The Contractor shall provide patching of substrates and back-up systems. Ceiling work is specified under individual product specification sections.
 - a. Ceilings which must be temporarily removed for mechanical, plumbing or fire protection work shall be carefully removed and stored for reinstallation when work has been completed under Section 09 51 00 - Acoustical Ceilings.
- E. Doors and Frames: Where doors and frames are indicated to be removed from walls or partitions which are to remain, remove doors and frames carefully so as to minimize damage to wall. Repair and patch wall as necessary to accommodate new door frame or other new work.
- F. Concrete, General: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch (19 mm) at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.

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- G. Concrete Slabs (suspended and slabs-on-grade): Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.
- H. Fire Suppression and Sprinkler Equipment: Fire Protection subcontractor is responsible to disconnect, cap and lower to floor items required to be removed, including but not limited to piping, hangers, valves, and insulation.
- I. Plumbing Equipment: Plumbing subcontractor is responsible to disconnect, cap and lower to floor items required to be removed, including but not limited to fixtures, equipment, water heaters, piping, hangers, valves, and insulation.
- J. Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC) Equipment:
 - 1. Drain system components designated for disposal of all lubricants, hydraulics, and refrigerants without releasing into atmosphere.
 - 2. HVAC subcontractor(s) shall disconnect, cap and lower to floor items required to be removed, including but not limited to, ductwork, piping, fans, VAV boxes, unit ventilators, and all similar system equipment. Contractor is responsible for removal from site and proper disposal.
- K. Electrical Equipment and Lighting Fixtures:
 - 1. Electrical subcontractor(s) shall disconnect, cap and lower to floor items required to be removed, including but not limited to, panelboards, light fixtures, and overhead devices including, fire alarm, intercom, bus ducts. Contractor is responsible for removal from site.

3.8 REPAIRS

- A. Repair all damage done to elements of buildings and structures to remain, except repairs specified to be provided under other Sections, or as indicated for removal in subsequent project phase(s). Repairs shall be done in such manner as to closely match construction, appearance and quality of original work.

3.9 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated or specified to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Comply with requirements of Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, and specified waste diversion goals.
 - 2. As work progresses, regularly remove demolished materials from site. Do not allow demolished materials to accumulate on-site, except as required for materials determined to be reused, salvaged, or as required for waste segregation and diversion for recycling.
 - 3. As work progresses, regularly remove demolished materials from site. Do not allow demolished materials to accumulate on-site, except as required for materials determined to be reused, salvaged, or as required to comply to the State of Rhode Island regulations on specific banned materials prohibited from incineration or landfill disposal.
 - 4. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

SELECTIVE DEMOLITION

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5. Liquid Waste Management: Dispose of liquid waste in accordance with all applicable regulations. Consult all regulations (federal, provincial, state, local) or a qualified waste disposal firm when characterizing waste for disposal. Contact manufacturer for MSDS sheets for product information, and recommendations for proposal disposal. Utilize licensed waste disposal companies as may be required.
- B. Do not burn or bury demolished materials on site, arrange for legal disposal of the same.
 - C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.
 1. Comply with waste management reporting requirements on forms acceptable to the Owner. Comply with requirements of Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 2. Comply with waste management reporting requirements on forms acceptable to the Owner.
 3. Record the amount (in tons or cubic yards) of material landfilled from the Project, the identity of the landfill, the total amount of tipping fees paid, transportation costs (if separate) and the total disposal cost. Include manifests, weight tickets, receipt, and invoices

3.10 CLEANING

- A. Daily cleaning: Sweep all street and roads affected by demolition operations.
- B. Upon completion of the work of this Section; remove unused tools and equipment, surplus materials, rubbish, debris, and dust. Leave area in raked or broom-clean condition, as appropriate.
- C. Upon completion of the work of this Section; clean adjacent structures and facilities of dust, dirt and debris caused by demolition work to the satisfaction of Owner, owner(s) of adjacent properties, and authorities having jurisdiction.

End of Section

Section 04 22 00

CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install:
 - 1. Concrete masonry unit construction making existing CMU openings larger and finishing off wall ends at existing inset drop-down dining tables.
 - 2. Patch existing unit masonry where damaged.
 - 3. Reinforcing, ties, anchors, and other metal accessories, for anchoring unit masonry together and to other materials.
 - 4. Compressible joint fillers for control joints in unit masonry work and joints with structural steel.
- B. Place, install and build-in, as work progresses, the following products and materials furnished under the indicated Sections:
 - 1. Steel lintels furnished by Section 05 50 00 - METAL FABRICATIONS.
 - 2. Access door frames furnished by Section 08 31 00 - ACCESS DOORS AND PANELS or by section requiring the same.
- C. Build-into place as work progresses, the following products and materials furnished under the indicated Sections:
 - 1. Hollow metal door and window frames set-in-place by Section 06 10 00 - ROUGH CARPENTRY, and furnished by Section 08 11 13 - HOLLOW METAL DOORS AND FRAMES.
- D. Clean and point exposed to view surface masonry.

1.3 RELATED REQUIREMENTS

- A. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- B. Section 06 10 00 - ROUGH CARPENTRY: Setting and temporary bracing of hollow metal frames occurring in masonry, and removal of temporary centering when frames have been built into the masonry.
- C. Section 07 84 00 - FIRESTOPPING.

- D. Section 07 92 00 - JOINT SEALANTS: Sealant, caulking materials, and compressible joint bead back-up, in conjunction with masonry work.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
1. Masonry Standards Joint Committee (MSJC) [The Masonry Society (TMS)/American Concrete Institute (ACI)/American Society of Civil Engineers (ASCE)]: TMS 602/ACI 530.1/ASCE 6 - "Specifications for Masonry Structures"
 2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 3. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 4. ASTM A240/A240M – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 5. ASTM A480/A480M - Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
 6. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 7. ASTM A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 8. ASTM A767 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 9. ASTM A951/A951M – Standard Specification for Steel Wire for Masonry Joint Reinforcement.
 10. ASTM A1064/A1064M – Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 11. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
 12. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
 13. ASTM C5 - Standard Specification for Quicklime for Structural Purposes.
 14. ASTM C90 – Standard Specification for Load-Bearing Concrete Masonry Units.
 15. ASTM C91 – Standard Specification for Masonry Cement.
 16. ASTM C129 - Standard Specification for Non-Load Bearing Concrete Masonry Units.
 17. ASTM C140 - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
 18. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar.

19. ASTM C150 – Standard Specification for Portland Cement.
20. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
21. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
22. ASTM C387 - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar.
23. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
24. ASTM C476 - Standard Specification for Grout for Masonry
25. ASTM C595 - Standard Specification for Blended Hydraulic Cement.
26. ASTM C778 – Standard Specification for Standard Sand.
27. ASTM C780 – Standard Test Methods for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
28. ASTM C1019 – Standard Test Methods for Sampling and Testing Grout for Masonry.
29. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength.
30. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry.
31. ASTM C1329 – Standard Specification for Mortar Cement.
32. ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
33. ASTM D1876 – Standard Test Method for Peel Resistance of Adhesives (T-Peel Test).
34. ASTM D1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
35. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications.
36. ASTM D2287 - Standard Classification System and Basis for Specification for Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds.
37. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
38. ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials.
39. ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials.
40. ASTM E447 - Standard Test Methods for Compressive Strength of Masonry Prisms.
41. ASTM E488 - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements.
42. ASTM E514 - Standard Test Method for Water Penetration and Leakage Through Masonry.
43. ASTM E518 - Standard Test Methods for Flexural Bond Strength of Masonry.

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44. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
45. ASTM F594 - Standard Specification for Stainless steel nuts.
46. American National Standards Institute Building Code requirements.
47. MCAA – Hot and Cold Weather Masonry Construction.

B. The following reference materials are hereby made a part of this Section by reference thereto:

1. UL Fire Resistance Directory.
2. IMI: Masonry Construction Guide Manual.
3. PCA, "Concrete Masonry Handbook".
4. NCMA applicable TEK Bulletins.
5. NCMA TEK Bulletin N°. 45 - Removal of Stains from Concrete Masonry Walls.

1.5 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.
2. Material certificates: Provide for the following, signed by manufacturer and Construction Manager certifying that each material complies with requirements.
 - a. Each different cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
 - b. Each material and grade indicated for reinforcing bars.
 - c. Each type and size of joint reinforcement.
 - d. Each type and size of anchors, ties, and metal accessories.
3. Material test reports from a qualified independent laboratory employed and paid by Construction Manager indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:
 - a. Mortar complying with property requirements of ASTM C 270.
 - b. Grout mixes: Include description of type and proportions of grout ingredients.
 - c. Masonry units; report for tests performed within the previous six months.
4. Shop drawings: Provide elevations of masonry work showing masonry patterns; indicate locations of expansion and control joints.
5. Verification samples:
 - a. Samples of each masonry accessory or anchorage item required.
 - b. Concrete masonry units, including:
 - 1) Plain concrete masonry units.

1.6 QUALITY ASSURANCE

- A. Single-source responsibility for facing units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.
- B. Single-source responsibility for concrete masonry units: Obtain concrete masonry units for the project from a single manufacturer.
- C. Single-source responsibility for mortar materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.
- D. Inspection, Testing, and Quality Control: A program of Inspection and Testing of structural masonry work will be established by the Structural Engineer of Record (SER) who will direct the implementation of tests as carried out by an independent testing agency. All costs for inspection and testing will be borne by the Owner.

1.7 REGULATORY REQUIREMENTS

- A. Obtain certificate of compliance from authority having jurisdiction indicating approval of specified products.
- B. Fire performance characteristics: Where indicated, provide materials and construction identical to those of assemblies whose fire resistance has been determined per ASTM E 119 by a testing and inspecting organization, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.

1.8 PRE-INSTALLATION CONFERENCE

- A. Prior to commencing the work of this Section, the Construction Manager shall conduct a pre-installation conference at the Project site and coordinate the time of said meeting to occur prior to installation of work under the related sections named below.
 - 1. Required attendees: Architect, Construction Manager, Mason's Project Superintendent, and representatives of other related trades and representatives for installers of related work.
 - 2. Agenda:
 - a. Scheduling of masonry operations.
 - b. Review of staging and material storage locations.
 - c. Coordination of work by other trades.
 - d. Protection of completed Work.
 - e. Establish weather and working temperature conditions to which Architect and Construction Manager must agree.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. General: Do not deliver cement, lime, and similar perishable materials to the site until suitable storage is available. Store such materials in weatherproof structures,

and ensure that materials are in perfectly fresh condition when brought for use. Protect masonry units and manufactured products of all types from wetting by rain or snow, and keep covered when not in use.

- B. Masonry Face Units: Handle all masonry units carefully in transit and on the site, so as to keep units whole, with edges sharp, and faces clean and undamaged. Deliver all masonry units on pallets; or handle units individually, and properly stack same.
- C. Aggregates: Deliver, store and handle aggregate materials so as to prevent contamination with earth or other foreign materials.
 - 1. Store cement, lime and similar products under cover and from direct contact with earth or floor slabs.
- D. Manufactured items: Deliver manufactured products in original containers plainly marked with product identification and manufacturer's name.
 - 1. Store metal accessories and the like under cover and from direct contact with ground, and in manner to prevent rust.
- E. Damaged material: Remove any damaged or contaminated materials from job site immediately, including materials in broken packages, packages containing water marks, or which show other evidence of damage, unless Architect specifically authorizes correction thereof and usage on project.

1.10 ENVIRONMENTAL CONDITIONS

- A. Hot and cold weather requirements shall be in accordance with the recommendations of the Masonry Industry Council as contained in the document "*HOT AND COLD WEATHER MASONRY CONSTRUCTION*" published by the MCAA (Masonry Contractor's Association of America). Enforcement for these requirements shall take place under the following conditions which modify those in the referenced document.
 - 1. The recommended hot weather requirements for 100 degrees Fahrenheit (37.8 degrees Celsius) shall be enforced for this project when ambient temperatures are above 90 degrees Fahrenheit (32.2 degrees Celsius) under all wind conditions including zero velocity.
 - 2. Cold weather requirements shall be enforced when ambient temperatures fall below 40 degrees Fahrenheit (4.4 degrees Celsius).

1.11 COORDINATION

- A. Coordinate work of this Subcontract with that of other trades, affecting or affected by this work, and cooperate with the other trades as is necessary to assure the steady progress of work.
- B. Coordinate work with that of other trades which require placement and building-in of, as work progresses, anchor bolts, wood blocking, hollow metal frames, aluminum storefront, curtainwall and window units, and anchorage items.
- C. Examine all Drawings as to requirements for the accommodation of work of other trades. Provide all required recesses, chases, slots, and cutouts. Place anchors, bolts, sleeves and other items occurring in the masonry work. Take every

precaution to minimize future cutting and patching. Closely coordinate the location and placement of such items.

PART 2 - PRODUCTS

2.1 CONCRETE MASONRY UNITS

- A. Acceptable Concrete Masonry Fabricators: Subject to compliance with the requirements specified herein, fabricators offering concrete masonry products which may be incorporated in the work include the following, or approved equal:
 - 1. Adolf Jandris and Sons, Inc., Gardner, MA.
 - 2. Genest Concrete, Sanford ME.
 - 3. Shouldice Designer Stone, Ontario, CN
 - 4. Westbrook Concrete Block Company, Westbrook CT.
- B. Recycled content: Use maximum available percentage of recycled materials. Concrete masonry units incorporated into the work shall contain not less than 3 percent of recycled content.
- C. Non-loadbearing concrete masonry units: Conform to ASTM C129, Type 1, normal light weight, 2-core, 58 percent solid for 2 hour fire resistant construction:
 - 1. Plain-faced units of nominal thickness indicated on the Drawings, nominal 8 by 16 inch face dimension with light gray color and uniform medium-fine texture, sound, true to plane and line, and free from chips, cracks, and other defects.
 - a. Recycled content: Use maximum available percentage of recycled materials. Concrete masonry units incorporated into the work shall contain not less than 50 percent of recycled content.
 - 2. Aggregate: sand and gravel,
 - a. Normal weight block: conform to ASTM C 33.
 - b. Light weight bock: conform to ASTM C 331.
 - 3. Minimum allowable compressive strength for an individual unit of not less than 500 psi (net area); and not less than 600 psi. (net area) for average of 3 units; when tested in accordance with ASTM C 140.
 - 4. Oven dry density:
 - a. Normal weight units: 125 pounds per cubic foot
 - b. Light weight units: 105 pounds per cubic foot
 - 5. Moisture content for average of 3 units, when delivered, not exceeding 35 percent of the total absorption, when tested in accordance with ASTM C 140.
 - 6. Provide units clearly labeled as non-load-bearing.
- D. Concrete masonry grout blocks: Open end high strength concrete masonry units and slot type strength concrete masonry units for use at reinforced concrete masonry construction where indicated on the Drawings. Conform to all requirements specified above for standard concrete masonry units, and the following additional requirements:
 - 1. Plain-faced units of nominal thickness indicated on the Drawings, nominal 8 by 16 inch face dimension with light gray color and uniform medium-fine

texture, sound, true to plane and line, and free from chips, cracks, and other defects.

2.2 MORTAR

- A. Prepackaged mortar (ready mix) complying with ASTM C 1142, or site-mixed portland cement mortar complying with ASTM C 270 may be used.
 - 1. Admixtures are not permitted except where expressly specified herein or as otherwise approved by Architect for specific field conditions.
 - 2. Mortar color and texture (split face): Equal to Davis Colors "True Tone MC-54 Sand".
 - 3. Mortar color and texture (precast watertable): Equal to Davis Colors "True Tone MC-58 Blond".

- B. Mortar materials for site mixed mortar:
 - 1. Portland cement for masonry conforming to ASTM C 150, Type I, non-staining, without air entrainment. Use type III as necessary for laying masonry in cold weather.
 - a. For standard concrete masonry, use gray color portland cement.
 - b. For ground faced and split faced masonry, use white color Portland cement.
 - 2. Aggregates for mortar: Clean sand, washed uniformly well graded, conforming to ASTM C 144, except for joints 1/4 inch and down use aggregate with 100 percent passing a No. 16 sieve.
 - 3. Aggregates for grout: Conforming to ASTM C 144 for fine aggregate and ASTM C 404, Size 8 or 89.
 - 4. Aggregate for concrete masonry mortar: Clean, washed uniformly well graded sand conforming to ASTM C 144, with the following gradation, and having a fineness modulus between 2.15 and 2.35:

| Seive Size | Percentage Passing |
|------------|--------------------|
| #4..... | 100% |
| #8..... | 95 to 100% |
| #16..... | 70 to 100% |
| #30..... | 40 to 75% |
| #50..... | 10 to 35% |
| #100..... | 2 to 15% |
| #200..... | 0 to 5% |
 - 5. Mortar pigments: Commercial alkali-resistant, non-fading mortar pigments, oxides of iron where feasible, synthetic type. Subject to compliance with the requirements specified herein, fabricators offering concrete masonry products which may be incorporated in the work include the following, or approved equal:
 - a. Davis Colors, Beltsville MD.
 - b. Solomon Grind-Chem Service, Inc., Springfield IL.
 - c. Landers Segal Color, Inc., Passaic New Jersey.
 - 6. Lime: Approved brand of plastic hydrated lime, conforming to ASTM C 207, Type "S".

7. Water: Clean and fresh without contaminants.

C. Prepackaged mortar (ready mix)

1. General: Mortar complying with ASTM C 270 consisting of:

- a. Masonry cement: Comply with ASTM C 91.
- b. Hydrated lime: Type S, complying with ASTM C 207.
- c. Aggregate: Provide clean, sharp, well graded aggregate free from injurious amounts of dust, lumps, shale, alkali, surface coatings, and organic matter, and complying with ASTM C144.
- d. Admixtures: Do not use admixtures unless specifically approved in advance by the Architect.
- e. Water: Provide water free from deleterious amounts of acids, alkalis, and organic materials. Water shall be potable.
- f. Pigments: Chemically inert synthetic iron oxide pigments, lightfast, weather resistant, complying with ASTM C 979.

D. Mortar types:

1. Mortar for masonry below grade or in contact with earth: ASTM C 270 Type M using the property specification.
2. Mortar for load bearing masonry: ASTM C 270 Type M or S using the property specification.
3. Mortar for non-load bearing masonry above grade: ASTM C 270 Type N using the property specification.
4. Mortar for pointing, dirt and stain resistant type: ASTM C 270 Type N using the property specification with added aluminum tristearate, calcium stearate, or ammonium stearate to a quantity of 3 percent of Portland cement weight.

E. Integral water-repellent admixture: Integral liquid polymeric admixture mixed with mortar unit to provide resistance to water penetration (must be of same type and manufacturer as used for production of concrete masonry units).

1. Subject to compliance with the requirements specified herein, manufacturers offering concrete masonry products which may be incorporated in the work include the following, or approved equal:
 - a. W.R. Grace & Company, product "Dry-Block".
 - b. BASF Corporation, Florham Park, NJ., product "Omnicon".
 - c. Sonneborne, product "Hydrocide Powder".
 - d. Addiment, Inc., Doraville, GA, product "Mortar Tite".

2.3 GROUT MIXES

A. Prepackaged grout (ready mix) complying with ASTM C 1107, or site-mixed Portland cement grout complying with ASTM C 476 may be used.

B. Grout: Ready mixed, non-metallic high-strength controlled expansion grout of flowable consistency, conforming to ASTM C 1107 with minimum compressive strength of 8,000 pounds per square inch (55.2 MPa) at 28 days.

1. Products which may be considered as equal include the following, or approved equal:

- a. Five Star Products, Inc., Fairfield CT, product "Five Star Grout."
 - b. L&M Construction Chemicals, Omaha NE, Product: "Crystex."
 - c. Master Builders, Cleveland, OH (BASF)., product "Masterflow 713".
 - d. Sika Corporation, Lyndhurst, NJ., product "SikaGrout 212".
 - e. ChemMasters, Madison, OH., product "Conset".
 - f. Allied Building Products Corp. product "Sonogrout 10K".
- C. Grout for engineered masonry [core fill]: Course grout having a compressive strength of 2,000 to 2,250 pounds per square inch (13.8 to 15.5 MPa) at 28 days; slump 8 to 10 inches.
- D. Grout for bond beams, lintels and hollow metal frames: Fine grout having a compressive strength of 2,500 to 3,000 pounds per square inch (17.2 to 20.6 MPa) at 28 days; slump 8 to 10 inches.

2.4 REINFORCEMENT AND ANCHORAGE MATERIALS

- A. Single wythe longitudinal reinforcement for concrete masonry unit walls and partitions: In overall width 1-5/8 inches less than the overall wall thickness, as manufactured by Dur-O-Wal, (A Hohmann & Barnard Co.), Hauppauge, NY, product: AA Wire, or equal.
1. Interior partitions: Truss design, 9 gage ASTM A 641 class 1 galvanized wire.
 2. Provide preformed reinforcing sections at intersections of masonry walls and partitions, and whenever walls and partitions change direction.
- B. Reinforcing steel, additional to rods which are embedded in concrete: Solid steel reinforcing bars, conforming to ASTM A 615, Grade 60, hot dipped galvanized in accordance with ASTM 123, B2 finish, of sizes indicated on the Drawings.
1. Recycled content of Steel: Use maximum available percentage of recycled steel. Reinforcing steel incorporated into the work shall contain not less than 60 percent of recycled scrap steel.
- C. Masonry anchors to steel columns:
1. Weld-on anchor tie with 1/4 inch plain steel rod and adjustable hot dipped galvanized web-tie (end partition condition). Subject to compliance with the requirements specified herein, manufacturers offering concrete masonry products which may be incorporated in the work include the following, or approved equal:
 - a. Dur-o-Wall model number D/A 709 rod with box tie.
 - b. Heckmann model number 315 rod with 318 tie.
 - c. Hohmann & Barnard model number 359 rod with "318" tie.
 - d. Masonry Reinforcing of America (Wire Bond) model number 1000 rod with 1200 tie.
 2. Weld-on anchor tie with 1/4 inch plain steel rod and adjustable hot dipped galvanized triangular-tie. Subject to compliance with the requirements specified herein, manufacturers offering concrete masonry products which may be incorporated in the work include the following, or approved equal:
 - a. Dur-o-Wall model number D/A 709 rod with DA/701 tie.
 - b. Heckmann model number 315 rod with 316 tie.

- c. Hohmann & Barnard model number 359 rod with "Vee" tie.
 - d. Masonry Reinforcing of America (Wire Bond) model number 1000 rod with 1100 tie.
 - D. Veneer anchorage for metal stud curtain wall system: Single self-drilling and tapping steel screw anchor with zinc or polymer coating, flanged and slotted head and resilient washer to receive adjustable ties with hot dipped galvanized finish. Provide anchor to suit depth of insulation and back-up material to provide positive anchorage.
 1. Subject to compliance with the requirements specified herein, manufacturers offering concrete masonry products which may be incorporated in the work include the following, or approved equal:
 - a. Heckmann model number "No. 75 Pos-I-Tie with Triangle Wire Tie".
 - b. Wire-Bond model number "SureTie with SureTie Triangles".
 - c. Hohmann & Barnard model number "2-Seal Tie with 2-Seal Byna-Lok Wire Tie".
 - E. Masonry ties for veneer construction with concrete masonry backup: Single self-drilling and tapping steel screw anchor with zinc or polymer coating, flanged and slotted head and resilient washer to receive adjustable ties with hot dipped galvanized finish. Provide anchor to suit depth of insulation and back-up material to provide positive anchorage.
 1. Subject to compliance with the requirements specified herein, manufacturers offering concrete masonry products which may be incorporated in the work include the following, or approved equal:
 - a. Heckmann model number "No. 75 Pos-I-Tie with Triangle Wire Tie".
 - b. Wire-Bond model number "SureTie with SureTie Triangles".
 - c. Hohmann & Barnard model number "2-Seal Tie with 2-Seal Byna-Lok Wire Tie".
 - F. Precast architectural concrete anchors: Stainless steel Type 302/304, in configuration and function as recommended by the fabricator.
 1. Setting cushions: Clear plastic, 1 inch by 2 inches by thickness of joint.

2.5 PRECAST CONCRETE SUPPORT DEVICES

- A. General: Connecting hardware shall be engineered and designed by the fabricator to accommodate all loads to which it will be subject both in the permanent condition and due to handling. Connection details indicated on the drawings shall be considered minimum required and shall be strengthened as necessary in accordance with design calculations.
- B. Connecting and Support Devices: ASTM A 36 weldable steel, hot dipped galvanized.
 1. Surface preparation prior to galvanizing: Pickle steel prior to galvanizing in conformance with SSPC-SP8. Remove all rust, dirt, weld flux, weld spatter, and other foreign matter.
 2. Hot-dip galvanizing: Comply with ASTM A 123. Provide thickness of galvanizing specified in referenced standards.

- a. Touch-up all breaks on hot-dip surfaces caused by cutting, welding, drilling or undue abrasion with liquid zinc coating as specified herein above. Apply liquid zinc by brush or spray on all damaged areas in two coats to a total dry film thickness of not less than 3 mils. Apply first coat within two hours after damage to hot-dip film to prevent undue oxidation of exposed surface. On all welds remove weld spatter by power wire brushing or equivalent before applying liquid zinc coating. Repair material should extend at least 3 inches beyond all edges of the damaged galvanized area as possible to assure continuity of galvanic protection.
 - b. Touch-up of galvanized surfaces with aerosol spray, silver paint, bright paint, or aluminum paints is not acceptable.
- C. Bolts, Nuts, and Washers: ASTM A 307, high strength steel chromium nickel steel alloy, except hot dip galvanize those to be embedded into concrete.
- D. Stone Anchor: Pos-I-Tie Split Bend and Pos-I-Tie L-Type anchors by Heckmann Building Products or approved equal.

2.6 ACCESSORIES

- A. Bearing pads for precast concrete: High density plastic, or neoprene (Chloroprene) minimum 1/8 inch thick, having a durometer hardness of 70, smooth both sides.
1. Shims at connections subject to thermal movement or other movement shall be separated with friction reducing pads. Pads shall sufficiently reduce friction to permit movement, shall resist wear, and shall be positively retained in position (open ended slots are not acceptable). Pads shall not be subject to heat damage from welding or cutting, or excessive pressure from over-tightening of bolts.
- B. Compressible filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self-expanding, continuous in length, and in width to fill the joint to a point 3/4 inch back from each face of wall or partition.
- C. Compressible filler for joints at tops of non-load bearing masonry partitions, and for expansion joints in masonry walls: Closed cell Neoprene or PVC foam board, soft grade, 25 percent thicker than joint width, continuous in length, and in width to fill the joint to a point 3/4 inch back from each face of wall or partition.
- D. Premolded control joints for concrete masonry construction: Solid rubber of profile as indicated (to maintain lateral stability of wall), 60-80 shore A hardness.
- E. Building paper to maintain joints open for subsequent application of sealant and backer rod: N^o. 15 asphalt saturated felt.
- F. Weeps for veneer: Flexible, ultraviolet resistant honeycomb polypropylene weep. Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Dur-O-Wal, Inc., product "Cell Vent",
 2. Hohmann & Barnard, Inc., Model GV "Quadro-Vent",

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- G. Mortar netting: High Density Polyethylene (HDPE) course geotextile fabric having a 90 percent open weave mesh, with stepped topped edging, shaped in a manner to catch and hold mortar droppings and preventing blockage of weep hole vents, 2 inches thick unless otherwise indicated on the Drawings by 5 feet long by 10 inches high. Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Hohmann & Barnard, Inc. product "Mortar Net".
 2. Mortar Net USA, Ltd., Highland IN., product "Mortar Net".
 3. Wire-bond, Inc., Charlotte, NC, product "Mortar Net Green".
- H. Cleaning solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.7 MIXING MORTARS AND GROUT

- A. General: Mix mortar and grout in accordance with the requirements of ASTM C270, and ASTM C476 as applicable.
1. Control batching procedure to ensure proper proportions by measuring materials by volume. Amount of mixing water and mortar consistency shall be controlled by mason.
 2. Control batch sizes to allow for use within manufacturer's recommended pot life.
 3. Retempering will be permitted only within the first two hours of initial mix or shorter times as directed by manufacturers.
 4. Discard all mortar and grout which exceeds the time limits allowed by the manufacturer. Discard mortar that has partially set.
- B. Maintain sand uniformly damp immediately before mixing process.
- C. Add mortar color and admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- D. Do not use anti-freeze compounds to lower the freezing point of mortar or grout.
- E. Pouring grout shall be fluid consistency (as fluid as possible for pouring without separation of constituent parts).

2.8 SOURCE QUALITY CONTROL

- A. Preconstruction testing: Owner will employ and pay a qualified independent testing laboratory to perform the following preconstruction testing indicated as well as other inspecting and testing services required by referenced unit masonry standard or indicated herein for source and field quality control:
1. Concrete Masonry Unit Tests: For each different concrete masonry unit indicated, units will be tested for strength, absorption, and moisture content per ASTM C 140.
 2. Prism tests: For each type of wall construction indicated, masonry prisms will be tested per ASTM E 447, Method B.
 3. Mortar properties will be tested per property specification of ASTM C 270.

4. Mortar composition and properties will be field evaluated per ASTM C 780 for compressive strength, consistency, mortar aggregate ratio, water content, air content, and splitting tensile strength.
5. Grout compressive strength will be tested per ASTM C 1019 for compressive strength and slump.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive the work of this Section.
- B. Verify built-in and other items provided by separate Sections of the work are properly sized and located.
- C. Verify foundation walls supporting masonry is constructed within tolerances required by code
- D. Beginning of installation means acceptance of site conditions.

3.2 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied to other Sections.
- B. Foundations:
 1. Do not commence installation until foundations are clean, rough, and level.
 2. Sandblast the foundation tops, if necessary, and remove all laitance and foreign material.
 3. Verify that the foundation elevation is such that the bed joint thickness shall not vary from specified thickness, and that the foundation edge is true to line with masonry not projecting over more than 1/4".
- C. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.
- D. Protect precast concrete at all times from drippings, stains and damage by other trades during construction. Where necessary or directed, place substantial non-staining wooden or other approved covering to protect the work until Final Cleaning.
- E. Clean precast concrete prior to setting, leaving edges and surfaces free from dirt or foreign material. Do not use wire brushes or implements which mark or damage exposed surfaces.
- F. Protect surfaces of windows, door frames, louvers and vents as well as similar finish products with painted and integral finishes from mortar droppings and stains.

3.3 INSTALLATION - GENERAL

- A. Build chases and recesses as shown or required to accommodate items specified in this and other Sections of the Specifications. Provide not less than 8 inches of masonry between chase recess and jamb of openings and between adjacent chases and recesses.

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- B. Leave openings for equipment to be installed before completion of masonry. After installation of equipment, complete masonry to match construction immediately adjacent to the opening.
- C. Establish lines, levels and coursing indicated. Protect from displacement.
- D. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- E. Isolate masonry partitions from vertical structural framing and where indicated on the Drawings. Maintain joints free from mortar, ready to receive sealant and joint bead back-up.
- F. Provide compressible filler at tops of interior masonry partitions abutting structural above.

3.4 COURSING, BONDS AND JOINTS

- A. Coursing, joints and bond pattern: Running bond except as otherwise indicated on the Drawings.
- B. Field cut masonry units to construct patterns indicated on the Drawings.
- C. Joints:
 - 1. Exposed to view masonry: except as specified below, fill all joints with mortar, strike off flush, and when mortar is thumb print hard tool joints with a non-staining tool. Joints shall be free of drying crack.
 - a. Vertical joints (all): Tool joints flush.
 - 2. Concealed from view masonry, including masonry which will be concealed by materials: Fill joints with mortar and strike joints flush.

3.5 CONTROL JOINTS

- A. Do not continue horizontal joint reinforcement through control joints.
- B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturers recommendation.
- C. Locate control joints where shown on Drawings, at corners adjacent to openings in masonry, changes in wall height and intersections with structural walls as approved by Architect.
- D. Size control joints in accordance with the requirements of Section 07 92 00 - JOINT SEALANTS.
- E. Comply with NCMA TEK 10-2B for concrete masonry unit spacing and locations, locating control joints at locations approved by Architect.
- F. Provide horizontal pressure relieving joints as indicated on the Drawings.

3.6 LAYING MASONRY - GENERAL

- A. Build the masonry walls and partitions in the various combinations and thickness as indicated on the Drawings.

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- B. Erect all masonry work in compliance with the line and level tolerances specified herein. Hold uniform joint sizes. Correct, or replace, as directed by the Architect, non-conforming masonry work at no additional cost to the Contract.
- C. Lay out coursing before setting to minimize cutting closures or jumping bond, Avoid the use of less-than-half-size units.
- D. Laying masonry units:
1. Lay solid masonry units in full bed of mortar, with full head joints; uniformly joint with other work.
 2. Lay hollow masonry units with face shell bedding on head and bed joints.
 3. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
 4. Interlock intersections and external corners.
 5. Cut all exposed masonry with a motor-driven carborundum blade saw to ensure straight and clean, unchipped edges.
 - a. Lay no unit having chipped edges or face defects where such unit would be exposed to view. Remove any such unit, if installed, and replace with an undamaged unit, and bear all costs therefore.
 6. Do not spread any more mortar than can be covered before surface of mortar has begun to dry.
 7. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove entirely, clean off mortar, and reset with fresh mortar.
 8. Except for cleaning down and repointing, finish all masonry as the walls and partitions are carried up.
- E. Build-in reinforcement and anchorage items as the work progresses, grouting for secure anchorage.
1. Where steel reinforcing rods have been cast into concrete slabs, and left with upturned ends, carefully place masonry units down over the upturned ends of the rods, and fill cells of masonry units with specified grout.
 2. Embed prefabricated horizontal joint reinforcing as the work progresses, with a minimum cover of 5/8" (16 mm) on exterior face of walls and 1/2" (13 mm) at other locations. Lap units not less than 6" (152 mm) at ends. Use prefabricated L and T units to provide continuity at corners and intersections. Cut and bend units as recommended by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.
- F. Except as indicated otherwise, isolate masonry from overhead structure:
1. Isolate masonry partitions from vertical structural framing members with a control joint.
 2. Isolate top joint of masonry partitions from horizontal structural framing members and slabs, decks or blocking with compressible joint filler.
- G. Provide control joints at 30 feet on center maximum spacing, and keep clean of mortar droppings.
- H. Provide complete protection against breakage and weather damage to all masonry work, including substantial wood boxing around door jambs, over the tops of walls

and wherever necessary to protect work at all stages of completion. Protect masonry when not roofed over, at all times when masons are not working on the walls. Apply tarpaulins or waterproof paper, properly weighted, or nailed, to assure their remaining in place to protect masonry from all possible hazards.

- I. Point and fill all holes and cracks in new mortar joints with additional fresh mortar; do not merely spread adjacent mortar over defect or use dead mortar droppings. Do all pointing while mortar is still soft and plastic. If hardened, chisel defect out and refill solidly with fresh additional mortar, and tool or rake joints as specified herein.
- J. Protect all masonry from rain prior to, and during the installation thereof. If the temperature is in excess of 80 degrees Fahrenheit at time of installation, lightly moisten contact surfaces of masonry units by brushing with water.
- K. Cold/Hot Weather Procedures: No masonry work shall be laid in temperatures below 40 degrees Fahrenheit without the submittal to and review by the Architect of cold weather procedures.
 1. In ambient temperatures below 40 degrees Fahrenheit make provisions to adequately protect the masonry materials and the finished work from frost, including heating of masonry materials.
 - a. Heat enclosed work areas as necessary to adequately protect the work of this Trade Contract. Such additional temporary heat and protection measures required is in addition to the protection furnished by Construction Manager under provisions of Section 01 50 00 - TEMPORARY FACILITIES AND CONSTRUCTION, which occurs from November 1st to March 31st.
 2. No frozen work shall be built upon nor shall anti-freeze admixtures be permitted in the mortar mix.
 3. Any completed work found to be affected by frost shall be taken down and rebuilt at no additional expense to the Owner.

3.7 BUILDING-IN WORK

- A. As work progresses install built-in metal door and glazed frames, fabricated metal frames, window frames, wood nailing strips, anchor bolts, plates and other items to be built-in the work.
- B. Install built-in items plumb and level; take care not to distort alignment of such items.
- C. Bed anchors of metal frames in adjacent mortar joints. Fill frame voids solid with grout except where joints are indicated to receive caulking and sealant. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
 1. Rake joints to receive sealant to a uniform depth of 3/4 inch for installation of caulking and sealant.
- D. Do not build-in organic materials subject to deterioration.

3.8 BUILDING-IN LINTELS

- A. Install loose lintels over all openings, whether or not scheduled.

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- B. Install loose lintels over all openings, whether or not scheduled. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.
 - 1. Openings up to 42 inches wide: Place two N^o4 reinforcing bars 1 inch from bottom web.
 - 2. Openings from 43 inches wide up to 78 inches wide: Place two N^o5 reinforcing bars 1 inch from bottom web.
 - 3. Openings over 79 inches wide: Reinforce as detailed in Drawings, consult Architect/Engineer if not detailed.
 - 4. Do not splice reinforcing bars.
 - 5. Support and secure reinforcing bars from displacement. Maintain position with 1/2 inch of dimensioned position.
 - 6. Place and consolidate grout fill without displacing reinforcing.
 - 7. Allow masonry lintels to attain specified strength before removing temporary supports.
- C. Where not detailed otherwise, maintain the following minimum bearings for lintels on each side of opening:
 - 1. 6 inches bearing on concrete.
 - 2. 3 inches bearing on steel.
 - 3. 8 inches bearing on masonry.

3.9 REINFORCEMENT AND ANCHORAGE

- A. Reinforce horizontal joints with continuous masonry joint reinforcement, spaced 16 inches vertically commencing one course above supporting concrete slab.
- B. Place masonry joint reinforcement in first and second horizontal joint above and below openings. Extend 16 inches each side of opening.
- C. Place joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches .
- E. Do not bridge control and expansion joints in the wall system.
- F. Anchor ends of walls to structure with anchors spaced 24 inches, except as otherwise shown.
- G. Embed anchors in concrete. Attach to structural steel members. Embed anchorages in every second block.
- H. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

3.10 FIELD QUALITY CONTROL

- A. Field inspection will be performed under the provisions of Section 01 45 00 - QUALITY CONTROL.
- B. Testing frequency: Tests and evaluations listed in this article shall be performed during construction for each 5,000 square feet of wall area or portion thereof.

- C. Mortar properties will be tested per property specification of ASTM C 270.
- D. Mortar composition and properties will be evaluated per ASTM C 780.
- E. Grout compressive strength will be sampled and tested per ASTM C 1019.
 - 1. Prior to grouting, request inspection of all voids to be grouted.
- F. Prism Test Method: For each type of wall construction indicated, masonry prisms will be tested per ASTM E 447, Method B: and as follows:
 - 1. Prepare one set of prisms for testing at 7 days and one set for testing at 28 days.
- G. Evaluation of Quality Control tests: In absence of other indications of noncompliance with requirements, masonry will be considered satisfactory if results from construction quality control tests comply with minimum requirements indicated.

3.11 PROTECTION OF WORK

- A. Loading: Do not apply loading for at least 12 hours after building masonry walls and partitions. Do not apply concentrated loads for at least 3 days after building masonry columns, walls or partitions.
- B. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 - 2. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to un-constructed wythe and hold cover in place.
- C. Stain prevention: Provide protection and prevent grout, mortar, and soil from staining the face of exposed masonry, precast architectural concrete, and building finishes. Protect base of walls from rain-splashed mud and mortar splatter.
 - 1. Remove immediately all grout, mortar, and soil that come in contact with such masonry.

3.12 TOLERANCES

- A. Maximum variation from true surface level for exposed to view walls and partitions:
 - 1. Unit-to-unit tolerance: 1/16 inch.
 - 2. Surface, overall tolerance: 1/4 inch in 10 feet in any direction and 1/2 inch in 20 feet or more.
 - a. Where both faces of single wythe wall or partition will be exposed to view, request and obtain decision from the Architect as to which face will be required to conform to the specified surface level tolerance.
- B. Maximum variation from plumb: For lines and surfaces of walls do not exceed 1/4 inch in 10 feet, 3/8 inch in any story up to 20 feet maximum. At expansion joints and other conspicuous lines, do not exceed 1/4 inch in 20 feet.

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- C. Maximum variation from level: For lines of sills, tops of walls and other conspicuous lines, do not exceed 1/8 inch in 3 feet, or 1/4 inch in 10 feet and 1/2 inch in 30 feet.
- D. Maximum variation of linear building line: For position shown in plan relating to columns, walls and partitions, do not exceed 1/2 inch in 20 feet or 3/4 inch in 40 feet.
- E. Maximum variation in specified height: 1/2 inch per story.
- F. Maximum variation of joint thickness: 1/8 inch in 3 feet.
- G. Maximum horizontally projected unsupported masonry unit: 1-1/8 inches

3.13 CLEANING

- A. Comply with requirements of Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for handling and disposition of all construction and demolition waste.
- B. Progress Cleaning:
 - 1. General: Maintain site free of waste materials, debris, and rubbish resulting from the work of this Section.
 - a. Remove from work areas surplus and waste materials resulting from the work of this Section. Remove on a continual on-going basis throughout the term of construction.
 - 2. During the progress of the work, keep the exposed surfaces of masonry clean at all times, and protected against damage. As each segment of the masonry is erected, dry-brush the surfaces free from mortar spots and droppings.
- C. Prior to performing the final cleaning work, examine all face joints in exposed masonry to locate cracks, holes or other defects in the mortar; and point up all such defects and fill with mortar as specified herein. Where necessary, in the opinion of the Architect, cut out defective joints in masonry and replace with new materials, exercising extreme care to match original work.
- D. At a time approved by the Architect, perform final cleaning operations on all masonry as specified herein and as recommended by applicable BIA Technical Notes.
 - 1. Perform the final cleaning work only when the ambient temperature is above 40 degrees Fahrenheit, and rising.
 - 2. Do not use wire brushes or other abrasive tools in the cleaning operations.
 - 3. Perform final cleaning operations from the top down. If masonry cleaning work is performed after windows, doors, frames, and other work has been installed, provide complete protection for said items; be fully responsible for any damage due to the cleaning operations.
 - 4. Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.
 - 5. Perform final cleaning of masonry units by scrubbing with stiff bristle fiber brushes and clear water, changing the water frequently.

- E. Provide suitable protective coverings for all other surfaces and materials during the final cleaning procedures, and bear full responsibility for correcting any damage caused by these operations, to the satisfaction of the Architect.

End of Section

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Section 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install:
 - 1. Supports for wall mounted benches, shop primed.
- B. Perform all drilling and cutting in miscellaneous metal items required for the attachment of other items.

1.3 RELATED REQUIREMENTS

- A. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- B. Section 06 10 00 - ROUGH CARPENTRY: Wood blocking.
- C. Section 06 20 00 - FINISH CARPENTRY: Wood benches.
- D. Section 09 22 16 - NON-STRUCTURAL METAL FRAMING: Non-loadbearing metal framing systems for gypsum board construction.
- E. Section 09 91 00 - PAINTING: Applied finish coatings other than those specified herein.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
 - 3. AISC - Code of Standard Practice for Steel Buildings and Bridges.
 - 4. AISC - Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings.

5. AISI. referenced standards.
6. AWS - Standard Code for Arc and Gas Welding in Building Construction.
7. NAAMM, applicable publications.

1.5 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
1. Literature: Manufacturer's complete product data and specifications for all prefabricated items, shop primer paints, liquid zinc coating, and hydraulic cements, to be furnished hereunder.
 - a. For epoxy anchoring systems: Furnish ICC/ICBO Code approvals and performance data that includes recommended loading for each application.
 2. Shop Drawings, bearing registration stamp of a Professional Structural Engineer registered in State of Rhode Island
 - a. Include large scale details of items of all metal fabrications to be furnished hereunder, showing proposed methods of anchorage to surrounding structure and conditions.
 - 1) Shop drawings for metal panels to include all prototypical conditions, anchors, head, jamb sill and corner conditions, transitions in plane, top and bottom of metal panels, supporting steel, and aluminum clips
 3. Certificates:
 - a. Welder's certificates as specified under Article entitled "QUALITY ASSURANCE".
 4. Delegated Design Submittals: Provide calculations for loading and stresses for the work of this section, bearing the Professional Structural Engineer's seal. Show how design load requirements and other performance requirements as required by the 2018 edition, *RHODE ISLAND BUILDING CODE*, Regulation RISBC-1 have been satisfied.

1.6 QUALIFICATIONS

- A. Engineering: Provide the services of a Professional Structural Engineer, registered in the State of Rhode Island to design and certify that the work of this section meets or exceeds the performance requirements specified in this section and required by the 2018 edition, *RHODE ISLAND BUILDING CODE*, Regulation RISBC-1.

1.7 QUALITY ASSURANCE

- A. Qualifications:
1. Fabricator/Installer: Minimum of 5 years documented experience demonstrating previously successful work of the type specified herein, and approved by product manufacturer.
 2. Welders: Utilize only qualified welders employed on the Work. Submit verification that Welder's are AWS D1.1 and D1.4 qualified within the previous 12 months.

3. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P1 or SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."
4. Licensed Professionals: Provide the services of a Professional Structural Engineer, registered in the State of Rhode Island to design and certify that the work of this section meets or exceeds the performance requirements specified in this section and as required by the 2018 edition, *RHODE ISLAND BUILDING CODE*, Regulation RISBC-1.
 - a. Prepare Shop Drawings for under direct supervision of a same Engineer experienced in design of this work.

1.8 COORDINATION

- A. Be responsible for establishing locations and levels for all work of this Section, except such parts as may be delivered to others and set by them. In such cases assist them in properly locating said parts.

1.9 DELIVERY, STORAGE AND HANDLING

- A. All materials under this Section shall be carefully prepared for delivery, and handled and stored under cover in a manner to prevent defacement, deformation, or other damage to the materials and to shop finishes, and to prevent the accumulation of foreign matter on the metal work. All such work shall be repaired and cleaned prior to erection.

1.10 WARRANTY

- A. General: Submit the following warranties under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS, and in compliance with Section 01 78 36 – WARRANTIES.
 1. Warranties shall be effective starting from Date of Project Substantial Completion and are effective for specified term lengths.
- B. Fabricator's Warranty (for factory prefabricated products): In addition to the specific guarantee requirements of the GENERAL CONDITIONS and SUPPLEMENTAL GENERAL CONDITIONS, the Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: All materials shall be new stock, free from defects impairing strength, durability or appearance, and of best commercial quality for each intended purpose. Unless specifically called for otherwise, work shall be fabricated from the following:
 1. Carbon Steel:
 - a. Steel shapes, plates and bars: ASTM A36.

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- B. Metal surfaces, general: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.
- C. Welding rods: AWS E70XX grade, or select in accordance with AWS specifications for the metal alloy to be welded and in accordance with the recommendation of the welding rod manufacturer.

2.2 FASTENERS

- A. General: Provide all fasteners and attachments for work specified herein and as indicated on the Drawings.
 - 1. In general, Provide all fasteners and attachments of the same material and finish as the metal to which it is applied unless otherwise noted.
- B. Steel Bolts, Nuts and Washers: ASTM A307, galvanized to ASTM A153 for galvanized components.
- C. Anchor Bolts: ASTM F1554, Grade 36.
 - 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
- D. Lag Bolts: ASME B18.2.1.
- E. Plain Washers: Round, ASME B18.22.1.
- F. Lock Washers: Helical, spring type, ASME B18.21.1

2.3 ACCESSORIES

- A. Adhesive for attaching anchors and for direct pinning: high-modulus, high strength, moisture tolerant, epoxy adhesive. two-component 100 percent solids, epoxy resin complying with ASTM C881.
 - 1. Minimum performance properties (as cured at 70 degrees F. and 50 percent relative humidity):
 - a. Minimum Compressive Strength, tested per ASTM D695:
 - 1) at 3 days: 11300 psi (31.0 MPa).
 - 2) at 7 days: 11800 psi (44.8 MPa).
 - 3) at 28 days: 12200 psi (58.6 MPa).
 - b. Shear Strength, tested per ASTM D732 at 14 days: 6200 psi (43 MPa)
 - c. Minimum Flexural Strength tested per ASTM D790 at 14 days: 10700 psi (74 MPa).
 - d. Minimum Bond Strength tested per ASTM C882 at 14 days:
 - 1) Plastic Concrete to Hardened Concrete 2200 psi (13.8 Mpa).
 - 2) Plastic Concrete to Steel 2000 psi (13.8Mpa).
 - e. Maximum Water Absorption, tested per ASTM D570: 24 hour 0.27%
 - f. Minimum Tensile properties tested per ASTM D638: Tensile Strength 6900 psi (48 Mpa).

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2. Products which may be considered as equal include the following, or approved equal:
 - a. Sika Corporation, Lyndhurst NJ., product: "Sikadur 32 Hi-Mod Gel.
 - b. Simpson Strong Tie, Pleasanton, CA., product "SET High Strength Epoxy".
 - c. Symons Corporation, Des Plaines, IL., product "Rescon Gel anchor 304".
- B. Primer for steel surfaces, modified alkyd rust-inhibitive, high solids primer:
 1. Products which may be considered as equal include the following, or approved equal:
 - a. International (Courtaulds Coatings): Interlac 260HS.
 - b. Rust-Oleum: 1069 Heavy Duty Rust Inhibitive Red Primer.
 - c. Sherwin Williams: Kem Flash Primer HS, Red Oxide E61R702.
 - d. Tnemec: 10-99 Red Primer.
 - e. Wibur & Williams (California Products Corporation): 1703 Universal Metal Primer.

2.4 FABRICATION - GENERAL

- A. Metal surfaces shall be clean and free from mill scale, flake, rust and rust pitting; well formed and finished to shape and size, true to details with straight, sharp lines, and angles and smooth surfaces. Curved work shall be to true radii. Exposed sheared edges shall be eased.
- B. Shop fabricate items wherever practicable, accurately fitting all parts and making all joints tight. Do not fabricate materials until all specified submittals have been submitted to, and approved by, the Architect.
- C. Do all cutting, punching, drilling, and tapping required for attachment of anchor bolts and other hardware and for attachment of work by other trades. All such work shall be done prior to hot-dip galvanizing of the various components.
- D. Grind all edges of bars and plates completely free from nicks and machine marks, prior to galvanizing and/or shop priming.
- E. Weld all permanent connections, make all welds in a continuous manner; tack-weld only where specifically indicated on the Drawings. Grind all exposed-to-view welds completely smooth and flush to the surface plane of the base metals. Perform welding work prior to galvanizing in all cases, except where field welding is necessary, in which case, completely coat all such welds with two coats of specified liquid zinc coating, after performing grinding operations.
- F. Carefully coordinate the installation of metal fabrications with the work of trades responsible for the installation of interfacing work, and for the installation of work into the various assemblies furnished hereunder, and permit the installation of the related materials to be made at the appropriate times.

2.5 FINISHES - SHOP APPLIED COATINGS

- A. For bench supports:

1. Surface preparation prior to priming: Thoroughly clean all steel of all loose mill scale by power wire brushing or sandblasting. Remove all rust, dirt, weld flux, weld spatter, and other foreign matter by wire-brushing or scraping (power wire-brushing, if necessary). Grind smooth any sharp projections.
2. Shop apply specified primers thoroughly and evenly on the surfaces and worked into the joints and other open areas on the surfaces. Surfaces inaccessible after assembly shall be given two coats. Dry film thickness of primer shall be not less than 2.4 mils per coat.

PART 3 - EXECUTION

3.1 ERECTION - GENERAL

- A. General: Accurately set all work to established lines and elevations, and rigidly fasten in place with suitable attachments to the construction of the building. At the completion of the work, check all work, re-adjust, and leave in perfect condition. Grind all exposed to view welds smooth to the touch.
- B. Miscellaneous framing and supports: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and additional requirements indicated on Shop Drawings.
 1. Anchor supports for operable partitions, and similar products, securely to and rigidly braced to building structure.

End of Section

Section 06 10 00
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. The work of this Section consists of rough carpentry where shown on the Drawings, as specified herein for a complete and proper installation. Work includes, but is not limited to the following.
- B. Furnish and install the following:
 - 1. Fire retardant treated plywood backer panels for mounting of electrical panelboards, telephone/data backboards, HVAC and fire control equipment and other equipment.
 - 2. Various wood blockings, edgings, nailers, curbs, cants, grounds, furring, sheathing, framing members including wood preservative, for receipt of various finishes and surfacing materials, not described herein above.
 - 3. Rough installation hardware, including bolts, screws, spikes, nails, clips, and connection assemblies, as needed for installation of the rough carpentry work.
- C. Coordinate work of this Section with the work of the various trades responsible for applying finish materials and other items to rough carpentry work. Furnish and install furring, blocking, and shims, and other usual items of normal rough carpentry work by the various trades for the proper completion of the project.
 - 1. The applicable requirements specified in Part 1 - GENERAL and Part 3 - EXECUTION of the individual specification sections furnishing materials to be installed under this Section, shall be included in and made a part of this Section.
- D. No attempt is made in this Section to list all elements of rough carpentry required on this project or to describe how each element will be installed. It is the responsibility of the Contractor to determine for itself the scope and nature of the work required for a complete installation from the information provided herein and in the Drawings.

1.3 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.

BID PACKAGE #2

- C. Section 09 91 00 - PAINTING: Applied primer and finish coatings to exposed to view rough carpentry work.
- D. Division 26 - ELECTRICAL: Providing and mounting electrical panels and equipment.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. APA - applicable grades and specifications.
 - 2. APA PRB-108 Performance Standards and Policies for Structural-Use Panels.
 - 3. ANSI A250.11 (formerly SDI 105) - Recommended Erection Instructions for Steel Doors and Frames.
 - 4. AWPA Standards and references for preservative treated wood including Standards UC1, UC2, UC3A, UC3B, UC4A, and P5
 - 5. AWPA Standard UCFA – Fire Protection Required by Codes Above Ground Interior Construction.
 - 6. AWPA M4 – Care Of Preservative Treated Wood Products.
 - 7. NER-643: ACQ Preserve® and ACQ Preserve Plus® Wood Preservative Treatment, ICBO Evaluation Service.
 - 8. SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
 - 9. SPIB Grading Rules, current edition.
 - 10. UL - Building Materials Directory.
 - 11. US. Department of Commerce Voluntary Product Standard PS1 for Construction and Industrial Plywood.
 - 12. US. Department of Commerce Voluntary Product Standard PS2 for Wood-Based Structural-Use Panels.
 - 13. US. Department of Commerce Voluntary Product Standard PS-20 - American Softwood Lumber Standard.
 - 14. U.S. Department of Commerce Simplified Practice Recommendation R-16, for sizes and use classifications of lumber.
 - 15. American Lumber Standards Committee, National Lumber Grades Authority for Canadian Lumber, and applicable grading rules and standards of the various lumber associations whose species are being used for grades specified.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work of this Section with the respective trades responsible for locating anchorages installed into blocking which is provided under this Section.

2. Coordinate work of this Section with the work of the various trades responsible for applying finish materials and other items to rough carpentry work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties and installation instructions for products specified herein.
 2. Certificates: Wood products lacking acceptable documentation for the following will be rejected and their removal required.
 - a. Composite Wood and Agrifiber Products: Include certification indicating compliance with the testing and product requirements of the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda for all composite wood and agrifiber products.
 - b. Written certification from the respective treatment plants indicating types of wood preservative treatment and fire-retardant treatment used, treatments method, applications instructions, and conformance to the requirements specified herein.
 - 1) Provide certification that fire retardant treatment materials do not contain ammonium phosphate.
 - 2) Provide report from ICC Evaluation Service on fire retardant treated wood flame spreading, strength, corrosion and hygroscopic properties.
 - 3) Provide report from ICC Evaluation Service on pressure preservative treated wood strength, corrosion, anti-fungi, and anti-insect properties.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards, specified materials, and methods of construction.
 1. All lumber shall:
 - a. Be new, dressed four sides (S4S), clear and free from warping and other defects.
 - b. Have a moisture content not exceeding 19 percent when delivered to the project.
 - c. Be in accordance with the grading rules of the lumber manufacturer's association under whose jurisdiction the lumber is produced and bear the mark of grade and mill identification.
- B. Certifications:
 1. Plywood: Conform to the requirements of Product Standard PS-1, and bear applicable APA grade trademarks.

- a. Plywood for electrical boards treated for retardance, meet Class I or a flame spread rating of 25 or less and bear U.L. label "Classified FRS".

1.8 DELIVERY, STORAGE AND HANDLING

A. Storage and Handling Requirements:

1. Protect wood materials from damage due to moisture, direct sunlight, excessive temperatures, surface contamination, corrosion and damage from construction operations and other causes.
2. Store materials in an elevated dry location, protected by waterproof coverings.

PART 2 - PRODUCTS

2.1 BOARD AND SHEET MATERIALS

A. Lumber for blocking, nailers and curbs as indicated or required: Hem-Fir, Douglas Fir, Eastern Spruce, Eastern Hemlock, or Southern Pine, surfaced dried stud or utility grade. Wood members shall be of sizes indicated on the Drawings or of the same size as the members being braced.

1. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
2. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

B. Furring: Nominal 1 by 3 inches or 1 by 4 inches Douglas Fir, Eastern Spruce, Eastern Hemlock, or Southern Pine, surfaced dried construction grade.

C. Plywood and sheet products:

1. Plywood sheathing: APA GRADE A-B, 1/4 inch (6.4 mm) thick, 5 ply/5 layer plywood.
2. Plywood sheathing: APA GRADE A-B, 1/2 inch (12.7 mm) thick, 5 ply/5 layer plywood.
3. Plywood sheathing: APA GRADE A-B, 5/8 inch (15.9 mm) thick, 5 ply/5 layer plywood.
4. Plywood sheathing: APA GRADE A-B, 3/4 inch (19.1 mm) thick, 5 ply/5 layer plywood.
5. Behind gypsum board walls, sheathing type blocking where indicated: Square edge APA graded CDX EXT, touch-sanded, 5/8 inch thick, except as otherwise indicated on the Drawings
6. For electric panel board mountings and similar uses: APA graded B-D INT, Group 2 species, touch-sanded, fire-retardant treated, 3/4 inch thick, except as otherwise indicated on the Drawings.
7. For unspecified interior concealed from view locations: APA graded C-D PLUGGED INT, Group 2 species, thickness as indicated on the Drawings.

2.2 WOOD TREATMENTS

- #### A. Treated wood products shall be produced by a single treatment plant, fully licensed by the chemical manufacturers, and conforming to the requirements specified herein.

1. Toxicity and Environmental Quality:
 - a. Products containing chromium will not be permitted.
 - b. Products containing arsenic will not be permitted.
 - c. Fire-retardant-treated wood products shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.
 2. Dye wood or otherwise color code all treated wood at treatment plant to clearly distinguish the different treatments in the field.
 3. Kiln dry all treated lumber and plywood to the following maximum moisture content after treatment.
 - a. Lumber: 19 percent.
 - b. Plywood 15 percent.
 - c. Discard pieces with defects which might impair quality of work.
 4. Quality marks: Each piece of lumber and plywood shall be permanently affixed with a quality mark, containing the following information:
 - a. Identification of the inspection agency.
 - b. Standard to which material was treated.
 - c. Identification of the treating plant.
 - d. Fire retardant treated wood shall include: stamp signifying a FR-S rating
 - e. Preservative treated wood shall include: Retention and end use for which product is suitable.
- B. Fire retardant treated wood. Designated as "FRTW"
1. Chemical Manufacturer: Subject to compliance with the requirements specified herein, Products which may be incorporated in the work include:
 - a. Hickson Corporation, product, "Dricon".
 - b. Osmose, Inc., Griffin GA., product "FirePro".
 - c. Hoover Treated Wood Products, Inc., product "PyroGuard".
 - d. Viance, LLC., Charlotte, NC, product: "D-Blaze FRT".
 2. Fire retardant treated wood shall comply with the following requirements:
 - a. All fire-retardant lumber and plywood must have an Underwriters Laboratories stamp signifying a FR-S rating certifying a 25 or less flame spread and smoke developed value, when tested in accordance to ASTM E-84, or UBC Standard No. 42-1.
 - b. Corrosion rates: Less than one mil per year for carbon steel, galvanized steel, aluminum, copper and red brass in contact with the fire retardant treated wood when tested in accordance with Federal Specification MIL-L-19140E Paragraph 4.6.5.2.
 - c. The fire retardant treated wood must have an equilibrium moisture content of not more than 25 percent when tested in accordance with ASTM D 3201 procedures at 95 percent relative humidity and 80 degrees Fahrenheit.
 - d. Fire retardant chemical: Registered for use as a wood preservative by the U.S. Environmental Protection Agency.
 - e. Testing: Fire performance and strength properties for both lumber and plywood, of the fire retardant treated wood shall be recognized by

issuance of an ICC Evaluation Service Report. Fire retardant chemical must not damage the middle lamella of the wood structure when exposed to 170 degrees Fahrenheit and 90 percent relative humidity for 23 days.

- C. Pressure preservative treated wood. Designated as "PT"
1. Pressure treatment of wood products shall conform to the requirements of AWPA Standards U1 and T1.
 - a. Fixation of Chemical: Treated wood shall not be shipped from treatment plant until fixation of the preservative has occurred in the wood.
 2. Retention of preservatives: Minimum Retention values pounds per cubic foot (pcf) shall be as prescribed in AWPA Standard U1 for the following Use Categories, (material conforming to a higher AWPA Use Category may be used).
 - a. UC1: Interior construction - above ground, protected conditions, includes but is not limited to: interior stud framing and baseboards
 - b. UC2: Interior construction - above ground, damp conditions, includes but is not limited to: interior sills, bottom plates, damp locations, basement framing, bathrooms, and flooring nailers/blocking.
 - c. UC3A: Exterior construction - above ground 'protected', coated and with rapid water runoff, includes but is not limited to: wood blocking related to roofing.
 - d. UC3B: Exterior construction - above ground 'exposed', uncoated or poor water runoff, includes, but is not limited to: wood shakes, exterior stairs, exterior joists, beams, decking, railings and fence boards.
 3. Pressure preservative treatment products include the following:
 - a. Ammoniacal Copper Quaternary Compound (ACQ) Treatment: arsenic-free and chromium-free chemical "ACQ Preservative" in compliance with AWPA Standards. Apply the preservative in a closed cylinder by pressure process in accordance with AWPA Standard C15.
 - 1) Chemical Manufacturer: Subject to compliance with the requirements specified herein, Products which may be incorporated in the work include:
 - a) Osmose, Inc., Griffin GA., product "NatureWood".
 - b) Flameproof Companies., Montgomery, IL, product: "ACQ Preserve".
 - c) Universal Forest Products, Inc., Grand Rapids MI., product "ProWood ACQ".
 - d) Viance, LLC., Charlotte, NC., product "Preserve"
 - b. Micronized Copper Wood Preservative (MCA, MCA-C) Treatment: arsenic-free and chromium-free chemical, waterborne micronized copper azole or preservative in compliance with AWPA Standards,
 - 1) Chemical Manufacturer: Subject to compliance with the requirements specified herein, Products which may be incorporated in the work include:
 - a) Culpepper, Lancaster, MA., product "Micropro".
 - b) UFP Industries, Auburn, MA., product: "Prowood."
 - c) Koppers Performance Chemicals, Griffin, GA., product "MicroPro."

- d) Great Souther Wood Preserving, Abbevie AL., product: "Yellowood."
- e) Arxada, Alpharetta, GA, "Wolmanized" Brand, Product: "Wolman E".

2.3 ACCESSORIES

A. Adhesives:

1. General: Provide adhesives approved which are Low-VOC or non-VOC, non-flammable, water resistant after cured, odor free.
2. Adhesive for lamination and fabrication of wood and plywood items: Exterior adhesives containing no urea formaldehydes, having a VOC limit of 70 g/L.

B. Nails (interior): Galvanized common nails, of size and type to suit application and required by state and local building codes.

C. Screws:

1. Screws for interior applications: Flat head electroplated-galvanized wood screws of the appropriate sizes.

D. Anchor bolts, expansion bolts and lag screws: Hot-dipped galvanized steel, of the following types:

1. For lumber having actual thickness of 1-1/2 inches or greater to masonry and concrete: Anchor bolts or expansion bolts, as most applicable for the specific receiving surface material, 3/8-inch minimum diameter, spaced as shown on drawings, and staggered as far as practicable. Countersink all bolt heads, and provide head washers of matching material.
2. For lumber having actual thickness of greater than 7/8-inch but less than 1-1/2 inches to masonry and concrete: Anchor bolts or expansion bolts, as most applicable for the specific receiving surface material, at least 1/4-inch diameter of the most appropriate lengths for the specific application, spaced as shown, and staggered as far as practicable. Countersink all bolt heads, and provide head washers of matching material.
3. For lumber having actual thickness of 7/8-inch and less: Anchor bolts or expansion bolts, at least 1/4-inch in diameter; or screws, of the most appropriate sizes; in lengths most suitable for the specific application, countersunk, spaced, and staggered.

E. Protection paper: Canadian red-rosen paper or kraft paper.

PART 3 - EXECUTION

3.1 PREPARATION

- A. All materials shall be inspected before use, with all checked, split and otherwise deficient stock rejected, or used only for miscellaneous blocking, furring or other incidental use. The Contractor shall be responsible for replacing all lumber which, due to warpage, twist, splitting, or checking, results in unsatisfactory work. Such replacement shall be required at any time, whether before or after application of finish material under other Sections.

3.2 INSTALLATION - GENERAL

- A. Closely coordinate the installation of the rough carpentry work with the work of other trades responsible for the installation of interfacing or overlaying materials, so as not to delay the work of the related trades.
- B. Erect all rough carpentry work plumb, level, and true with tight, close fitting joints, securely attached and braced to surrounding construction, all in a first class workmanlike manner. Counterbore for bolt heads, nuts, and washers where required to avoid interference with other materials. Bear complete responsibility for structural integrity, connections, and anchorage of all rough carpentry work.
- C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- D. Use as long lengths as practicable for wood nailers, blockings, and curbs, to minimize number of joints, and attach the members with the types, and spacing, of fasteners specified herein.
- E. Install blocking, grounds and furring, for proper attachment of the work of other trades, in accordance with the requirements provided by the respective related trades.
 - 1. Spacing for furring and strapping shall not exceed 16 inches on center.
- F. Field cuts of fire retardant treated lumber: Do not rip or mill fire retardant treated lumber. Only end cuts, drilling holes and joining cuts are permitted.
- G. Install concealed from view plywood with specified fasteners spaced not more than 10 inches on centers.
- H. Install fire-treated plywood backer boards with counter-sunk galvanized fasteners, of specified sizes, spaced not more than 12 inches on centers.

3.3 INSTALLATION – EQUIPMENT BACKBOARDS

- A. Provide panel mounting backboards for HVAC, Fire Prevention, Electrical and telephone/data equipment. Fabricate panels using fire-retardant treated 3/4 inch thick panels mounted to fire-retardant treated 2 by 4's. Provide a nominal space of 3-1/2 inches behind panels to permit wiring.

3.4 SCHEDULES

- A. Wood treatment schedule:
 - 1. Pressure preservative treat all concealed or exposed-to-view:
 - a. Lumber and plywood which comes in contact with concrete, masonry, or earth.
 - b. Lumber and plywood nailers, blocking and curbing directly related to roofing, flashing, skylights, roof hatches, and roof accessories.
 - c. Lumber and plywood rough-bucks, blocking and nailers directly related to windows, curtainwall and storefront systems.

2. Fire retardant treat all equipment backer boards, additionally provide fire retardant treated lumber and plywood where indicated or noted on Drawings.

End of Section

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Section 06 20 00
FINISH CARPENTRY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install:
 - 1. Hardwood window stools and aprons.
 - 2. Hardwood benches (seating)
- B. No attempt is made in this Section to list all elements of finish carpentry required on this project or to describe how each element will be installed. It is the responsibility of the Contractor to determine for itself the scope and nature of the work required for a complete installation from the information provided herein and in the Drawings.

1.3 RELATED REQUIREMENTS

- A. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- B. Section 06 10 00 - ROUGH CARPENTRY: Wood blocking, curbs, nailers, and backer boards.
- C. Section 07 92 00 - JOINT SEALANTS: Sealant and backing materials, for joints between casework, countertops and abutting surfaces.
- D. Section 09 91 00 - PAINTING: Field applied primer (excluding backpriming) and finish coatings.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.
 - 2. APA - applicable grades and specifications.

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3. FS MM-L-736 - Lumber; Hardwood
4. PS-1 - Construction and Industrial Plywood.
5. PS-20 - American Softwood Lumber Standard.
6. SPIB Grading Rules, current edition.
7. U.S. Department of Commerce Simplified Practice Recommendation R-16, for sizes and use classifications of lumber
8. American Lumber Standards Committee, National Lumber Grades Authority for Canadian Lumber, and applicable grading rules and standards of the various lumber associations whose species are being used for grades specified.

B. Inclusionary References: The following reference materials are hereby made a part of this Section by reference thereto:

1. AWI/AWMAC/WI joint publication: *North America Architectural Woodwork Standards*, version 3.1, as amended by published errata, referenced herein as NAAWS.

1.5 SUBMITTALS

A. Information and Review Submittals: Submit the following in compliance with AWI/AWMAC/WI *NORTH AMERICAN ARCHITECTURAL WOODWORK STANDARDS* (NAAWS), version 3.1, Section 1 – Submittals. and as specified under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Literature: Manufacturer's product data sheets, specifications, performance data, installation instructions for hardware, adhesives and accessories furnished hereunder.
2. Shop drawings:
 - a. Large scale design details, minimum 1-1/2 inch to one foot scale, showing profiles, jointing and fastening methods; and complete installation details.
 - b. Provide full scale drawings of wood trim elements showing all profiles and dimensions.
 - c. Provide shop drawings bearing dimensions of actual measurements taken at the project.
3. Samples: Provide samples requested by Architect for selection of colors and finishes.

1.6 QUALITY ASSURANCE

A. Quality Standards: All materials, workmanship and finishes shall meet AWI/AWMAC/WI *NORTH AMERICAN ARCHITECTURAL WOODWORK STANDARDS* (NAAWS), version 3.1, as amended by published errata, for the following Quality Grades:

1. All work to receive transparent finishes: Premium Grade.
2. All work to receive field-applied painted (opaque) finishes: Custom Grade.

B. Discard lengths of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of

joints or optimum jointing arrangements, or which are of defective manufacture with respect to surfaces, sizes or patterns.

1.7 DELIVERY STORAGE AND HANDLING

- A. Do not deliver interior finish carpentry materials to the project until all concrete, masonry, plaster, and other wet work has been completed and dry.
- B. Ship and handle all materials and fabricated items in a manner which will prevent damage thereto, and store all materials and fabricated items at a dry, elevated, ventilated, and protected interior location maintaining 60 degrees Fahrenheit and a maximum relative humidity of 55 percent.
- C. Deliver to site glue laminated timbers individually wrapped with a water-resistant covering.

1.8 SEQUENCING AND SCHEDULING

- A. Coordinate the work of this Section with the respective trades responsible for installing interfacing work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

PART 2 – PRODUCTS

2.1 WOOD MATERIALS, GENERAL

- A. General: Materials, as fabricated and installed, shall comply with specified quality grades of AWI/AWMAC/WI *Architectural Woodwork Standards*.
 - 1. All board products shall be S4S, except as otherwise specified.
- B. Moisture content:
 - 1. Wood for interior use shall have a moisture content between 5 and 10 percent, when delivered to the project.

2.2 BOARD AND PANEL MATERIALS

- A. Interior trim to receive paint (opaque finish): Wood shall be clear without knots or surface defects. and conform NHLA Number 1 Common grade, and in compliance with AWI/AWMAC/WI “Architectural Woodwork Standards,” latest edition for specified quality grade, (as installed).
 - 1. Acceptable wood species are limited to the following:
 - a. Yellow Poplar (*Liriodendron tulipifera*), Plain Sawn, clear straight-grained, C-Select or better.
 - b. Natural Birch” Yellow Birch (*Betula alleghaniensis*), Plain Sawn.
 - c. Natural Maple (*Acer saccharum*), Plain Sawn.
- B. Interior trim (window stools and aprons) scheduled to receive transparent finish: Select White Maple (*Acer saccharum*) {sapwood}, Plain Sliced.
- C. Adhesive for installation of plastic laminate: Rigid bond Polyvinyl acetate (PVA) type only. Contact cements are only permitted at countertops with sinks or similar “wet condition” areas.

BID PACKAGE #2

2.3 ACCESSORIES

- A. Glue for lamination and fabrication of wood, plywood and particle board items: Exterior Grade, phenolic resin glue.
- B. Nails for interior trim items: 6d and 8d coated or galvanized finish nails, except as otherwise specified herein.
- C. Screws: Flat head wood screws of the appropriate sizes, galvanized finish for interior use.
 - 1. Provide flat head stainless steel wood screws at stage flooring countersunk at all locations.
- D. Bolts, nuts, washers, blind fasteners, lags: Galvanized, of size and type to suite application as indicated in the drawings.
- E. Sealant, for joints between window stools and dissimilar materials: USDA approved one component acetoxysilicone rubber, mildew resistant, acceptable to local health officials, conforming to U.S. Food and Drug Administration regulation 21 CFR 177.2600, and ASTM C920, Type S, Class 25, Grade NS, use NT,G and A with a minimum movement capability of ± 25 percent, and a Shore A hardness of 20, equal to the following, in manufacturer's standard colors as selected by the Architect.
 - 1. Only use sealant and primers that comply with the following limits for VOC content:
 - a. Architectural Sealants: 250 g/L.
 - b. Sealant primer: 250 g/L
 - 2. Sealants containing aromatic solvents, fibrous talc, formaldehyde, halogenated solvents, mercury, lead, cadmium, chromium and their compounds, are not permitted.
 - 3. Subject to requirements specified herein, the following products are acceptable, or approved equal:
 - a. Dow Corning, product "786".
 - b. GE Silicones, product "Sanitary 1700".
 - c. Tremco, product "Tremsil 200 Sanitary".
 - d. Pecora, product "898NST".
- F. Paint for back-priming:
 - 1. California: "Troubleshooter Universal Wood Primer", N^o. 21700.
 - 2. Moore: "Exterior Wood Primer 094".
 - 3. PPG: "Speedhide Exterior Alkyd Wood Primer", 6-9 Series.
 - 4. Sherwin-Williams: "A-100 Alkyd Exterior Wood Primer", Y24 W8020.

2.4 SHOP APPLIED FINISHING

- A. Transparent exposed-to-view finish for casework: AWI/AWMAC/WI "Architectural Woodwork Standards," Premium Grade Factory Finish System "Conversion Varnish" system having a Medium rubbed effect with a sheen of 24° to 28° gloss units per ASTM D523. Finish system shall not substantially increase flame spread.

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1. One washcoat, reduced conversion varnish.
 2. Colorant: None - natural finish.
 3. One coat sealer, conversion varnish.
 4. Two coats topcoat: Conversion varnish equal to Sherwin Williams product "V84 series Kem Var".
- B. Concealed surfaces: Thoroughly coat all concealed surfaces of finish woodwork before assembling with two coats of clear wood preservative.
- C. Field Touch-up: Shall be the responsibility of the installing contractor and shall include the filling, and touch-up of exposed job made nail or screw holes, refinishing of raw surfaces resulting from job fitting, repair of job inflicted scratches and marks, and final cleaning up of the finished surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify adequacy of blocking, backing and support framing for all finish carpentry work.
- B. Beginning of installation means acceptance of site conditions.

3.2 PREPARATION

- A. Prime all wood surfaces of items or assemblies to be in contact with cementitious and masonry materials, prior to installation.

3.3 INSTALLATION – GENERAL CARPENTRY

- A. Comply with installation requirements of AWI (Architectural Woodwork Institute) Quality Standards, Eighth edition for Premium Grade quality work.
- B. Dress and sand woodwork until free from machine and tool marks, abrasions, raised grain, or other defects that will show through the finish on surfaces exposed to view. Wherever possible, carry out sanding on a shop belt sander, not in the field. Sandpaper field joints and leave in perfect condition for finishing.
- C. Make all joints tight, and form to conceal shrinkage. Glue all miters having a dimension of 4 inches or more from heel to point. Joints shall be glued tight and so formed as to conceal shrinkage. Cope trim at returns and miter at corners to produce tight-fitting joints with full surface contact throughout length of joint.
- D. Make a minimum of splices and joints in running trim, and where such splices and joints occur, fasten securely, with all exposed surfaces having smooth, continuous planes. Stagger joints in adjacent or relate members. Use scarf joints for end-to-end joints.
- E. Scribe and cut work to fit adjoining work closely. Refinish cut surfaces in prefinished items.
- F. All nails in interior finished work shall be blind nailed wherever possible. Nail trim with finish nails only, set using appropriate nailpunch and fill with matching wood

filler. Sand smooth wood filler. Do not fasten trim with screws or bolts unless otherwise directed, or is to be subsequently covered with smaller trim.

- G. Woodwork shall be properly framed, closely fitted and accurately set to the required lines and levels and shall be rigidly secured in place. Shim using concealed shims to achieve specified tolerances.
- H. Cover exposed edges of plywood shelving with 3/8 inch hardwood edging. Width of edging to match thickness of shelving.

3.4 INSTALLATION - PREFABRICATED PRODUCTS INSTALLED UNDER THIS SECTION

- A. Do not commence installation of products until immediately adjacent surfaces have been completely installed and finished.
- B. Perform installation work in accordance with the approved shop drawings and the manufacturer's installation instructions.
- C. Install products absolutely level and in true line, with units securely anchored to the surrounding construction.
- D. Remove all tape and other packing materials; thoroughly clean and polish all exterior and interior surfaces.
- E. Touch-up all scratches and other surface defects, using same materials and colors as shop finish.

3.5 TOLERANCES

- A. Maximum variation for wood work from true position of 1/8 inch in 8 feet for plumb and level and with a maximum of 1/16 inch offsets in adjoining surfaces intended to be flush.
- B. Maximum variation for doors and frames: Maximum diagonal distortion 1/16 inch measured with straight edge, corner to corner.

3.6 ADJUSTING

- A. Adjust doors for smooth and balanced movement.

3.7 CLEANING

- A. Comply with requirements of Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for handling and disposition of all construction and demolition waste.
- B. Daily clean work areas by sweeping and disposing of scraps and sawdust.
- C. Upon completion of the work of this Section in any given area, remove tools, equipment and all rubbish and debris from the work area; leave area in broom-clean condition.
- D. Remove protective material from pre-finished surfaces.

3.8 PROTECTION

- A. During the operation of finish carpentry, protect the work of other trades against undue soilage and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged and soiled.

End of Section

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Section 07 81 00
APPLIED FIREPROOFING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Patch existing fireproofing disturbed or otherwise damaged by the Work.

1.3 RELATED REQUIREMENTS

- A. Section 01 73 29 - CUTTING AND PATCHING: Procedural and administrative requirements for cutting and patching.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM E84 – Standard Test for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E119 -Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 3. ASTM E605 - Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.
 - 4. ASTM E736 - Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
 - 5. ASTM E759/E759M - Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members
 - 6. ASTM E760/E760M - Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members.
 - 7. ASTM E761/E761M - Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members.
 - 8. ASTM E859 -Standard Test Method for Air Erosion of Sprayed Fire-Resistive Materials (SFRMs) Applied to Structural Members.

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9. ASTM E937/E937M - Standard Test Method for Corrosion of Steel by Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.
10. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
11. IAS AC291 – Accreditation Criteria for Special Inspection agencies.
12. UL - Fire Resistance Directory.
13. All applicable federal, state and municipal codes, laws and regulations for fire-resistant construction.

B. Definitions:

1. High Rise Construction: As defined by the International Building Code, 2018 edition, as published by the International Code Council, Inc. (I.C.C.), as revised by RISBC-1 Rhode Island Building Code.
2. Structural Steel Elements: Structural building components scheduled to receive SFRM including: built-up trusses, steel decking, form decking, beams, columns, cross-braces, and related structural steel.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. General: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

B. Scheduling:

1. The installation of ducts, piping, conduit or other suspended equipment shall not take place until the application of sprayed fire protection is complete in an area.

1.6 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties and limitations of fireproofing.
2. Test and Evaluation Reports:
 - a. Bond strength of fireproofing: ASTM E72, tested to provide minimum bond strength twenty times weight of fireproofing materials.
 - b. Fire test reports of fireproofing application to substrate materials similar to project conditions.
 - c. Reports from reputable independent testing agencies, of product proposed for use, which indicate conformance with ASTM E119 and ASTM E84
3. Manufacturer's Instructions and typical details: Indicate special application procedures or conditions.
4. Qualifications Data: For installer and testing agency.
5. Shop Drawings: Provide floor plans indicating fireproofing locations, ratings required, and types of fireproofing at each location.

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- B. Closeout Submittals: Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.
1. Certificates: Installers certificate stating that sprayed fireproofing has been completed in full accordance with requirements to provide necessary fire resistance ratings.
 2. Record Documentation: Installer's Field Reports stating environmental conditions during the installation of fireproofing materials, include temperature and humidity conditions.
 3. Bonds and Warranty Documentation:
 - a. Manufacturer's Warranties and Guarantees as specified elsewhere herein this Section.
 4. Special Inspections: Submit prior to request for Certificate of Occupancy, to both Architect and local Building Official having jurisdiction, the following:
 - a. All certifications, reports and programs required by the Rhode Island State Building code for applied fireproofing work performed under the requirements of this Section.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
- B. Sole Source: Obtain products required for the Work of this Section from a single manufacturer, or from manufacturers recommended by the prime manufacturer of fireproofing.
- C. Qualifications:
1. Installer/Applicator: Minimum of 3 years documented experience demonstrating previously successful work of the type specified herein, and approved by product manufacturer.
 2. Special Inspector of Sprayed Fire-Resistant Materials, Mastic and Intumescent Fire Resistant Coatings:
 - a. Special Inspector Agency: Independent third party hired directly by the General Contractor.
 - b. Special Inspector Agency (company and Individual) Qualifications: Comply with IAS AC291, and having the competence necessary to inspect the work of this Section 07 81 00.
 - c. The Special Inspector (individual) shall have a valid and current ICC Spray-Applied Fireproofing Special Inspector Certificate, or ICC Fire Inspector 1 Certificate with not less than 1 year related experience.

1.8 MOCK-UPS

- A. Provide mock-up under provisions of Section 01 45 00 - QUALITY CONTROL.
- B. Construct mockup as follows, conform to project requirements for fire ratings, thickness and density of application.
- C. Locate fireproofing patch mock-up where directed by Architect. Schedule mock-up installation with Owner's Project Representative for observation.

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- D. Examine installation within one hour of application to determine variance due to shrinkage, temperature and humidity.
 - 1. Where shrinkage and cracking are evident, adjust mixture and method of application as necessary then remove materials and reconstruct mockup.
 - E. Accepted mockup may remain as part of the work.
 - 1. Keep accepted mock-up installation open for observation as criteria for sprayed-on fireproofing work.
 - 2. Protect mock-up from damage until Project Substantial Completion.
- 1.9 DELIVERY, STORAGE AND HANDLING
- A. Delivery and Acceptance Requirements:
 - 1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
 - 2. Deliver materials, factory proportioned and mixed, in original, unopened packages bearing the name of the product, manufacturer's name, plant identification, lot number and Underwriter's Laboratories, Inc. label.
 - B. Storage and Handling Requirements:
 - 1. Store and handle materials following manufacturer's recommended procedures, and in accordance with material safety data sheets.
 - 2. Store all materials in an elevated dry location, protected by waterproof coverings.
 - 3. Protect materials from damage due to moisture, direct sunlight, excessive temperatures, surface contamination, corrosion and damage from construction operations and other causes.
 - C. Damaged material: Remove any damaged or contaminated materials from job site immediately, including materials in broken packages, packages containing water marks, or show other evidence of damage.
- 1.10 SITE CONDITIONS
- A. Do not apply spray fireproofing when ambient temperature or surface temperature of substrate material is below 40 degrees Fahrenheit.
 - B. Provide ventilation in areas to receive fireproofing during and 24 hours after application, to cure fireproofing material.
- 1.11 WARRANTY
- A. General: Submit warranties under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.
 - B. Special Warranty: Provide 2 year warranty or bond which shall include failure of fireproofing, including: cracking, checking, dusting, flaking, spalling, separation and blistering. Failure to provide such performance will require re-installation to repair to satisfaction of Owner at no additional cost.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Carboline, Fireproofing Products, St. Louis MO. ("Carboline")
 2. GCP Applied Industries, Cambridge, MA. ("GCP")
 3. Isolatek International, Inc. "CAFCO", Stanhope NJ.
 4. Southwest Fireproofing Products Co. (*Division of Carboline*), Albuquerque, NM ("Southwest").
 5. Vellrath Engineering, Pequabuck, CT.

2.2 DESCRIPTION

- A. General: fireproofing, factory proportioned and mixed meeting the following requirements:
1. Fireproofing materials shall be free of all forms of asbestos, including actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite. Material manufacturer shall provide certification of such upon request.
 2. Fireproofing materials shall not be subject to losses from finished application by sifting, flaking or dusting.
 3. Fireproofing shall not deform more than 10 percent under 500 pound per square foot compressive forces in accordance with ASTM E761.
 4. Bare, shop-coated, and galvanized steel sheets with the fireproofing applied shall be kept at 90 degrees Fahrenheit and 70 percent relative humidity for 240 hours without evidence of corrosion of steel, tested in accordance with ASTM E937.
 5. Corrosion Resistance: When tested in accordance with ASTM E937, the material shall not promote corrosion of steel.
 6. Combustibility: Fireproofing material shall have a maximum total heat release of 20 MJ/m² and a maximum 125 kw/m²² peak rate of heat release 600 seconds after insertion when tested in accordance with ASTM E1354 at a radiant heat flux of 75 kw/m² with the use of electric spark ignition. The sample shall be tested in the horizontal orientation.
 7. Surface Burning Characteristics: When tested in accordance with ASTM E84, the material shall exhibit the following surface burning characteristics:
 - a. Flame Spread 10
 - b. Smoke Developed 0
- B. Regulatory Requirements:
1. Provide under Section 01 45 29 - TESTING LABORATORY SERVICES: Certification by an independent testing laboratory acceptable to the Owner, that materials, dry densities, thickness, and application procedures satisfy the requirements of the governing laws, building code, and UL requirements, with respect to the minimum protection requirements specified herein when tested in accordance with ASTM E119.

2.3 PERFORMANCE/DESIGN CRITERIA

- A. Materials, procedures for application, dry densities, and thicknesses necessary to provide the required protection shall be tested and rated by UL in accordance with the procedures of UL 263 (ASTM E119) for the uses indicated
- B. The UL listing for each fire rated assembly must state that the superimposed load used in the test was determined by Allowable Stress Design Method or Load and Resistance Factor Design Method. UL listings with a Load Restriction are not allowed.
- C. Fire ratings interpolated or extrapolated from actual test data will not be acceptable. Provide evidence prior to application that proposed materials, installation methods and materials have been approved by all authorities having jurisdiction.
- D. Thickness and density: Thickness and dry density of fire protection material shall be according to the manufacturer’s data and UL requirements to provide ratings matching original building fire resistant requirements.

2.4 HAND-PATCH FIREPROOFING

- A. Basis of Design (Specified Manufacturer): To establish a standard of quality, design and function desired, Drawings and specifications have been based on Vellrath Engineering, Pequabuck, CT., product “Universal Fireproofing Patch”.
 - 1. Acceptable Alternative Products: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - a. Vellrath: product “Universal Fireproofing Patch”.
 - 1) Maximum patch area limit: 432 square inches.
 - b. Southwest: product: Same as spray-fireproofing used, batch mixed for hand-patching application.
 - 1) Maximum patch area limit: 144 square inches.
 - c. GCP: product: “Monokote MK”
 - 1) Maximum patch area limit: 144 square inches.
 - d. CAFCO: product: “Caico Fiber-Patch”
 - 1) Maximum patch area limit: 432 square inches.
 - e. Southwest: product: Same as spray-fireproofing used, batch mixed for hand-patching application.
 - 1) Maximum patch area limit: 144 square inches.

B. Performance Criteria:

1. Performance Criteria:

| Property | Test Method | Test value/results |
|-------------------|-------------|-----------------------------------|
| Dry Density | ASTM E605 | 38 lb/ft, minimum |
| Adhesion Strength | ASTM E736 | 2745 lb/ft ² , minimum |

2.5 ACCESSORIES

- A. Potable water shall be used for the application of sprayed fireproofing materials.

- B. Adhesive:
 - 1. Bonding adhesive for fibrous materials as recommended and supplied by the fireproofing material manufacturer. Adhesive may be an integral part of the material or applied separately to surface receiving fireproofing material.
- C. Mold Inhibitor: Mold inhibitor shall be added to fireproofing materials in accordance with manufacturer's instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
 - 1. Inspect all surfaces and verify that they are in proper acceptance of existing substrate and site conditions.
 - a. Contact fireproofing manufacturer for procedures on handling primed / painted steel.
 - b. Ensure clips, hangers, supports, sleeves and other attachments to the substrate are placed by others prior to the application of spray-applied fire resistive materials.
 - 2. Beginning of installation means acceptance of existing substrate and project conditions.

3.2 PREPARATION

- A. Close and seal ductwork in areas where fireproofing is being applied.
- B. Protection of In-situ Conditions: Protect adjacent surfaces and equipment from damage by overspray and dusting. Mask adjacent work as required. Clean, or repair all existing materials which are soiled or otherwise damaged by Work of this Section, to match original profiles and finishes. Existing materials and finishes which cannot be cleaned, or repaired shall be removed and replaced with new work to match existing.
- C. Surface Preparation:
 - 1. Clean substrate of dirt, dust, grease, oil, loose material, or other matter which may effect bond of fireproofing.
 - 2. Remove incompatible materials which affect bond by scraping, brushing, scrubbing, or sandblasting. Repair or replace any work so damaged and soiled.

3.3 MIXING AND APPLICATION

- A. Mixing shall conform to manufacturer's written instructions.
- B. Materials and equipment shall be as approved by the materials manufacturer. Application shall be by licensed manufacturer's applicators. Procedures shall be in strict accordance with said manufacturer's directions and specifications. Only experienced, skilled mechanics approved by the materials manufacturer shall be allowed to place the materials. A qualified manufacturers representative shall be present for initial application to guide and assist applicator's personnel.

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- C. Work shall comply with applicable UL standards in addition to the requirements imposed by the applicable laws and codes, for the indicated ratings, including local pollution control regulations.
- D. After completion of fireproofing work, equipment shall be removed and all surrounding wall and floor areas cleaned of deposits of fireproofing materials.

3.4 REPAIR

- A. Patch all areas of testing and any area where fireproofing has been damaged or removed during construction.

3.5 FIELD QUALITY CONTROL

- A. Perform the tests and inspections of completed Work in successive stages. Do not proceed with application of fireproofing for the next area until test results for previously completed applications of fireproofing show compliance with requirements. Tested values must equal or exceed values as specified and as indicated and required for approved fire-resistance design.
 - 1. Prior to fireproofing application, verify surface preparation is in accordance with the written instructions of the approved manufacturer.
 - 2. Verify substrate temperature before and after application is in accordance with the written instructions of the approved manufacturer.
 - 3. Verify ventilation of area before and after application is in accordance with the written instructions of the approved manufacturer.
 - 4. Measure average thickness per ASTM E605 and International Building Code, Chapter 17.
 - 5. Determine density in accordance with ASTM E605 and International Building Code, Chapter 17.
 - 6. Determine cohesive/adhesive bond strength in accordance with ASTM E736 and International Building Code, Chapter 1.
 - a. Test bond strength to primed steel, painted steel and unpainted steel, as appropriate to project.
 - 7. Test for bond impact strength: ASTM E760.
- B. Ensure that applied fireproofing remains exposed to view until verification inspections and testing is made and approval of applied fireproofing is obtained. All costs for removal and replacement of prematurely installed materials to allow inspection of fireproofing shall be borne by the Contractor.
- C. Fireproofing will be considered defective if it does not pass tests and inspections.
 - 1. Remove and replace fireproofing that does not pass tests and inspections, and retest.
 - 2. Apply additional fireproofing, per manufacturer's written instructions, where test results indicate insufficient thickness, and retest.
- D. Inspection and testing shall verify that applied thickness and density meets manufacturer's tested requirement standards for required fire-resistance ratings.
 - 1. Where samples fail to meet thickness, quality, or dry density requirements, further sampling and testing will be required in the area of deficient sample. If such further testing indicates a deficient area, correction shall be made by the

application of additional material or removal and replacement of faulty material.

3.6 CLEANING

- A. Daily clean work areas by sweeping and disposing of debris. Place waste material in suitable bags or containers, and remove from site.
- B. Upon completion of the work of this Section in any given area, clean walls, floors (including bare concrete slabs) and surrounding surfaces of overspray and drippings. Remove tools, equipment and all rubbish and debris from the work area; leave area in broom-clean condition.
- C. Waste Management:
 - 1. Recycle or dispose of off-site waste materials and trash at intervals approved by the Owner and in compliance with waste management procedures specified in Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

End of Section

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Section 07 84 00

FIRESTOPPING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install fireproof firestopping, firesafing materials, smoke seals and related accessories required for this Project for all penetrations through fire resistance rated construction, including, but not limited to, penetrations for plumbing, fire suppression, heating, ventilating and air conditioning, electrical systems, technology systems, and specialized equipment.
 - 1. Fire resistance rated construction requiring firestopping includes, but is not limited to: floors, rated partitions, smoke barriers, smoke partitions, partitions in rated corridors, passageways and stairs, shaft partitions, shaft wall (vertical and horizontal), area separation fire walls, party wall systems, and temporary fire resistant rated partitions and barriers.
 - 2. Provide removable temporary firestopping pillows to maintain fire integrity prior to Owner's final acceptance, to permit installation of electrical, telephone, data, technology, and sound system wiring. Replace temporary firestopping with permanent, after wiring systems are completed.
- B. Furnish and install firestopping/smoke seals at construction joints occurring at tops of fire resistance rated partitions, smoke partitions, and temporary partitions between top of partition and underside of deck above.
- C. Furnish and install all firestopping, firesafing, and smoke seals at perimeter of floor/roof construction and exterior wall systems, as indicated and where required by applicable codes.
- D. Furnish and install all firestopping, firesafing, and smoke seals at expansion joints in chase walls where expansion joints are not exposed to view.
- E. Furnish and install all firestopping, firesafing, and smoke seals where required by applicable codes and as additionally required by authorities having jurisdiction at no additional cost to the Owner.

1.3 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.

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- C. Division 21 - FIRE SUPPRESSION: Fire protection system penetrations through fire resistance rated construction.
- D. Division 22 - PLUMBING: Plumbing system penetrations through fire resistance rated construction.
- E. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Heating, ventilating and air conditioning system penetrations through fire resistance rated construction.
- F. Division 26 - ELECTRICAL: Electrical penetrations through fire resistance rated construction.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E119 - Method for Fire Tests of Building Construction and Materials.
 - 3. ASTM E814 - Test Method of Fire Tests of Through-Penetration Firestops.
 - 4. ASTM E2174 - Standard Practice for On-site Inspection of Installed Fire Stops.
 - 5. ASTM E2393 - Standard Practice for On-site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers.
 - 6. NFPA 70 - National Electrical Code.
 - 7. UL - Fire Resistance Directory.
 - 8. UL 1479 - Fire Tests of Through Penetration Firestops.

1.5 PERFORMANCE REQUIREMENTS

- A. Provide materials and work to conform to Building Code Requirements in fire resistant wall and floor assemblies.
- B. Manufacturer's certified product test requirements:
 - 1. All firestop/smokeseal material shall be tested by a recognized, independent testing agency and shall conform to both Flame (F-rating) and Temperature (T-rating) requirements of ASTM E814.
 - 2. Conform to UL Fire Hazard Classification Requirements.
 - 3. Tested and classified non-combustible per ASTM E84.
- C. Firestops in place shall be of sufficient thickness, width, and density to provide a fire resistance rating at least equal to the floor, wall, or partition construction into which it is installed.
- D. Non-combustible dams shall be constructed:
 - 1. As necessary to achieve fire rating as tested and rated.

2. In conformance with installation requirements for type of floor, wall, and partition construction.
3. As recommended by firestop/smokeseal manufacturer.

E. Combustible damming materials, if used, must be removed after proper curing.

1.6 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Literature: Manufacturer's product data sheets, specifications, performance data, and physical properties.
 - a. Indicate requirements for manufacturer's descriptive data for products and related materials with FM, UL or Warnock-Hersey illustrations showing systems and approval of materials in systems.
2. Certification: Manufacturer's written certification stating that firestopping materials, meet or exceed the requirements specified under this Section and that all fire-resistive requirements for the indicated combustibility, Flame (F-rating) and Temperature (T-rating) Ratings have been met.
3. Manufacturer's installation instructions.
4. Test reports: Submit fire test reports from recognized, independent testing agent(s) indicating the following:
 - a. Fire test report of firestop material applied to substrate and penetration materials similar to project conditions. Tests to indicate both Flame (F-rating) and Temperature (T-rating) Ratings.
 - b. Test reports of products to be used shall indicate conformance to ASTM E-814.
5. On-site sample installation to be included in Work: Minimum thirty days prior to application in any area, provide samples of firestop and smoke seal materials and installation in accordance with the following requirements.
 - a. Apply one sample of appropriate firestop and smoke seal material for each different penetration and fire rating required for the work.
 - b. Sample areas will comply with thickness, fire resistance ratings, and finished appearance of the project and applicable fire code.
 - c. Acceptance samples will constitute standard of acceptance for method of application, thickness, and finished appearance for firestop and smoke seal application. The sample(s) shall remain visible during completion of the work and shall remain as part of the completed work.
6. Shop drawings indicating requirements for penetrations in wall/deck intersections, change of planes, control joints, expansion joints and blank openings.

1.7 QUALITY ASSURANCE

- A. Obtain firestop and smoke seal products from a single manufacturer, except as otherwise approved by Architect.
- B. Notify the Architect where conflicts apply between referenced standards, specified materials, and methods of construction.

- C. Special Inspections: Allow for 3 percent of each type of firestopping system to be removed and inspected for conformance with approved submittals.
 - 1. All firestopping shall be inspected prior to installation of suspended ceilings or concealed by other materials.

1.8 QUALIFICATIONS

- A. Installer, a specialized subcontractor having not less than 3 years documented experience demonstrating previously successful work of the type specified herein.
 - 1. The manufacturer of the firestop material shall submit written certification that the firm to be used for the firestop products has been trained in the application of the products by the manufacturer.

1.9 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire resistance ratings and surface burning characteristics.
- B. Obtain certificate of compliance from authority having jurisdiction indicating approval of combustibility.

1.10 MOCK-UPS

- A. Provide mock-ups under provisions of Section 01 45 00 – QUALITY CONTROL for purpose of verifying quality of firestop installation
- B. Provide firestop samples and locate as directed. Accepted samples may remain as part of the work.

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store firestopping materials in original, sealed, packages showing manufacturer's identification and date of packaging.
- B. Store and handle materials following manufacturer's recommended procedures, and in accordance with material safety data sheets.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering similar products include the following:
 - 1. Bio Fireshield, Inc., Concord, MA.
 - 2. Dow Corning Corporation, Midland, MI.
 - 3. Hilti Corporation, Tulsa, OK.
 - 4. 3M Company, Saint Paul, MN.
 - 5. Specified Technologies, Inc., Somerville, NJ.
 - 6. Metacaulk, (The Rectorseal Corporation), Houston, TX.
 - 7. Tremco, Inc., Cumberland, RI.
 - 8. Thermafiber, Inc., Wabash, IN.

9. John Manville Corp (A Berkshire Hathaway Co.), Denver, CO.

2.2 MATERIALS

- A. Mineral fiber / ceramic wool non-combustible fire safing: Provide Thermafiber, Inc. product "Thermafiber" having a minimum density of 4 pounds per cubic foot, Tremco, Inc., product "FBX Safing Insulation", having a minimum density of 4 pounds per cubic foot, or provide John Manville Corp product "Ceramic Fiber Insulation" having a minimum density of 6 pounds per cubic foot, or approved equal product to suit conditions and complying with firestop manufacturer's requirements.
 1. Provide galvanized steel safing clips for installation of insulation.
 2. Material shall be classified non-combustible per ASTM E-814.
- B. Intumescent firestop sealant and caulks: Acrylic based, water resistant sealant, which will not re-emulsify after drying.
 1. Acceptable products:
 - a. Bio Fireshield, Inc., product "Biostop 500".
 - b. Specified Technologies, Inc., product "Spec Seal Triple-S Sealant".
 - c. 3M Company, product "Fire Barrier Caulk CP25WB+".
 - d. Tremco Inc., product "Tremstop 1A".
- C. Firestop putty: Sticks or pads.
 1. Acceptable products:
 - a. Bio Fireshield, Inc., product "Moldable Putty",
 - b. Specified Technologies, Inc., product "Spec Seal Putty Bars and Pads".
 - c. 3M Company, product "Fire Barrier Moldable Putty".
 - d. Tremco Inc., product "Flowable Putty"
- D. Silicone Firestop sealant: Single component, non-combustible silicone elastomer firestop sealant, U.L. classified as a "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM E-814/UL1479.
 1. Acceptable products:
 - a. Bio Fireshield, Inc., product product "Biotherm 100" (Gun Grade) or "Biotherm 200" (Self Leveling).
 - b. Specified Technologies, Inc., product "Spec Seal Pensil 300 Sealant (gun grade)" or "Spec Seal Pensil 300SL" (Self Leveling).
 - c. 3M Company, product "Fire Barrier Silicone Sealants".
 - d. Tremco Inc., product product "Tremsil" (Gun Grade) or "Tremsil S/L" (Self Leveling).
 2. Sealants will not dissolve in water.
- E. Firestop mortar: Asbestos free, cementitious mortar, U.L. classified as a "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM/UL1479.
 1. Acceptable products:
 - a. Bio Fireshield, Inc., product "Novasit K-10".
 - b. Specified Technologies, Inc., product "Spec Seal Mortar".

- c. Tremco Inc., product "Tremstop M".
- F. Firestop pillows: UL Classified as "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM E-814/UL1479.
 - 1. Acceptable products:
 - a. Bio Fireshield, Inc., product "Fireshield Firestop Pillows"
 - b. Specified Technologies, Inc., product "Spec Seal Pillows".
 - c. Tremco Inc., product "Tremstop P.S".
- G. Wrap strips:
 - 1. Acceptable products:
 - a. Bio Fireshield, Inc., product "FS-195"
 - b. Specified Technologies, Inc., product "Spec Seal Wrap Strip".
 - c. 3M Company, product "Fire Barrier FS195 Wrap Strip".
 - d. Tremco Inc., product "Tremco W.S".
- H. Firestop collars: Pre-manufactured fire protective pipe sleeve, UL classified as "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM E-814/UL1479.
 - 1. Provide separated (two piece) firestop collar for application when plastic pipe system is already in place. Provide non-separated firestop collar for application prior to installation of plastic pipe system.
 - 2. Acceptable products:
 - a. 3M Company, Inc., product "Fireshield Firestop Sleeve"
 - b. Specified Technologies, Inc., product "Spec Seal Collars".
 - c. 3M Company, product "Fire Barrier PPD's".
 - d. Tremco Inc., product "Fyrecan sleeve"
- I. Elastomeric Firestopping: Non halogenated latex based elastomeric coating applied by airless spray, Specified Technologies, Inc., product "Spec Seal Elastomeric Firestop Spray".

2.3 ACCESSORIES

- A. Forming and damming materials: Mineral fiberboard or other type as recommended by firestopping manufacturer.
- B. Primer, sealant and solvents: As recommended by manufacturer.
- C. Woven wire mesh: Galvanized 20 gage woven wire mesh "chicken wire" or "poultry fencing", 1 inch spacing.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where firestops are to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface to receive firestops shall be free of dirt, dust, grease, oil, form release agents, or other matter that would impair the bond of the firestop material to the substrate or penetrating item(s).
- B. Voids and cracks in substrate shall be filled and unnecessary projection removed prior to installation of firestops.
- C. All penetrating items shall be permanently installed prior to firestop installation.
- D. Substrate shall be frost, free and, when applicable, dry.

3.3 INSTALLATION

- A. General
 - 1. Installation of firestops shall be performed by applicators/installers qualified and trained by the manufacturer. Installation shall be performed in strict accordance with manufacturer's detailed installation procedures.
 - 2. Apply firestops in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturer's recommendations. Meet building code requirements.
 - 3. Coordinate with plumbing, mechanical, electrical, and other trades to assure that all pipe, conduit, cable, and other items which penetrate fire rated construction have been permanently installed prior to installation of firestops. Schedule and sequence the work to assure that partitions and other construction which would conceal penetrations are not erected prior to the installation of firestops.
 - a. Ensure that all firestopping is inspected prior to installation of suspended ceilings or concealed by other finished materials.
- B. Dam construction
 - 1. Install dams when required to properly contain firestopping materials within openings to achieve required fire resistance rating. Combustible damming material must be removed after appropriate curing. Incombustible damming material may be left as a permanent component of the firestop system.
 - 2. Placement of dams shall not interfere with function or adversely affect the appearance of adjacent construction.
- C. Installation of single component silicone firestop
 - 1. Apply with manual or powered caulking gun.
 - 2. Apply minimum 1/2 inch thickness for 2 hour rating. Apply 1/2 inch to both sides of wall penetrations; one side only in floor penetrations.
 - 3. Use incombustible insulation to achieve fire resistance rating.
 - 4. Surface of gun grade silicone firestop may be tooled using clean, potable water.
 - 5. Clean excess material off of adjacent surfaces and tools within 10 minutes using either water or Xylol where the use of such would not be hazardous.
- D. Installation of cementitious firestop mortar.

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1. Add dry powder to water and mix with mechanical mixer or hand mixing tools as recommended by firestop mortar manufacturer. Allow a average mixing time is 3 minutes and provide a average wet density of 70 pounds per cubic foot, plus or minus 5 PCF.
2. Do not apply if ambient or substrate temperature is less than 35 degrees Fahrenheit during 24 hours after application.
3. Wet all surfaces prior to application of firestop mortar.
4. Mortar may be hand applied or pumped into the opening.
5. Exposed surfaces shall be finished using conventional plastering tools prior to curing.
6. When installation around layered cables, it is recommended to increase the fluidity of the firestop mortar to provide a better fill around the cables. Vibrate or move the cables slightly to prevent voids from forming between the cables.
7. Allow 48 hours for initial cure prior to form removal. For full cure allow 27 days.
8. Wet material may be cleaned with water. Dry material may require scraping or chipping.

E. Installation of firestop collars (plastic pipe only)

1. Firestop collars may be surface mounted to a slab or wall or imbedded in Firestop Mortar to a maximum depth of 2 inches.
2. For wall penetrations with ABS pipe firestop collars must be installed on both sides of the penetration to provide a 2 hour F and T Rating. All other applications required installation on one side only to provide a 2 hour F and T Rating.

F. Firesafing insulation: Install firestopping safing insulation on safing clips spaced as needed between each stud and floor slab, leaving no voids. Secure safing clips to slab using fasteners recommended by insulation manufacturer. Install sealant over mineral wool in accordance with test requirements.

3.4 FIELD QUALITY CONTROL

- A. Inspecting Agency: Subcontractor will engage a qualified independent inspecting agency to inspect through-penetration firestop systems and to prepare test reports.
 1. Inspecting agency will state in each report whether inspected through-penetration firestop systems comply with or deviate from requirements.
- B. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued.
- C. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

3.5 SCHEDULE

- A. General: Typical penetrations are indicated below with list of standard firestopping/smokeseal approaches. Actual firestopping materials and combination of materials will vary with size of penetration and with individual firestopping manufacturer's approved UL Design System Requirements. Use only UL Design

System materials for each penetration that best matches the wall and floor construction.

1. Where penetrations occur for which no listed UL or WH Design System test exists, obtain from the firestop system manufacturer an engineered system acceptable to the authorities having jurisdiction for firestopping such penetrations. Engineered system from manufacturer shall include a detail drawing showing the engineered system and shall contain no disclaimers.
- B. Single metal pipe (non-insulated) and conduit penetrations through floors:
1. Firestop mortar.
 2. Silicone Firestop sealant.
 3. Intumescent firestop sealant.
 4. Firestop putty, sticks or pads.
 5. Mineral fiber / ceramic wool non-combustible insulation (fire safing) in conjunction with a firestop sealant.
- C. Single metal pipe (non-insulated) and conduit penetrations through walls:
1. (masonry and concrete walls only) Firestop mortar and putty.
 2. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 3. Intumescent firestop sealant with wrap strips.
- D. Multiple metal pipe and conduit penetrations through floors:
1. Firestop mortar and wrap strips.
 2. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
- E. Multiple metal pipe and conduit penetrations through walls:
1. Firestop mortar and putty.
 2. (through masonry walls only) Firestop pillows with woven wire mesh.
 3. Silicone Firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
- F. Insulated metal pipe penetrations through floors:
1. Firestop mortar and wrap strips.
 2. Silicone Firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 3. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 4. Silicone Firestop sealant over wrap strip
 5. Mineral fiber / ceramic wool non-combustible insulation (fire safing) in conjunction with a firestop sealant.
- G. Insulated metal pipe penetrations (single and multiple) through walls:
1. Firestop mortar with wrap strips.
 2. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).

3. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing) and Wrap strips.
 4. (multiple penetrations through masonry walls only) Firestop pillows with woven wire mesh.
- H. Duct penetrations through floors or walls:
1. Rectangular and square ducts: Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing), and steel flanges provided under Division 15.
 2. Round ducts: Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
- I. Combustible plastic pipe and conduit penetrations through floors:
1. Firestop mortar with wrap strips.
 2. Firestop mortar with firestop putty and firestop collars.
 3. Silicone firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 4. Silicone firestop sealant and firestop collars.
 5. Intumescent firestop sealant and firestop collars.
 6. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing) with firestop collars.
 7. (maximum pipe size 2 inches) Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing) with wrap strips.
- J. Combustible plastic pipe and conduit penetrations through walls:
1. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 2. Intumescent firestop sealant with firestop collars.
- K. Cable penetrations through floors:
1. Silicone Firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 2. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
- L. Cable penetrations through walls:
1. Silicone Firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 2. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 3. (single penetrations only) Firestop putty.
 4. (electrical boxes) Firestop pads.
 5. Firestop putty over mineral fiber / ceramic wool non-combustible insulation (fire safing).
- M. Cable tray penetrations:
1. (floors only) Firestop mortar.

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2. Firestop pillows with woven wire mesh containment, and Firestop putty, sticks or pads for filling voids.
 3. Firestop pillows with woven wire mesh containment, and Firestop mortar at perimeter and firestop putty, sticks or pads for filling voids.
- N. Bus ducts through floors:
1. Firestop mortar and wrap strips.
 2. Intumescent firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing) and 28 gage (minimum) steel cover plate.
- O. Blank openings:
1. Firestop mortar.
 2. Silicone Firestop sealant over mineral fiber / ceramic wool non-combustible insulation (fire safing).
- P. Fire rated joints:
1. Silicone Firestop sealant over backer rod or bond breaker.
- Q. Construction joints at head of wall/floor assemblies:
1. Silicone Firestop sealant/mastic over mineral fiber / ceramic wool non-combustible insulation (fire safing).
 2. Elastomeric spray over mineral fiber / ceramic wool non-combustible insulation (fire safing).
- R. Smoke barrier sealant for dampers, fire door frames:
1. Silicone Firestop sealant.
- S. Temporary sealing of openings and penetrations:
1. Firestop putty, sticks or pads.
 2. Firestop pillows.
 3. Floor slab to exterior wall.

End of Section

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Section 07 92 00
JOINT SEALANTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. General: The work of this Section consists of sealants and backing materials where shown on the Drawings, as specified herein, and required for a complete and proper installation.
 - 1. This Section specifies general requirements, definition of joint sealer types, and application requirements for sealant work specified within other individual specification sections.
- B. Prepare sealant substrate surfaces.
- C. Furnish and install sealant and backing.

1.3 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- C. Section 07 84 00 - FIRESTOPPING: Firestopping Sealants and related backing materials.
- D. Section 09 29 00 - GYPSUM BOARD: Installation of wall board construction.
- E. Section 09 91 00 - PAINTING: Caulks used in preparation of applied finish coatings.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM C717 - Standard Terminology of Building Seals and Sealants.
 - 2. ASTM C790 – Guide for Use of Latex Sealants.

3. ASTM C804 - Use of Solvent-Release Type Sealants.
4. ASTM C834 - Latex Sealing Compounds.
5. ASTM C919 - Use of Sealants in Acoustical Applications.
6. ASTM C920 - Elastomeric Joint Sealants.
7. ASTM C962 - Use of Elastomeric Joint Sealants.
8. ASTM C1085 - Butyl Rubber Based Solvent Release Sealants.
9. ASTM C1193 - Guide for Use of Joint Sealants.
10. ASTM C1247 - Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids.
11. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints.
12. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
13. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.

B. The following reference materials are hereby made a part of this Section by reference thereto:

1. SWRI – Sealant and Caulking Guide Specification.

1.5 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Literature: Manufacturer's product data sheets, specifications, performance data, chemical and physical properties and installation instructions for each item furnished hereunder.
2. Manufacturer's certification that the Products supplied meet or exceed specified requirements.
3. Selection samples: Sample card indicating Manufacturer's full range of colors available for selection by Architect
4. Verification samples: 12 inch long samples of sealant for verification of color, installed where directed by Architect.
5. Test and Evaluation Reports:
 - a. Compatibility and adhesion test reports: Test reports from sealant manufacturer indicating that sealant proposed for use have been tested for compatibility and adhesion with actual samples of substrates to be used on this project. Include sealant manufacturer's interpretation of test results, and recommendations for primers and substrate preparation specific to this Project.

1.6 QUALITY ASSURANCE

- A. Applicator specializing in applying the work of this Section with a minimum of 3 years documented experience approved by sealant manufacturer.
- B. Obtain joint sealers from a single manufacturer for each type specified. Conform to SWRI requirements for installation.

- C. Qualifications:
1. Installer/Applicator: Minimum of 3 years documented experience demonstrating previously successful work of the type specified herein.
 2. Testing Agencies: To qualify for acceptance, an independent testing laboratory must demonstrate to Architect's satisfaction that it has the experience and capability to conduct satisfactory testing indicated without delaying progress of the Work.
- D. Preconstruction Compatibility and Adhesion Testing: Submit samples of all materials that will contact or affect joint sealers to joint sealer manufacturers for compatibility and adhesion testing, as indicated below:
1. Use test methods standard with manufacturer to determine if priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealers to joint substrates.
 - a. Perform tests under normal environmental conditions that will exist during actual installation.
 2. Contractor shall submit for testing, and sealant manufacturer shall test at least 9 pieces of each type of material, including joint substrates, shims, and joint backer rods.
 3. Schedule testing so that it does not delay the work.
 4. Investigate materials failing these tests and obtain joint sealer manufacturer's written recommendations for corrective measures, including use of specially formulated primers.
 5. The Architect may waive part or all of these specific testing requirements if the sealant manufacturer is able to provide written certification, demonstration to the Architect's satisfaction, that sealant and substrates are compatible and that sealant performance and adhesion will not be compromised by project conditions.
- E. Product Testing: Provide comprehensive test data for each type of joint sealer based on tests conducted by a qualified independent testing laboratory on current product formulations within 24-month period preceding date of Contractor's submittal of test results to Architect.
1. Test elastomeric sealant for compliance with requirements specified by reference to ASTM C920. Include test results for hardness, stain resistance, adhesion and cohesion under cyclic movement (per ASTM C719), low-temperature flexibility, modulus of elasticity at 100% strain, effects of heat aging, and effects of accelerated weathering.
 2. Include test results performed on joint sealers after they have cured 1 year.
- F. Preconstruction Field Testing: Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:
1. Locate test joints where indicated or, if not indicated, as directed by Architect.
 2. Conduct field test for each type of elastomeric sealant and joint substrate indicated.
 3. Arrange for tests to take place with both Architect and joint sealer manufacturer's technical representative present.
 4. Test Method: Test joint sealers by hand pull method described below:

- a. Install joint sealant in 5-foot joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealant to cure fully before testing.
 - b. Make knife cuts as follows: A horizontal cut from one side of joint to the other followed by 2 vertical cuts approximately 2 inches long at side of joint and meeting horizontal cut at top of 2 inch cuts. Place a mark 1 in. from top of 2 inch piece.
 - c. Use fingers to grasp 2 inch piece of sealant above 1 in. mark; pull firmly down at 90 degree angle or more while holding a straightedge along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
5. Evaluation of field test results:
- a. For sealant evidencing adhesive failure, determine if primer is required. If so, re-test using primer.
 - b. Sealant not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory.
 - c. Do not use sealant which fails to adhere to joint substrates during testing.
6. Submit report to Architect with description of test, results, and recommended installation procedures to obtain proper adhesion.
- a. Report whether or not sealant in joint connected to pull-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Each container and package must bear an unbroken seal, test number and label of the manufacturer upon delivery to the site. Failure to comply with these requirements shall be sufficient cause for rejection of the material in question, by the Architect and his requiring its removal from the site. New material conforming to said requirements, shall be promptly furnished at no additional cost to the Contract.

1.8 PROJECT CONDITIONS

- A. Do not install single component solvent curing sealant in enclosed building spaces.
- B. Environmental Requirements: Maintain temperature and humidity recommended by the sealant manufacturer during and 24 hours after installation. Do not proceed with installation of joint sealers under the following conditions:
 1. When ambient and substrate temperature conditions are below 40 degrees F.
 2. When joint substrates are wet due to rain, frost, condensation, or other causes.
- C. Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from substrates.

1.9 WARRANTY

- A. Furnish the following warranties under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS, and in compliance with Section 01 78 36 – WARRANTIES:
1. Warranties shall be effective starting from Date of Project Substantial Completion and are effective for specified term lengths.
- B. Manufacturer's warranties shall guarantee sealants installed are free of manufacturing defects and conforms to the published physical properties and referenced standards effective at time of installation.
1. Sealant performance: Manufacturer's warranties shall include coverage for the following listed failures, when sealants are applied in accordance with manufacturer's written instructions. Warranty to include coverage for:
 - a. Sealant will not become brittle, tear or crack due to normal exposure or normal expansion or contraction.
 2. Warranty period:
 - a. Silicone sealants on vertical surfaces: 20 years.
 - b. Urethane sealants on vertical surfaces: 5 years.
 - c. Urethane sealants on horizontal surfaces: 5 years.
- C. Special Manufacturer's Warranty - Five years from date of Substantial Completion manufacturer agrees to furnish material only to repair or replace those joint sealants that do not comply with the performance or other specified requirements in the Section. Warranty: Include coverage of installed sealants that fail to achieve air tight and watertight seal, exhibit loss of cohesion or adhesion, or do not cure. Include coverage of sealants that revert to an uncured state. Warranty shall be transferable with no dollar limit and shall be non-pro-rated. Warranty shall not require Owner's signature to be effective.
- D. Special Installer's Warranty: Provide 3 year warranty or bond which shall include coverage of installed sealant and accessories which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
1. Installer's warrant shall include coverage for sealant that fails cohesively or adhesively. Installer agrees to provide material and labor to repair or replace joint sealants that do not comply with the performance or other specified requirements in the Section.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Specified Manufacturers and Products: To establish a standard of quality, design and function desired, Drawings and specifications have been based on the products specified under this section for each individual sealant type, for the applications scheduled at the end of Section, and as may be additionally identified on the Drawings.
- B. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Bostik, Inc., Wauwatosa, WI.

2. Dow Corning Corporation, Auburn MI.
3. GE Construction Sealants, Huntersville, NC. (GE)
4. Master Builders Solutions Construction Systems US, LLC., Shakopee, MN (Master Builders).
5. Momentive Performance Materials (GE Silicones), Waterford NY.
6. Owens Corning, Toledo, OH.
7. Pecora Corporation, Harleysville PA.
8. Phenomenal Brands, Baltimore, MD.
9. Sika Corp, Lyndhurst NJ.
10. Specified Technologies, Inc. (STI), Somerville NJ.
11. Tremco, Inc., Beachwood OH.

2.2 SEALANT MATERIALS

- A. Joint Sealer Type AA (Acrylic acoustical): One component acrylic latex, permanently elastic, non-staining, non-shrinking, non-migrating and paintable.
1. Owens Corning, product: "QuietZone Acoustical Sealant."
 2. Pecora, product "AC-20 FTR".
 3. Specified Technologies, Inc. (STI), product "Smoke 'N' Sound Acoustical Sealant". (spray applied).
 4. Tremco, product "Tremco Acoustical Sealant".
- B. Joint Sealer Type AP (Acrylic Painters caulk): One component acrylic latex caulking compound, conforming to ASTM C 834 Type P, Grade NF, paintable within 24 hours after application, with a minimum movement capability of ± 12.5 percent, equal to one of the following:
1. Bostik, product, "Chem-Calk 600".
 2. Master Builders, product, "MasterSeal NP 520".
 3. Pecora, product "AC-20+".
 4. Tremco, product, "Tremflex 834".
- C. Joint Sealer Type SC (Silicone, general construction): One-part medium modulus, natural cure, synthetic sealant, having a useful life expectancy of at least 20 years, conforming to ASTM C 920, Type S, NS, Class 50, use NT, G, A, M, O with a minimum movement capability of ± 50 percent, equal to the following:
1. Dow Corning, product, "791".
 2. GE Silicones, product, "Silpruf".
 3. Pecora, product, "895".
 4. Sika, product, "Sika Sil-C 995".
 5. Tremco, product, "Spectrem 2".
- D. Joint Sealer Type SM (Silicone, Mildew-resistant): USDA approved one component acetoxysilicone rubber, mildew resistant, acceptable to local health officials, conforming to U.S. Food and Drug Administration regulation 21 CFR 177.2600, and ASTM C920, Type S, Class 25, Grade NS, use NT,G and A with a minimum

movement capability of ± 25 percent, and a Shore A hardness of 20, equal to the following:

1. Dow Corning, product "786".
2. GE Silicones, product "Sanitary 1700".
3. Tremco, product "Tremsil 200 Sanitary".
4. Pecora, product "898NST".

2.3 ACCESSORIES

- A. Compressible joint bead back-up: Compressible closed cell polyethylene, extruded polyolefin or polyurethane foam rod complying with ASTM C1330, Type C, 1/3 greater in diameter than width of joint. Shape and size of compressible back-up shall be as recommended by manufacturer for the specific condition used. Provide one of the following, or equal.
1. Construction Foam Products (Division of Nomaco, Inc.), Zebulon, NC, product "HBR Closed Cell".
 2. BASF Sonneborn Building Products Inc., Minneapolis, MN, product "Sonolastic Closed Cell Backer Rod".
 3. W.R. Meadows Inc., Hampshire, IL, product "Sealtight Kool-Rod".
 4. Industrial Thermo Polymers Ltd., Brampton, Ontario, CN, product "ITP Standard Backer Rod".
- B. Primers: Furnish and install joint primers of the types, and to the extent, recommended by the respective sealant manufacturers for the specific joint materials and joint function.
- C. Bond-breaker tape, and temporary masking tape: Of types as recommended by the manufacturer of the specific sealant and caulking material used at each application, and completely free from contaminants which would adversely affect the sealant and caulking materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General:
1. Weather conditions must be dry and of the temperature, as recommended by sealant manufacturer, during application operations.
 2. Surface receiving work of this section must be absolutely dry and dust free. All joints receiving sealant/caulking materials and primers shall be subject to the approval of the sealant manufacturer for proper use of specified materials.

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- B. Thoroughly clean all joints, removing all loose mortar, oil, grease, dust, frost, and other foreign materials that will prevent proper adhesion of primers and sealant materials.
 - 1. Clean ferrous metals of all rust and coatings by wire brush, grinding or sandblasting. Remove oil, grease and protective coatings with cleaners recommended by sealant manufacturer.
- C. Prime joint substrates, as recommended in writing by joint-sealant manufacturer, as based on preconstruction joint-sealant-substrate tests or as based upon prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- D. Verify that joint backing and release tapes are compatible with sealant.
- E. Perform preparation in accordance with ASTM C804 and C790 for solvent and latex base solvents, respectively.

3.3 INSTALLATION

- A. Install joint bead back-up in all joints in excess of 5/8-inch depth, and joints that have no back-up therein, placing the joint bead in the joint in a manner that will assure a constant depth 1/8 inch greater than the sealant and caulking material depth tolerances.
 - 1. Set beads into joints continuously, by slightly stretching during placement, to permit compression against sides of joint, without surface wrinkles or buckles.
 - 2. Do not stretch back-up material into joints.
- B. Install bond breaker in joints where shown in the Drawings and wherever recommended by the sealant manufacturer to prevent bond of the sealant to surfaces where such bond might impair the Work.
- C. Apply masking tape or other precautions to prevent migration or spillage of materials onto adjoining surfaces.
- D. Apply urethane sealant and latex caulking materials into joints in accordance with manufacturer's instructions, using mechanical or power caulking gun equipped with nozzle of appropriate size, with sufficient pressure to completely fill the joints.
 - 1. The depth of sealant and caulking materials shall be in accordance with manufacturer's recommendations for the specific joint function, but in no case exceed 1/2-inch in depth, nor less than 1/4-inch, regardless of the joint width.
 - 2. Maintain the outer edge of the sealant and caulking materials, where side faces of joints are in the same plane, back 1/8-inch from the faces.
 - 3. Apply sealant in continuous beads without open joints, voids or air pockets so as to provide a watertight and airtight seal for the entire joint length.
 - 4. After placement of the sealant and caulking materials, concave-tool the surfaces to uniform density, using a water-wet tool. Do not use detergents or soapy water for the tooling operations.
 - 5. Remove the temporary masking tape immediately after tooling, and before the sealant or caulking material has taken initial set.

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- E. Take care not to block-off weep tubes or any through wall opening constructed to allow weeping of accumulated water.

3.4 CLEANING

- A. Clean all surfaces of adjacent surfaces which have been marked or soiled by the work of this Section, removing all excess sealant and caulking materials with solvents which will not damage the surfaces in any way.

3.5 PROTECTION

- A. During the operation of sealant work, protect the work of other trades against undue soilage and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged and soiled.

3.6 SCHEDULE

- A. General: Seal joints indicated and all interior and exterior joints, seams, and intersections between dissimilar materials.
- B. Sealant Colors:
 - 1. Colors for Sealant (typical): As selected by the Architect from manufacturer's standard colors, except as specified otherwise herein below.
 - 2. Color for Sealant Types "AA" and "AP": White.
 - 3. In concealed installation, and in partially or fully exposed installation where so approved by the Architect, standard gray or black sealant may be used.
- C. Interior joints (Listed by primary building material abutting sealant joints):

1. Interior Masonry:

| Joint Condition | Sealant Type |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| a. Masonry to masonry control joints*: | SC |
| b. Masonry to gypsum panels | SC |
| c. Masonry to all items which penetrate masonry walls, including, but not necessarily limited to, window frames, door frames, louver frames, and similar items: | SC |
| d. Masonry to all pipes, conduit and vents which penetrate non-rated masonry walls*: | SC |

2. Gypsum Board:

| Joint Condition | Sealant Type |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| a. Gypsum board to metal or wood trim: | AP |
| b. Gypsum board to abutting surfaces at exposed tops and bottoms partitions and walls: | AA |
| c. Gypsum board to masonry: | SC |
| d. Gypsum board to interior door and window frames, penetrating conduits and piping, light-fixtures, electrical cover plates, building specialty items, ductwork, grilles, supply diffusers, faucets, piping, escutcheon plates and similar items: | AP |

| | | |
|----|-----------------------------------------------------------------|---------------------|
| e. | Gypsum board to plumbing fixtures: | SM |
| 3. | Casework | |
| | <u>Joint Condition</u> | <u>Sealant Type</u> |
| a. | Casework to abutting materials. | SC |
| b. | Countertops to abutting wall surfaces and to abutting casework: | SC |
| c. | Countertops to plumbing fixtures and fittings: | SC |
| 4. | Interior metal: | |
| | <u>Joint Condition</u> | <u>Sealant Type</u> |
| a. | Metal to metal: | SC |
| 5. | Interior Wood: | |
| | <u>Joint Condition</u> | <u>Sealant Type</u> |
| a. | Wood to wood (natural or stained finishes) | SM |
| b. | Wood to wood (painted opaque finishes) | AP |

End of Section

Section 08 31 00

ACCESS DOORS AND PANELS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Fire resistive rated and non-rated access panels and frames, as specified under this Section, furnished by Sections requiring the same and installed under the following Sections:
 - 1. Section 09 29 00 - GYPSUM BOARD: Installation of access panels into drywall assemblies.

1.3 RELATED REQUIREMENTS

- A. Section 01 60 00- PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- C. Section 09 29 00 - GYPSUM BOARD: Installation of access panels into drywall assemblies.
- D. Division 21 - FIRE SUPPRESSION: Furnishing access panels required for fire protection systems.
- E. Division 22 - PLUMBING: Furnishing access panels required for plumbing systems.
- F. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Furnishing access panels required for heating/cooling systems.
- G. Division 26 - ELECTRICAL: Furnishing access panels required for electrical systems.

1.4 REFERENCED STANDARDS:

- A. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - References. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.

1. ASTM E282 (Withdrawn Standard) - Method for Spectrographic Analysis of Carbon and Low-Alloy Steel by the Point-To-Plane Technique.
2. ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
3. All applicable federal, state and municipal codes, laws and regulations for exits.

1.5 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Literature: Manufacturer's product data sheets, specifications and installation instructions.
 2. Schedule: Submit Schedule of all access panels to be furnished hereunder, indicating locations for each size and type of access door.
 - a. The Contractor is responsible to ensure that all of the types/styles of panels and frames specified herein can be furnished by the manufacturer submitted.
 - b. Prior to submitting schedule, coordinate with the work of Division 21 - FIRE SUPPRESSION, Division 22 - PLUMBING, Division 23 - HEATING, VENTILATING AND AIR CONDITIONING and Division 26 - ELECTRICAL and meet with the Architect to determine exact quantities and locations required for the installation of access panels.
 3. Shop drawings: Large scale details of access doors, indicating all sizes, gages and thickness; provide complete installation details, coordinated to the specific receiving conditions.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver access doors to the site, until all specified submittals have been submitted to, and approved by, the Architect.
- B. Store access door units inside, under cover, and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 1. Acudor Products Inc., Cedar Grove, NJ.
 2. Karp Associates Inc., Maspeth, NY.
 3. Nystrom Products Company, Minneapolis, MN.
 4. Williams Brothers Corporation of America, Front Royal, VA.
- B. Single Source: All work of this Section shall be produced by a single manufacturer, unless otherwise approved by the Architect.

2.2 ACCESS PANELS - GENERAL

- A. Access panels scheduled for placement in masonry: Furnish with masonry anchors attached to unit frames at factory.

2.3 ACCESS PANELS - FOR FIRE RESISTANCE RATED CONSTRUCTION

- A. For fire-resistance rated wall and ceiling surfaces: Standard flush panel door meeting the following requirements:
1. Panel and frame rating: UL "B" label for 90 minutes.
 2. Frame type:
 - a. For masonry walls: 16 gage galvanized bonderized steel flanged frame, with flange exposed to view 1 inch or less.
 - 1) Acudor FW-5050 series
 - 2) Karp KRP-150FR series.
 - 3) Nystrom IT series.
 - 4) Williams WB-FR series.
 - b. For gypsum board walls and ceilings: 16 gage galvanized bonderized steel frame, with 22 gage galvanized steel drywall bead.
 - 1) Acudor FW-5050DW
 - 2) Karp KRP-350FR series.
 - 3) Nystrom IW series.
 - 4) Williams WB-FR series.
 3. Door: Insulated Flush panel door as follows:
 - a. Typical wall types: Flush door, Sandwich construction with 2 inch thick mineral wool fiber insulation between two layers of 20 gage galvanized bonderized steel.
 4. Hinge: Flush continuous piano hinge with stainless steel pin.
 5. Closer: Spring closer.
 6. Latch: Flush cam latch, operated by Allen or Torx head screwdriver.

2.4 ACCESS PANELS - FOR NON-RATED CONSTRUCTION

- A. For non-rated wall and ceiling surfaces (typical): Flush panel door type meeting the following requirements:
1. Frame type:
 - a. For masonry walls: 16 gage galvanized bonderized steel flanged frame, with flange exposed to view 1 inch or less.
 - 1) Acudor UF-5000 series.
 - 2) Karp DSC-214SM series.
 - 3) Nystrom NT series.
 - 4) Williams WB-GP series.
 - b. For gypsum board walls and ceilings: 16 gage galvanized bonderized steel frame, with 22 gage galvanized steel drywall bead.
 - 1) Acudor DW-5040 series.
 - 2) Karp KDW series.
 - 3) Nystrom NW series.

- 4) Williams WB-PL series.
 2. Door: Flush panel door as follows:
 - a. Typical all wall types: 14 gage galvanized bonderized steel.
 3. Hinge:
 - a. Typical: Concealed spring hinge enabling door to open 175 degrees and permit removal of door from frame.
 - b. Panels greater than 24 by 36 inches: Flush continuous piano hinge with stainless steel pin.
 4. Latch: Flush cam latch, operated by Allen or Torx head screwdriver.
- B. For non-rated gypsum board walls and ceilings (public areas): Recessed door type meeting the following requirements
1. Manufacturer's types:
 - a. Acudor DW-5058 series.
 - b. Karp:
 - 1) Walls: Karp RDW series.
 - 2) Ceilings: Karp KATR series.
 - c. Nystrom RW series.
 - d. Williams WB-DW series.
 2. Frame type: 16 gage galvanized bonderized steel frame, with 22 gage galvanized steel drywall bead.
 3. Door: Recessed 16 gage galvanized bonderized steel door. with 22 gage galvanized steel drywall bead.
 4. Hinge: Concealed pivot rod hinge.
 5. Latch: Flush cam latch, (operated by Allen or Torx head screwdriver) with steel grommet welded to door.

2.5 FACTORY FINISHING

- A. Panel assemblies fabricated from stainless steel: N°. 4 satin finish.
- B. Panel assemblies fabricated from galvanized bonderized steel: Baked on rust inhibitive gray primer finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section. Verify that prepared openings are ready to receive the work of this Section and opening dimensions are as indicated on the shop drawings. Verify that all blocking is set in place and secure.
- B. Beginning of installation means acceptance of project conditions.

3.2 INSTALLATION

- A. Install access panels in accordance with manufacturer's instructions and direction from authorities having jurisdiction. Install miscellaneous specialties absolutely level and in true line, with units securely anchored to the surrounding construction.
- B. Test each door and latching device, and make adjustments required to ensure a bind-free operation and proper latching.

End of Section

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SECTION 08 71 00
DOOR HARDWARE

PART 1- GENERAL

1.1 SUMMARY

- A. Section Includes: Door hardware for wood doors, steel doors, aluminum framed entrance doors, all glass entrance doors, and miscellaneous hardware items.
- B. Provide hardware not described herein but otherwise required for proper completion of the project, conforming to size, function, quality, and finish of other specified hardware.

1.2 REFERENCED STANDARDS

- A. American National Standards Institute (ANSI):
 - 1. ANSI A117.1 Accessible and Usable Buildings and Facilities
- B. Builders Hardware Manufacturers Association (BHMA):
 - 1. ANSI/BHMA A156.1 Butts and Hinges.
 - 2. ANSI/BHMA A156.2 Bored and Preassembled Locks and Latches.
 - 3. ANSI/BHMA A156.3 Exit Devices.
 - 4. ANSI/BHMA A156.4 Door Controls - Closers.
 - 5. ANSI/BHMA A156.5 Auxiliary Locks and Associated Products.
 - 6. ANSI/BHMA A156.6 Architectural Door Trim.
 - 7. ANSI/BHMA A156.7 Template Hinge Dimensions.
 - 8. ANSI/BHMA A156.8 Door Controls - Overhead Stops and Holders.
 - 9. ANSI/BHMA A156.10 Power Operated Pedestrian Doors.
 - 10. ANSI/BHMA A156.13 Mortise Locks and Latches.
 - 11. ANSI/BHMA A156.14 Sliding and Folding Door Hardware.
 - 12. ANSI/BHMA A156.15 Release Devices: Closer Holders, Electromagnetic and Electromechanical.
 - 13. ANSI/BHMA A156.16 Auxiliary Hardware.
 - 14. ANSI/BHMA A156.17 Self-Closing Hinges and Pivots.
 - 15. ANSI/BHMA A156.18 Materials and Finishes.
 - 16. ANSI/BHMA A156.19 Power Assist and Low Energy Power Operated Doors.
 - 17. ANSI/BHMA A156.21 Thresholds.
 - 18. ANSI/BHMA A156.22 Door Gasketing and Edge Seal Systems.
 - 19. ANSI/BHMA A156.23 Electromagnetic Locks.
 - 20. ANSI/BHMA A156.24 Delayed Egress Locks.
 - 21. ANSI/BHMA A156.25 Electrified Locking Devices.
 - 22. ANSI/BHMA A156.26 Continuous Hinges.
 - 23. ANSI/BHMA A156.28 Recommended Practices for Mechanical Keying Systems.
 - 24. ANSI/BHMA A156.29 Exit Locks, Exit Locks with Exit Alarms, Exit Alarms, Alarms for Exit.
 - 25. ANSI/BHMA A156.30 High Security Cylinders.
 - 26. ANSI/BHMA A156.31 Electrified Strikes and Frame Mounted Activators.

- 27. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors with Steel Frames.
- 28. ANSI/BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames.
- C. Door and Hardware Institute (DHI):
 - 1. ANSI/DHI A115.IG Installation Guide for Doors and Hardware
 - 2. DHI Keying Systems and Nomenclature
 - 3. DHI Sequence and Format for the Hardware Schedule
- D. International Building Code (IBC)
- E. National Fire Protection Association (NFPA):
 - 1. NFPA 80 Fire Doors and Other Opening Protectives
 - 2. NFPA 252 Fire Tests of Door Assemblies
- F. Underwriters Laboratories Inc. (UL):
 - 1. UL 10C Positive Pressure Fire Tests Of Door Assemblies
 - 2. UL 305 Panic Hardware
 - 3. UL 437 Drill and Pick Resistant Key Cylinders
 - 4. UL 1034 Burglary-Resistant Electric Locking Mechanisms

1.3 SUBMITTALS

- A. Products other than those designated herein must be approved as substitutions prior to submittal of Door Hardware.
- B. Door Hardware Schedule: Vertical format conforming to DHI "Sequence and Format for the Hardware Schedule." Horizontal format schedules will be rejected without review. Format shall be 8-1/2 by 11 inch page size. Organize Schedule into headings, grouping doors to receive same hardware items, indicating quantity and complete designations of every item required for each door opening. The schedule shall include:
 - 1. Cover sheet indicating name and location of Project; name of Architect; name of Contractor; name, address and phone of hardware supplier, name of hardware consultant preparing the schedule; date of submittal or revised submittal.
 - 2. A list of abbreviations used in schedule.
 - 3. An index of door openings, listed in numerical order, with hardware heading identification cross-referenced to Architect's set identification.
 - 4. Hardware headings shall be listed in numerical order corresponding, as closely as possible, with numerical order of Architect's set numbers.
 - 5. Each hardware heading shall have each door listed in numerical order according to door numbers in the Architect's door schedule, and denoting: location, configuration (single, pair, etc.), type (elevation, etc.), door and frame size(s), door and frame material(s), handing, fire rating, and key set identification.
 - 6. Type, complete model number, style, function, size, hand, and finish of each door hardware item.
 - 7. Manufacturer of each item.
 - 8. Fastenings and other pertinent information.
 - 9. System Description of Operation. Include description of component functions including, but not limited to, the following situations: normal secured/unsecured state of door; authorized access; authorized egress;

unauthorized access; unauthorized egress; fire alarm and loss of power conditions, and interfaces with other building control systems.

- C. Manufacturer's Technical Product Data / Catalog Cut Sheets: Clearly marked for each hardware item, including installation details, material descriptions, dimensions of individual components and profiles, and finishes. Format shall be 8-1/2 by 11 inch page size.
- D. Wiring Diagrams: No later than 14 days after receipt of reviewed hardware schedule submittal, submit detailed wiring diagrams for power, signaling, monitoring, and control of the access control system electrified hardware; identified by door number(s), and detailed specifically for each type and function of electrified door opening. Format shall be 8-1/2 by 11 inch page size. Include the following:
 - 1. System Description of Operation. Include description of component functions including, but not limited to, the following situations: normal secured/unsecured state of door; authorized access; authorized egress; unauthorized access; unauthorized egress; fire alarm and loss of power conditions, and interfaces with other building control systems.
 - 2. Elevation single-line diagram, showing interface between electrified door hardware and fire alarm, power, access control, and security systems as applicable.
 - 3. Point-to-point wiring diagram for field-installed wiring.
- E. Keying Schedule: In accordance with Owner's final keying instructions for locks. Conform to DHI "Keying Systems and Nomenclature." Format shall be 8-1/2 by 11 inch page size.
- F. Operation and Maintenance Data: Provide complete operating and maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides.
- G. Qualification Data: For firms and persons specified in "Quality Assurance" Article.
- H. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

- A. Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
- B. Manufacturers, Hardware Supplier, and Installer shall have no less than five years experience in the provision of Door Hardware for projects similar in size, complexity and type to this Project.
- C. Hardware Schedule and Keying Schedule submittals shall be prepared by a Hardware Consultant holding the credentials of Architectural Hardware Consultant (AHC) issued by the Door and Hardware Institute. Hardware Consultant shall have no less than five years experience in the scheduling of Door Hardware for projects similar in size, complexity and type to this Project; and shall be available, at no additional cost, during the course of the Work to consult with Contractor, Architect, and Owner regarding door hardware and keying.

- D. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures

1.5 REGULATORY REQUIREMENTS

- A. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with all applicable regulations, listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.
1. At rated doors with panic exit devices, provide devices labeled as "Fire Exit Device."
- B. Comply with all applicable accessibility regulations as set forth in Americans with Disabilities Act (ADA) -- Accessibility Guidelines for Buildings and Facilities (ADAAG) and ANSI A117.1 as applicable.
- C. Latching and locking doors that are hand-activated and that are in a path of travel shall be operable with a single effort by lever-type hardware, panic bars, push-pull activating bars, or other hardware designed to be easy to grasp with one hand, not requiring tight grasping, tight pinching or twisting of the wrist; from egress side shall not require the use of a key, tool, or special knowledge for operation.
1. All hand-activated hardware shall be mounted between 34 inches and 48 inches above finished floor.
- D. At sliding doors, when fully open, operating hardware shall be exposed and usable from both sides.
- E. Door closing devices shall comply with the following maximum opening-force requirements:
1. Interior Hinged Doors: 5 lbf applied perpendicular to door at latch.
 2. Exterior Hinged Doors: 5 lbf applied perpendicular to door at latch.
 3. Sliding or Folding Doors: 5 lbf applied parallel to door at latch.

4. Fire Rated Doors: 5 lbf applied perpendicular to door at latch. To insure latching, may be increased to the minimum force allowable by the appropriate administrative authority, not to exceed 15 lbf.

F. Where door closers are provided, adjust sweep speed so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

G. Thresholds shall be maximum 1/2 inch in height above floor and landing on both sides of openings. Bevel raised thresholds with a slope of not more than 1:2.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Each article of hardware shall be delivered individually packaged in the manufacturer's standard commercial carton or container, and shall be properly marked or labeled to be readily identifiable with the approved hardware schedule.

B. Manufacturer's printed installation instructions, fasteners, and special tools shall be included in each package.

C. Hardware shall be stored in a dry, secure locked area, complete with shelving for unpacking and sorting of the door hardware.

D. Deliver all master keys by restricted, receipted delivery directly from the manufacturer to the Owner.

1.7 COORDINATION

A. Provide hardware templates to the parties involved for doors, frames, and other work specified to be factory prepared for door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

B. When required by door or frame fabricator, furnish physical samples of each mortised and recessed hardware item required.

C. Coordinate layout and installation of recessed pivots and closers with floor construction.

D. Electrical System Rough-in: Coordinate layout and installation of electrified door hardware with connections to power supplies, fire alarm system and detection devices, access control system, and security system as applicable.

E. Pre-Installation Conference: Arrange conference at job site to coordinate door, frame, hardware and electronic security hardware installation; to be attended by the Architect, Owner, Contractor and representative personnel of firms involved in the provision and installation of said items.

F. Keying Conference: Arrange conference with Owner, or designated representative, and Manufacturer's/ Hardware Supplier's Architectural Hardware Consultant to establish keying requirements. Incorporate keying conference decisions into Keying Schedule.

1.8 WARRANTY

- A. In addition to, and not precluding, other warranty requirements in the Contract Documents, the following hardware items shall carry extended minimum warranties as indicated:
1. Hinges: Ten years from date of Substantial Completion.
 2. Locks: Five years from date of Substantial Completion.
 3. Exit Devices: Three years from date of Substantial Completion.
 4. Door Closers: Ten years from date of Substantial Completion.

1.9 MAINTENANCE

- A. Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2- PRODUCTS**2.1 ACCEPTABLE MANUFACTURERS**

- A. Subject to compliance with requirements herein, provide products by one of the following manufacturers for each type of hardware:
1. Butt Hinges: Ives, McKinney, Stanley.
 2. Continuous Pinned Hinges: Architectural Builders Hardware, Hager, Ives, Markar, Select.
 3. Continuous Geared Hinges: Architectural Builders Hardware, Hager, Ives, National Guard Products, Pemko, Select.
 4. Cylinders and Keying: Sargent Degree, Medeco X4, Schlage Everest Primus
 5. Locksets and Latchsets: Corbin Russwin, Sargent, Schlage.
 6. Exit Devices: Corbin Russwin, Sargent, Von Duprin.
 7. Exterior Weatherized Exit Devices: Detex
 8. Electric Strikes: Hanchett Entry Systems (HES), SDC, Von Duprin.
 9. Electrical Power Transfers: Architectural Builders Hardware, Securitron, Von Duprin.
 10. Power Supplies for Electrified Hardware: Securitron, Security Door Controls, Von Duprin.
 11. Flush Bolts and Door Coordinators: Architectural Builders Hardware, Ives, Rockwood.
 12. Surface Door Closers: Dorma 8900 Series, LCN 4000 Series, Norton 7500 Series.
 13. Overhead Holders and Stops: Architectural Builders Hardware, Glynn-Johnson, Rixson.
 14. Overhead Surface and Concealed Automatic / Low Energy Door Operators: Besam, Dorma, Horton, Stanley.
 15. Automatic Door Operator Actuators: Securitron, Dorma, Horton, Stanley,
 16. Electromagnetic Holder / Releases: Architectural Builders Hardware, LCN, Rixson.
 17. Architectural Door Trim: Architectural Builders Hardware, Ives, Rockwood.
 18. Auxiliary Hardware: ABH, Ives, Rockwood.
 19. Door Bottoms, Metal Thresholds, Weatherstripping and Gaskets: National Guard Products, Pemko, Reese, Zero.
 20. Key Storage System: Lund, MMF Industries, Telkee.

2.2 MATERIALS AND FABRICATION

- A. Requirements for grade, materials, size, and other distinctive qualities of each type of door hardware are indicated herein. Furnish items in types, sizes or weight, in accordance with manufacturer's standards, appropriate for the conditions of installation and service, unless otherwise indicated.
- B. Products named or identified by make or model number, or other designation and described herein are base products. Base products establish the standards of type, in-service performance, physical properties, appearance, warranty, cost, and other characteristics required by the Project.

2.3 FASTENERS

- A. Provide concealed fasteners for hardware items on exterior doors which are exposed when door is closed.
- B. Combination machine screws and expansion shields shall be used for attaching hardware to concrete or masonry.
- C. Fasteners exposed to the weather in the finished work shall be of brass, bronze, or stainless steel.

2.4 BUTT HINGES

- A. Butt hinges shall meet ANSI/BHMA A156.1 requirements.
- B. Hinge dimensions shall conform to ANSI/BHMA A156.7.
- C. Base Metal shall be steel plated for fire-rated doors; bronze or stainless steel for exterior outswinging doors; bronze or plated steel elsewhere as scheduled.
- D. Provide hinges with antifriction bearings for doors with closers.
- E. Unless otherwise indicated, provide hinges in heights as follows:
 - 1. Doors to 36 inches wide up to 1-3/4" thick: 4-1/2 inches standard weight.
 - 2. Doors to 36 inches wide more than 1-3/4" thick: 5 inches heavy weight.
 - 3. Doors over 36 inches to 48 inches wide: 5 inches heavy weight.
 - 4. Doors over 48 inches wide or more than 1-3/4" thick: 6 inches heavy.
 - 5. Doors over 1-3/4 inch thick shall be per hinge manufacturers published listings or recommendations.
- F. Provide in minimum width sufficient to clear trim when door swings 180 degrees, whether or not shown on Drawings to swing 180 degrees.
- G. Number of hinges per leaf shall be as follows:
 - 1. Doors to 60 inches in height: 2 hinges.
 - 2. Doors over 60 to 90 inches in height: 3 hinges.
 - 3. Doors over 90 to 120 inches in height: 4 hinges.
 - 4. For doors over 120 inches in height: 4 hinges plus 1 hinge for every 30 inches, or fraction thereof, door height greater than 120 inches.
- H. Screws: Flat head wood screws not less than 1-1/2 inches long for hinges for wood doors; flat head machine screws elsewhere.

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- I. Hinges for reverse bevel doors with locks shall have pins that are made non-removable when the door is in the closed position by means of a set screw in the hinge pin barrel.
 - J. Electrified hinges:
 - 1. Coordinate number and size of wires for electrified hardware served.
 - 2. Provide junction box/ mortar shield for each electrified hinge.
- 2.5 CONTINUOUS PINNED HINGES
- A. Continuous hinges shall meet ANSI/BHMA A156.26 requirements.
 - B. Type: Pin and barrel construction; 1/4 inch diameter stainless steel pin; split nylon or stainless steel bearings. Fabricated from 14 gauge cold-rolled steel or 304 stainless steel as indicated.
 - C. Provide in minimum width sufficient to clear trim when door swings 180 degrees, whether or not shown on Drawings to swing 180 degrees.
 - D. Hole pattern for fasteners shall be symmetrical and located to template dimensions.
- 2.6 CONTINUOUS GEARED HINGES
- A. Continuous hinges shall meet ANSI/BHMA A156.26 requirements.
 - B. Type: Heavy duty assembly of 3 interlocking aluminum extrusions. Door leaf and jamb leaf shall be continuously geared together the full hinge length; secured together with full length cover channel permitting 180 degree operation. Vertical door loads carried on integrated thrust bearings spaced no more than 3 inches apart.
 - C. Hinges shall have non-removable cap at hinge top to prevent foreign material from becoming lodged in hinge gear mechanism.
 - D. Unless otherwise noted, provide factory finished to match door and frame finish.
 - E. Hole pattern for fasteners shall be symmetrical and located to template dimensions.
- 2.7 PIVOT HINGES
- A. Pivot hinges shall meet ANSI/BHMA A156.4 Grade 1 requirements.
 - B. Pivots shall be constructed of steel, cast or forged bronze, or stainless steel as indicated by BHMA finish specified.
 - C. Where offset pivots are used, provide intermediate pivots as follows:
 - 1. Doors over 60 to 90 inches in height provide one intermediate pivot.
 - 2. For doors over 90 inches in height provide one additional intermediate pivot for every 30 inches, or fraction thereof.
 - D. Electrified pivots:
 - 1. Coordinate number and size of wires for electrified hardware served.
 - 2. Provide junction box/ mortar shield for each electrified pivot.

2.8 CYLINDERS, KEYING AND KEY STORAGE

- A. Lock cylinders shall meet ANSI/BHMA A156.5 requirements.
- B. Keying system shall meet ANSI/BHMA A156.28 requirements.
- C. All cylinders shall be interchangeable core type.
- D. Cylinders at exit devices shall be interchangeable core type. Provide mortise or rim type cylinders as required by device for all exit devices having key locking function.
- E. At exterior doors provide Medeco X4 cylinder cores.
- F. Cylinders shall be High-Security type, listed and labeled as complying with drill and pick-resistant testing requirements of UL 437.
- G. A new great grand master keying system shall be provided.
- H. Keying shall be provided to integrate with existing system as directed.
- I. Cylinders shall be keyed according to approved Keying Schedule.
- J. Provide a temporary keying system for interim use during construction.
- K. Provide change keys in individual envelopes for each cylinder delivered. Envelopes shall be marked with respective door identification numbers.
- L. Key set symbol, and inscription "Do Not Duplicate" shall be stamped on all keys.
- M. Keys shall be supplied as follows:
 - 1. Locks: 3 change keys each lock.
 - 2. Master keyed sets: 2 keys each set.
 - 3. Grand master keys: 5 total.
 - 4. Great Grand master keys: 5 total.
 - 5. Interchangeable Core control keys: 2 total.
 - 6. Construction keys: 10 total.
 - 7. Blank keys: 100 total.
- N. Provide Key Storage / Control System conforming to ANSI/BHMA A156.5, including key-holding hooks, labels, two sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers. Contain system in metal cabinet with baked-enamel finish and key locking door.
 - 1. Key tags and holders shall be inscribed with key-change number and key-control to conform with approved hardware schedule for identification.
 - 2. Key Storage System shall be large enough to accommodate 150 percent of the facility.
- O. Subject to compliance with requirements, provide emergency entrance key vault(s); Knox Company 3200 Series, or equal.
 - 1. Finish Color - Black, Dark Bronze or Aluminum as selected by Architect.
 - 2. Where indicated provide security key override switches for electrically activated openings.

3. Coordinate and provide keying and type per fire/ police department, and other jurisdictional agency requirements.

2.9 LOCKSETS AND LATCHSETS

- A. Mortise Locks and Latches shall meet ANSI/BHMA A156.13 Grade 1 requirements.
- B. Cylindrical Locks and Latches shall meet ANSI/BHMA A156.2 Series 4000 Grade 1 requirements.
- C. Interconnected Locks and Latches shall meet ANSI/BHMA A156.12 requirements.
- D. Auxiliary Locks shall meet ANSI/BHMA A156.5 requirements.
- E. Electrified Locks shall also meet ANSI/BHMA A156.25 requirements.
- F. Operating trim shall be lever type: Refer to hardware sets.
- G. Lock functions which include thumb turn trim shall be provided with thumb turns compliant with accessibility code requirements.
- H. Lock Throw: Comply with requirements for length of latch bolts to comply with labeled fire door requirements.
- I. Lock backset shall be 2-3/4 inches unless otherwise indicated.
- J. Where thumb turns are used, thumb turns to meet ANSI 117.1 requirements and be listed as meeting Accessibility requirements. Corbin Russwin Ergonomic or Schlage L583-363 EZ-Turn to be used.
- K. Provide curved-lip strike with dust box for each latch or lock bolt, with lip extended to protect frame, finished to match door hardware set, unless otherwise indicated.
- L. Electromechanical locksets utilized at fire rated openings shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction, and shall maintain door in positive latched position when power is off.

2.10 STRIKES AND HINGE FILLER PLATES

- A. At existing frames, provide new strike prep where required. Provide strike cover plate where locking device is changed.
- B. Provide hinge filler plates as required.

2.11 EXIT DEVICES

- A. All exterior doors to be less dogging.
- B. All exterior doors to have latchbolt monitoring.
- C. Exit devices and exit device accessories shall meet ANSI/BHMA A156.3, Grade 1 requirements.

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- D. Electromechanical exit devices shall also meet ANSI/BHMA A156.25 requirements.
- E. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.
- F. Fire Exit Devices: Complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.
- G. Outside Trim: Design, material and finish to match locksets, unless otherwise indicated.
- H. Adjustable strikes shall be provided for rim type and vertical rod devices.
- I. Fire Exit Removable Mullions: Where indicated, provide removable mullions for use with fire exit devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252. Mullions shall be used only with exit devices for which they have been tested.
- J. Electromechanical exit devices utilized at fire rated openings shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction, and shall maintain door(s) in positive latched position when power is off.

2.12 ELECTRIC STRIKES

- A. Electric strikes shall meet ANSI/BHMA A156.31 Grade 1 requirements, and be listed and labeled under UL 1034 Burglary Resistant Electric Locking Equipment.
- B. Electric strikes for fire rated openings shall be listed and labeled for such use by a testing agency acceptable to authorities having jurisdiction. Fail Secure (fail locked) strikes shall be used at all fire rated openings.

2.13 ELECTROMAGNETIC LOCK ASSEMBLIES

- A. Electromagnetic lock assemblies shall meet ANSI/BHMA A156.23 Grade 1 requirements.
- B. Locks shall be field-selectable for 12 or 24 VDC operation, and provide 1,500 lbf minimum holding force for direct pull applications and 2,000 lbf holding force for shear type applications.
- C. Wiring connections shall be via on-board screw terminal connections. Lock shall have built-in circuit/ surge and voltage kickback suppression protection.
- D. Where indicated, locks shall be equipped with concealed sensors to monitor magnetic bond status and door position status.
- E. Locks used on fire rated doors shall be listed and labeled for such use by a testing agency acceptable to authorities having jurisdiction.

2.14 ELECTRICAL POWER TRANSFERS

- A. Electrical power transfers shall be capable of transferring sufficient electrical current to properly operate electrified hardware in door.
- B. Electrical power transfers used on fire rated doors shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction.

2.15 POWER SUPPLIES FOR ELECTRIFIED HARDWARE

- A. Power supplies shall be UL listed for applicable use; shall be housed in an approved enclosure; and provide both Class 1 and Class 2 outputs. Power Supplies to be Securitron AQD6-8F8R.
- B. Output shall be filtered and regulated. Relay, timer, and logic modules shall be provided as required for interface to related security components; and shall be assembled, connected, and fully contained within the power supply enclosure. A fire alarm emergency release input terminal shall be provided for connection to fire / life safety system at fire-rated openings.
- C. Power supplies shall provide sufficient power capacity for the worst-case condition that could occur in the operating environment without any loss or degradation of operation.

2.16 FLUSH BOLTS

- A. Automatic flush bolts shall meet ANSI/BHMA A156.3
- B. Manual flush bolts shall meet BHMA A156.16 requirements.
 - 1. Bottom bolt shall have 12 inch long operating rod. Top bolt operating rod shall be determined by door height, assuring the operator is located less than 72 inches above the floor.
 - 2. Manual Flush Bolts are not to be utilized except where a pair of non-rated doors serving a room not normally occupied is needed for the movement of equipment.
- C. Provide dust proof strikes for bottom bolts. Dust proof strikes shall meet BHMA A156.16.

2.17 DOOR COORDINATORS

- A. Door coordinators shall meet ANSI/BHMA A156.3 requirements.
- B. Door coordinators shall be flat bar type; stop mounted with all necessary filler bars and mounting brackets to accommodate required hardware.
- C. Provide carry bar at each pair of doors equipped with an overlapping astragal, except when automatic or self-latching bolts are used.

2.18 SURFACE DOOR CLOSERS

- A. Door closing devices shall meet ANSI/BHMA A156.4, Grade 1 requirements.
- B. Surface closers shall be fully adjustable with sweep speed, latch speed and back check position valves.

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- C. Provide closers size adjusted in accordance with ANSI/BHMA A156.4; sized as required to insure closing and latching of doors.
- D. Arm selection shall follow the requirements of the manufacturer's recommendations with brackets, drop plates and miscellaneous accessories provided as necessary.
- E. Provide closers with arms designed to permit openings of doors as far as job conditions will permit; unless otherwise indicated closers with arms restricting opening of door will not be acceptable.
- F. Electrified closers where indicated in hardware sets shall be tied into building fire alarm system to release upon fire-alarm activation or loss of power.

2.19 OVERHEAD CONCEALED DOOR CLOSERS

- A. Overhead Concealed Door Closers shall meet ANSI/BHMA A156.4 requirements.
- B. Closers shall be fully adjustable with sweep speed, latch speed and back check position valves.
- C. Provide closers size adjusted in accordance with ANSI/BHMA A156.4; sized as required to insure closing and latching of doors.

2.20 OVERHEAD HOLDERS AND STOPS

- A. Overhead holders and stops shall meet ANSI/BHMA A156.8 requirements.
- B. Overhead door holders and stops shall be adjustable from 90 to 110 degrees dead stop or hold open position, as applicable.
- C. Overhead door stops shall have shock absorbers providing 5 to 7 degrees compression before dead stop.
- D. Overhead stops shall not be provided with hold open function when used at fire rated doors.

2.21 AUTOMATIC AND LOW ENERGY DOOR OPERATORS

- A. Surface Applied Operator: The operator header shall be mounted to the surface of the door frame or wall. Connecting hardware shall be a double arm arrangement that can either push the door or pull the door open to suit the job condition. Provide parallel arm when operator mounting is on the pull side, and adjacent wall is within 4 inches of the door frame. Provide fire labeled unit for use at rated doors.
- B. Overhead Concealed Operator: The operator header shall be mounted directly over the door and serve as the door frame header. The operator output shaft shall connect to an arm that transmits power to the door via a slide block which moves in track that is recess mounted in the top of the door.
- C. In-Floor Operator Converter: Manufacturer's specialized unit to adapt specified automatic swing door operator to in-floor use. The converter shall be mounted beneath the door leaf and jamb area utilizing a standard pivot setback. Heavy-

duty pivot shall incorporate 1200 pound rated, sealed thrust bearings in 1 inch steel bearing plate.

- D. Automatic Door Operators shall meet ANSI/BHMA A156.10 requirements.
 - 1. Provide guard rails and safety sensors to meet A156.10 requirements and all applicable codes.
 - 2. Power operation shall be activated by push plate switch, motion detector, or other actuators as indicated.
- E. Low Energy Door Operators shall meet ANSI/BHMA A156.19 requirements.
 - 1. Provide safety sensors and features to meet A156.19 requirements and all applicable codes.
 - 2. Door shall not open to back check faster than 3 seconds, and shall require no more than 15 lbf applied 1 inch from latch edge to stop door movement.
 - 3. Door shall remain in fully open position for no less than 5 seconds.
 - 4. Door shall close from 90 degrees to 10 degrees no faster than 3 seconds, and 10 degrees to fully close no faster than 1-1/2 seconds.
 - 5. Power operation shall be activated by push plate switch, or other actuators as indicated.
- F. Provide UL labeled operators at fire-rated openings. Provide power-disconnect interface to Fire Alarm; doors to be self closing and latching, in full compliance with Code requirements for "Fire Assembly, Self Closing" doors.
- G. Provide UL labeled operators at smoke barrier openings. Provide hold-open circuitry and power-disconnect interface to Fire Alarm; doors to be automatic closing and latching, in full compliance with Code requirements for "Fire Assembly, Automatic Closing" doors.
- H. Actuators shall be as indicated in hardware sets.

2.22 ELECTROMAGNETIC HOLDER / RELEASES

- A. Electromagnetic holders shall meet ANSI/BHMA A156.15 requirements.
- B. Size and configuration shall provide degree of swing and hold open position as indicated on the drawings.

2.23 ARCHITECTURAL DOOR TRIM

- A. Architectural door trim shall meet ANSI/BHMA A156.6 requirements.
- B. Door Protection Plates: Kick, mop, and armor plates shall be 0.050 inch thick brass, bronze, or stainless steel depending on finish indicated. Plates shall have beveled edges, and shall be provided with countersunk mounting holes and No. 6 oval head screw fasteners. Width of kick and armor plates shall be 2 inches less than door width for single doors and 1 inch less for pairs of doors. Width of mop plates shall be 1 inch less than door width. Unless otherwise indicated, height shall be 10 inches for kick and mop plates, and 34 inches for armor plates.
 - 1. At fire rated doors, provide UL labeled protection plates in sizes, types, fasteners and materials only in accordance with door manufacturer's listings for respective ratings.

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- C. Door Edging and Astragals: Fabricated from 18 gauge cold-rolled steel or 304 stainless steel as indicated; factory prepared for all mortise hardware; countersunk screw mounting.
 - 1. At fire rated doors, provide UL labeled edge protection in sizes, types, fasteners and materials only in accordance with door manufacturer's listings for respective ratings.
- D. Push and pull plates shall be 0.050 inch thick brass, bronze, or stainless steel depending on finish indicated. Plates shall have beveled edges, and shall be furnished with countersunk mounting holes and No. 6 oval head screw fasteners. Pull plates shall also be furnished with flat-head through bolts for pull grip.
- E. Push and pull bars and grip handles shall be brass, bronze, or stainless steel depending on BHMA finish indicated.

2.24 AUXILIARY HARDWARE

- A. Auxiliary hardware shall meet ANSI/BHMA A156.16 requirements.
- B. Door Stops: Stops shall be of heavy duty construction, provided in finish indicated. Wall bumpers shall have no visible fasteners. Floor stops shall be of height required by floor conditions.
- C. Silencers: Gray rubber, non-marring configured for metal or wood frames as scheduled. Provide 3 per single door and 2 per pair of doors. Silencers shall be tamper resistant once installed in door frame.

2.25 DOOR BOTTOMS

- A. Door bottoms shall be of aluminum or extruded bronze of the type and finish indicated and shall provide proper clearance and an effective seal with specified thresholds.
- B. Door bottom shall have a vinyl, neoprene, silicone rubber, polyurethane or brush seal as indicated.
- C. The door bottom shall exclude light when the door is in the closed position and shall inhibit the flow of air through the unit.

2.26 ELECTRONIC ACCESSORIES

- A. Request-to-Exit Motion Sensor shall be SDC, Securitron XMS or Schlage Scan II as indicated in hardware sets specifically designed for detecting exiting through a door from the secure area to a non-secure area. Include built-in timers (up to 60 second adjustable timing), door monitor with sounder alert, internal vertical pointability coverage, 12VDC or 24VDC power and selectable relay trigger with fail safe/fail secure modes.
- B. Push-Button Switches shall be Securitron, SDC or Schlage as indicated in hardware sets. Industrial grade momentary or alternate contact, back-lighted push buttons with stainless-steel switch enclosures. 12/24 VDC bi-color illumination suitable for either flush or surface mounting.
- C. Key Switches shall be Securitron, SDC, or Schlage as indicated in hardware sets. furnished standard with stainless steel single gang face plate with a

12/24VDC bi-color LED indicator. Integral backing bracket permits integration with any 1 1/4" or 1 1/2" mortise type cylinder. Key switches available as momentary or maintained action and in narrow face plate options.

2.27 METAL THRESHOLDS

- A. Thresholds shall meet ANSI/BHMA A156.21 requirements.
- B. Thresholds shall be heavy-gauge aluminum or bronze of the configuration and finish indicated, and shall provide an effective seal with door bottom.
- C. Where required, thresholds shall be prepared to accommodate floor closers, pivots, and projecting bolts of latching hardware.
- D. Thresholds at floor closers shall have mitered returns and removable access portion for floor closer maintenance.
- E. Provide thresholds at doors where indicated. Refer to Door Schedule and Drawing details for type and configuration required. Additionally, where combustible flooring passes under doors, provide fire door thresholds in accordance with applicable regulatory requirements.

2.28 METAL HOUSED TYPE WEATHERSTRIP

- A. Metal Housed Type Weatherstrip shall meet ANSI/BHMA A156.22 requirements.
- B. Metal Housed Type Weatherstrip shall be aluminum or bronze of the type and finish indicated, comprised of metal retainers with vinyl, neoprene, silicone rubber, polyurethane or brush inserts as indicated.

2.29 GASKETING

- A. Gasketing shall meet ANSI/BHMA A156.22 requirements.
- B. Shall be a compression type product for use with wood or steel doors; labeled for use on smoke-control and fire-rated doors where required.

2.30 FINISHES

- A. Finish to be US4 to match existing.
- B. Unless otherwise indicated, finishes shall conform to those identified in ANSI/BHMA A156.18.

PART 3- EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine rough-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Steel doors shall be factory prepared for hardware per ANSI/BHMA A156.115.
- A. Wood doors shall be factory prepared for hardware per ANSI/BHMA A156.115W.
- B. Installation shall be in accordance with DHI A115.IG.
- C. Hardware for fire door assemblies shall be installed conforming with NFPA 80, and all other applicable building codes and regulations.
- D. Hardware for smoke door assemblies shall be installed conforming with NFPA 105, and all other applicable building codes and regulations.
- E. Install each door hardware item according to manufacturer's printed instructions, utilizing templates and proper fasteners provided by manufacturer.
- F. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates for proper installation and operation.
- G. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in other Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- H. Install each door hardware item to comply with manufacturer's written instructions. Install overhead surface closers for maximum degree of opening obtainable. Place on room side of corridor doors, stair side of stair doors, secondary corridor side of doors between corridors. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be finished, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- I. All wall stops shall be installed with reinforced blocking in wallboard construction. Drywall anchors are not an acceptable means of reinforcement/blocking. Provide intermediate steel plates or channel reinforcement backing at wall stops mounted in wallboard construction.
- J. Do not install permanent key cylinders in locks until the time of preliminary acceptance by the Owner. At the time of preliminary acceptance, and in the presence of the Owner's representative, permanent key all lock cylinders. Record and file all keys in the key control system specified, and turn system over to Owner for sole possession and control.
- K. Key control storage system shall be installed where directed by the Owner.
- L. Thresholds: Thresholds shall be secured with a minimum of 3 fasteners per single door width and 6 fasteners per double door width with a maximum spacing of 12 inches (305 mm). Minimum screw size shall be No. 10 length, dependent on job conditions, with a minimum of 3/4 inch (19 mm) thread engagement into

the floor or anchoring device used. Screw heads to be countersunk and flush with face of threshold. Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Section 07 92 00 "Joint Sealants." Once installed thresholds shall not rock or cause noise when walked on.

3.3 DOOR CLOSING DEVICES

- A. Surface closers on doors opening to or from halls and corridors shall be mounted on the room side of the door.
- B. Surface closers on doors opening into stairs or stair vestibules shall be mounted on the stair or stair vestibule side of the door.
- C. Surface closers on exterior doors shall be mounted on the interior side of building utilizing regular arm, or parallel arm mounting as required.
- D. Door closing devices with adjustable spring power shall be adjusted for proper door operation, and compliance with all applicable codes and regulations.
- E. Cutting of gasketing or weatherstripping to accommodate closer installation is not acceptable.

3.4 KEY CONTROL STORAGE SYSTEMS

- A. Key control storage system shall be installed where directed by the Architect.
- B. Place keys on markers and hooks in key control system cabinet, as determined by final keying schedule.

3.5 THRESHOLDS

- A. Thresholds shall be secured with a minimum of 3 fasteners per single door width and 6 fasteners per double door width with a maximum spacing of 12 inches; with a minimum of 1 inch thread engagement into the floor or anchoring device used. Thresholds over 6 inches in width shall be secured with a double row of fasteners.
- B. Exterior thresholds shall be installed in a bed of sealant with combination expansion anchors and stainless steel machine screws, except that bronze or anodized bronze thresholds shall be installed with expansion anchors with brass screws.

3.6 ASTRAGALS

- A. Unless otherwise indicated install overlapping astragals as follows:
 - 1. At out-swing pairs of doors, mount astragal on active leaf.
 - 2. At in-swing pairs of doors, mount astragal on inactive leaf.

3.7 HARDWARE LOCATIONS

- A. Unless otherwise indicated install hardware as follows:
 - 1. Bottom Hinge: 10 inches from door bottom to bottom of hinge.
 - 2. Top Hinge: 5 inches from door top to top of hinge.
 - 3. Center Hinge(s) or Pivot(s): Spaced equidistantly between top and bottom hinges/ pivots.

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4. Lockset / Latchset: 38 inches from finished floor to center of lever.
5. Exit Device: 38 inches from finished floor to device centerline.
6. Deadlock: 42 inches from finished floor to center key cylinder / thumb turn.
7. Push Plate/ Pull Plate: 42 inches from finished floor to center of pull.
8. Wall Bumper: Centered at point on wall where lever, or other operating trim, first makes contact with wall.
9. Floor Stop: Adjacent to wall; not to exceed 4 inches from face of wall; located 3 inches from latch edge of door; in any case never more than 50 percent of door width from latch edge of door.

3.8 ADJUSTING

- A. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended.
- B. Engage a factory-authorized service representative to adjust door closing devices, compensating for final operation of heating and ventilating equipment, and to comply with referenced accessibility requirements.
- C. Follow-up Adjustment: Approximately 6 months after date of Substantial Completion, Installer shall perform the following:
 1. Examine and readjust each item of door hardware as necessary to ensure function of door hardware.
 2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

3.9 FIELD QUALITY CONTROL

- A. Independent Architectural Hardware Consultant:
 1. Engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 2. Independent Architectural Hardware Consultant shall inspect door hardware and prepare written report whether installed work complies with or deviates from requirements, whether door hardware is properly installed and adjusted, and prepare a specific list of any deficiencies, a copy of which shall be provided to Architect.
 3. Contractor shall correct all deficiencies noted in above report.
 4. Independent Architectural Hardware Consultant shall re-inspect door hardware and prepare a report certifying correction of deficiencies and compliance with requirements.

3.10 COMPLETION

- A. When complete all hardware shall be properly secured in place and all exposed surfaces shall be clean and free from scratches, paint, and other defects and damages.
- B. Contractor shall demonstrate that all keys properly operate the locks as identified in the approved Keying Schedule.

3.11 DOOR HARDWARE SETS

- A. The following is a general listing of hardware requirements. Provide hardware items required by established standards and practices to meet state and local codes, whether or not specifically indicated in the following sets.
- B. Silencers and gasketing, where listed in Hardware Sets, may be omitted at openings where door frames are provided with integral seals if integral seals satisfy all applicable Codes and Regulations.
- C. Refer to Door Schedule and/ or Drawings for door opening information, hardware set assignment, and related requirements.
- D. Provide knurled hardware at electrical, mechanical rooms.
- E. Finish to match existing.

Set: SD-1.0

Description: Paired Opening – Student Dining

| | | | |
|------------------------------------------------------|------------------------|-----|----------|
| Heavy Weight Hinges | T4A3786 4.5 x 4.5 | US4 | McKinney |
| SVR Exit Device, 2 Classroom, Cylinder Dogging | CPC 16 43 8743 ETL | US4 | Sargent |
| 2 Closers | UNI-7500 | | Norton |
| 2 Kick Plates | K1050 10" High CSK 4BE | US4 | Rockwood |
| Silencers | 608 | | Rockwood |

Set: SD-2.0

Description: Single Opening – Student Dining

| | | | |
|------------------------------------------------------|------------------------|-----|----------|
| Heavy Weight Hinges | T4A3786 4.5 x 4.5 | US4 | McKinney |
| Rim Exit Device, 1 Classroom, Cylinder Dogging | CPC 16 43 8843 ETL | US4 | Sargent |
| 1 Closers | UNI-7500 | | Norton |
| 1 Kick Plates | K1050 10" High CSK 4BE | US4 | Rockwood |
| Silencers | 608 | | Rockwood |

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Section 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install:
 - 1. Metal furring and framing where indicated on the Drawings, including cross bracing and knee bracing.
 - 2. Metal ceiling and soffit framing, including hanger attachments, wire hangers, and screwable metal tee grid system.
 - 3. Reinforcing plate blocking.
 - 4. Deflection track assemblies at tops of metal stud partitions.
 - 5. Metal furring clips at structural steel components.
 - 6. Universal grid system for support of overhead work required as part of this Section 09 22 16.

1.3 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- C. Section 06 10 00 - ROUGH CARPENTRY:
 - 1. Wood blocking.
 - 2. Installation of metal door frames in veneer plaster work.
- D. Section 08 31 00 - ACCESS DOORS AND PANELS: Shop primed access panels, occurring in partitions and walls.
- E. Section 09 29 00 - GYPSUM BOARD: Gypsum board system, applied over metal framing installed by this Section 09 22 16, including: wall board and related trim components.
- F. Section 09 51 00 - ACOUSTICAL CEILINGS: Suspended acoustical tile ceiling, including metal suspension system.
- G. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Supply and return air registers.

- H. Division 26 - ELECTRICAL: Independent hangers for suspended lighting fixtures.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
1. ASTM A568 – Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
 2. ASTM A653 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
 3. ASTM A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 4. ASTM A1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
 5. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
 6. ASTM C636 – Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 7. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.
 8. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 9. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 10. ASTM D226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
 11. ASTM D412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.
 12. ASTM D573 - Standard Test Method for Rubber—Deterioration in an Air Oven.
 13. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications.
 14. ASTM D2240 - Standard Test Method for Rubber Property—Durometer Hardness.
 15. ASTM E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 16. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 17. ASTM F1267- Standard Specification for Metal, Expanded, Steel.

18. GA 203 - Installation of Screw-Type Steel Framing Members to Receive Gypsum board.

1.5 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.

1.6 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards, specified materials, and methods of construction.
- B. Sole Source: Obtain products required for the Work of this Section from a single manufacturer.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
- B. Storage and Handling Requirements:
 1. Store and handle materials following manufacturer's recommended procedures, and in accordance with material safety data sheets.
 2. Protect materials from damage due to moisture, surface contamination, corrosion and damage from construction operations and other causes.

1.8 SEQUENCING AND SCHEDULING

- A. Work of this Section shall be closely coordinated with the work of Section 09 26 13 - GYPSUM VENEER PLASTERING to assure the steady progress of the Contract.
- B. Coordinate the work of this Section with the respective trades responsible for installing interfacing work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 1. Metal components and related items:
 - a. Clarkwestern Dietrich Building Systems, LLC, Schiller Park, IL.
 - b. Marino\Ware, Division of Ware Industries, South Plainfield NJ.
 - c. Cemco Steel Framing and Metal Lath, City of Industry, CA.
 - d. Telling Industries, Mentor, OH.
 - e. Super Stud Building Products, Inc., Edison NJ.

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2. Deflection track assemblies:
 - a. Clarkwestern Dietrich Building Systems, LLC, Schiller Park, IL.
 - b. Cemco Steel Framing and Metal Lath, City of Industry, CA.
 - c. The Steel Network, Inc., Durham, NC.
 - d. Fire Trak Inc., Watkins, MN.
 3. Suspended furring system for ceilings and soffits:
 - a. Armstrong World Industries, Inc., Lancaster, PA.
 - b. Chicago Metallic Corporation, Chicago IL.
 - c. Donn Corporation, Westlake OH.
- B. The design and details as shown on the drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

2.2 DESCRIPTION

A. Regulatory Requirements

1. Obtain certificate of compliance from authority having jurisdiction indicating approval of specified products.
2. Fire resistance ratings: Where veneer plaster systems with fire-resistance ratings are indicated, provide materials and assemblies of the rating required, tested per ASTM E 119, which are identical to those indicated by reference to Gypsum Association file numbers in "Fire Resistance Design Manual" or to design designation in the Underwriters Laboratories "Fire Resistance Directory" or in listing of other testing agencies acceptable to authorities having jurisdiction and to the Owners' insurance underwriters.
 - a. Fire-Test-Response Characteristics: Provide components that comply with rating requirements specified for fire-rated assemblies under UL 2079 for non-load bearing wall systems.
 - 1) Deflection Clips and Firestop Track: Connections and/or top runner provided in fire-resistance-rated assemblies shall be certified by UL 2079 for cyclic movement requirements.

2.3 STEEL

A. Sustainability Requirements:

1. Recycled content of Steel: Use maximum available percentage of recycled steel. Steel framing products incorporated into the work shall contain not less than 30 percent of recycled steel.

2.4 FRAMING MATERIALS

- A. "Hat shaped" Furring channels: 7/8 x 2-3/4 inch, roll-formed, hat-shaped, furring channel 25 gage hot-dip galvanized steel conforming to ASTM C 645.
- B. Resilient furring channels: Roll-formed, hat-shaped, 1/2 x 2-5/8 inch, 26 gage hot-dip galvanized steel conforming to ASTM C 645, with pre-punched holes, equal to Unimast Metal Channel "RC1".

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- C. Furring channels: 'Z-shaped' 1-1/2 inch depth, roll-formed, 25 gage (0.179 inch [0.45 mm] minimum thickness), hot-dip galvanized steel.
- D. Studs: 'C-shaped' screw studs, hot-dip galvanized steel complying to ASTM C 645, 20 gage-equivalent (nominal 0.02 inches [0.75 mm] factory ribbed and/or embossed for performance equivalent to 20 gage (0.0329 inch [0.84 mm] minimum thickness studs), of widths indicated on the Drawings.
 - 1. Acceptable products include the following or approved equal:
 - a. Clarkwestern Dietrich Building Systems, LLC, product "UltraSTEEL, USTE series".
 - b. Marino\Ware, Division of Ware Industries, product: "ViperStud Viper20".
 - c. Cemco Steel Framing and Metal Lath, product; "ViperStud Viper20".
 - d. Telling Industries, product; "ViperStud".
 - e. Super Stud Building Products Inc., product: "Edge EQ, EDS20P".
 - 2. Provide full 20 gage (0.0329 inch [0.84 mm] minimum thickness studs where required under the indicated UL assemblies to meet fire resistance ratings.
- E. Runners for metal studs: 'U-shaped' hemmed, hot-dip galvanized steel track conforming to ASTM C645, of gage and width to match respective stud sizes, or heavier gage per design requirements, having 1-1/4 inch or 2 inch leg as indicated, provided at tops and bottoms of all studs and at heads of all openings in stud partitions.
- F. Internal reinforcement for various stud conditions, and bracing: 10 gage, minimum, galvanized steel.
- G. Furnish cross bracing and knee bracing, to assure a completely rigid assembly on metal stud partitions and furred areas.

2.5 DEFLECTION TRACK ASSEMBLIES:

- A. Non Fire-Rated Assemblies
 - 1. Deflection Track: Manufacturer's standard top runner with extended flanges designed to prevent cracking of gypsum board applied to interior partitions resulting from deflection of the structure above fabricated from steel sheet complying with ASTM A 653 or ASTM A 568. Thickness as indicated for studs, and width to accommodate depth of studs, and the following configuration.
 - a. Top runner with extended deep flanges that have one of the following: V-shaped offsets that compress, slots 1 inch on center that allow fasteners for stud attachment; 16 gage sliding clip assemblies attached to top track and clipped to stud, or double track systems required to meet anticipated vertical movement.
 - 2. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - a. Clarkwestern Dietrich Building Systems, LLC, product; "Deep Leg Deflection Track System", "Fast Top Clip", or "DoubleTrack System".
 - b. Marino\Ware, Division of Ware Industries, product: "Slotted Track".
 - c. Cemco Steel Framing and Metal Lath, product; "Slotted Track CST".

- d. Telling Industries, product; "ViperTrack Deep Leg Deflection Track".
 - e. Super Stud Building Products Inc., product: "ITTC 450 Top Track Deflection Clip".
 - f. The Steel Network, Inc., product; "VertiTrack VT", "VertiTrack VTD", or "VertiClip SLD".
- B. Fire-Rated Assemblies: Head of wall dynamic fire rated joint systems for assemblies in compliance with UL 2079 HW-D. Provide clips or deep leg track system including step bushings complying with ASTM C 645 fabricated from steel sheet complying with ASTM A 653 or ASTM A 568. Thickness as indicated for studs, and width to accommodate depth of studs.
1. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - a. Clarkwestern Dietrich Building Systems, LLC, product; "SLP-TRK Slotted Deflection Track".
 - b. Cemco Steel Framing and Metal Lath, product; "FAS Track UL Assemblies".
 - c. The Steel Network, Inc., Durham, NC. product; "VertiClip SLD".
 - d. Fire Trak Inc., Watkins, MN, product "Fire Trak", or "Posi Clips"
- C. Coordination: Verify with partition schedule on the Drawings to ensure proper depth of flange offsets at various partitions types.

2.6 CEILING AND SOFFIT SUSPENSION MATERIALS

- A. Hanger attachments: Galvanized steel hanger eyes, of size and capacity to safely sustain a live load of at least 150 pounds per hanger attachment.
- B. Hangers: Soft temper, pre-stretched galvanized carbon steel wire, conforming with ASTM A641, with a yield stress load of at least three times design load, but not less than 12 gage.
- C. Grid system for direct attachment of plaster base and veneer plaster finish: Comprised of double web main furring tees, 1 1/2 inches high by 1-3/8 inches flange face by 0.020 inch thick; double web cross tees, 1 1/2 inches high by 15/16 inch flange face by 0.020 inch thick; 0.020 inch thick wall channels, with 1 1/2 inches interior web height; and all splices, clips, and related items. Provide Underwriters Laboratories Label fire-rated assemblies for locations requiring fire-rated ceilings and soffits
1. Armstrong Word Industries product "Drywall Furring System".
 2. Chicago Metallic product "system 640 Furring System".
 3. Donn (USG) Corporation, Chicago IL., product "USG Drywall Furring System" with DGLW tees.

2.7 CEILING AND SOFFIT FRAMING MATERIALS

- A. Carrying channels, 2 inches deep, 16 gage cold-rolled channels, galvanized.
- B. Support channels: 3/4 inches deep, 16 gage cold-rolled channels, galvanized.

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- C. Furring Channels: 7/8 x 2-3/4 inch, roll-formed, hat-shaped, furring channel 25 gage hot-dip galvanized steel conforming to ASTM C 645.
- D. Metal Studs used in ceiling framing: 'C-shaped' screw studs, hot-dip galvanized steel complying to ASTM C 645, 25 gage, of widths indicated on the Drawings, or other gages under the specified standards to meet fire resistance ratings.

2.8 ACCESSORIES

- A. Universal Grid System:
 - 1. Specified Manufacturer: To establish a standard of quality, design and function desired, Drawings and specifications have been based on Unistrut Corporation, Itasca IL.
 - a. Acceptable Manufacturers and products: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following.
 - 1) Unistrut Corporation, Itasca IL., product "Unistrut"
 - 2) Cooper US, Inc., Houston TX., product "Cooper B-Line".
 - 3) Gleason Partners, LLC., Grand Rapids, MI., product "Strut Channel Systems".
 - 4) Thomas & Betts Corporation, Memphis TN, product "Kindorf Superstrut".
 - b. There are no other manufacturers of this product type available in the United States, fabricators may choose to fabricate grid system components using structural steel shapes, with submittal and approval of complete engineering Drawings and calculations as a substitution.
 - c. Finish:
 - 1) Rust inhibiting acrylic enamel paint applied by electro-deposition, after cleaning and phosphating, and thoroughly baked. Color is per Federal Standard 595a color number 14109 (dark limit V-). Finish to withstand minimum 400 hours salt spray when tested in accordance with ASTM B 117.
 - 2. All channel members shall be fabricated from structural grade steel conforming to the following ASTM specifications:
 - a. ASTM A 653 Grade A
 - 3. All fittings shall be fabricated from steel conforming to one of the following ASTM specifications:
 - a. ASTM A 36, A 575, or A 576.
 - 4. All materials shall be stamped and identifiable by manufacturer and part number (where appropriate). Materials that appear damaged, distressed, unidentifiable or rusted shall not be used and will not be accepted.
- B. Metal sheet plate blocking and bracing, where indicated: galvanized sheet 0.0312 inch thickness (20 gage).
- C. Metal clips for wall framing, where indicated: Galvanized steel sheet 0.0625 inch thickness (16 gage).
- D. Fasteners:

1. Expansion-type fasteners for securing vertical concrete and masonry surfaces.
 2. Concrete stub nails for securing runners to concrete.
 3. N^o.7 by 7/16 inch Pan head self-drilling screw to attach metal framing components.
- E. Asphalt felt moisture barrier: ASTM D226, No. 15 asphalt saturated roofing felt.

PART 3 – EXECUTION

3.1 INSTALLATION, QUALITY STANDARDS

- A. General: Perform erection procedures for the various veneer plaster system conditions, except as otherwise specified, as set forth in GA 201, GA 206, the written instructions of veneer plaster manufacturer, together with the additional requirements specified herein and as indicated on the Drawings.

3.2 INSTALLATION OF FURRING

- A. Install metal furring channel horizontally, with channels spaced not more than 16-inch on centers, and attaching the channels to the masonry or concrete substrates with expansion type fasteners spaced not more than 8 inches on centers. Shim beneath channels as needed to ensure that a uniform receiving plane is maintained throughout.

3.3 INSTALLATION OF PARTITION FRAMING, GENERAL

- A. Install metal runners at floor and ceiling to structural elements with suitable fasteners located 2 inches from each end and intermediate fasteners spaced no greater than 24 inches.
- B. Install metal stud framing with open side facing in same direction, engaging floor and ceiling runners.
1. Stud spacing:
 - a. Typical: 16 inches on-center, unless otherwise indicated on the Drawings.
 - b. For partitions supporting wall cabinets and other wall mounted equipment: 12 inches on-center.
 2. When necessary to splice studs, nest stud with 8 inch overlap and screw studs together with screws on both flanges.
 3. Where studs are installed directly to exterior masonry walls, install asphalt felt between stud and wall.
- C. Install studs in direct contact with all door and window frame jambs, abutting partitions, partition corners and construction elements; screw fasten with screw through both flanges of studs and track, top and bottom.
- D. Securely anchor studs to jamb and head anchors of steel door frames. Over head of frames and openings in partitions, install a horizontal section of runner with a web flange bent at each end, horizontally and secure to strut studs with two screws in each bent web. Provide cripple studs over wall openings. Where indicated provide boxed headers fabricated from steel studs.

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- E. Where horizontal studs are used for wall reinforcing or framing, cut pieces of stud and install horizontally between vertical studs. Cope horizontal studs to fit between flanges of vertical studs. Bend ends of horizontal studs or install clip angles in order to secure by screwing to vertical studs.
- F. Furnish and install additional cross bracing and knee bracing and other framing elements, required to assure a completely rigid assembly on metal stud partitions and furred areas, whether or not such bracing has been indicated on the Drawings, and for proper receipt of items which will be attached to partition surfaces.

3.4 INSTALLATION OF DEFLECTION TRACK

- A. Isolate interior metal stud framing and shaft wall framing from building structure to prevent transfer of loading imposed by structural movement due to deflection.
 - 1. Install deflection track top runner in accordance with manufacturer's instructions and required to attain lateral support and avoid axial loading.
 - 2. Install fire-rated deflection track top runner in accordance with manufacturer's instructions at top of fire-rated, corridor and smoke partitions.

3.5 INSTALLATION OF REINFORCING PLATE BLOCKING

- A. Install steel reinforcing plates in partitions and furred walls for the support of wall mounted objects as follows:
 - 1. Wherever such reinforcing plates are indicated on the drawings.
 - 2. All wall mounted casework locations.
 - 3. All markerboard and tackboard locations.
 - 4. All wall mounted acoustical room components.
- B. Secure gage sheet metal reinforcing plates to steel studs with 1-1/4", Type "S" bugle head screws.

3.6 INSTALLATION - CEILING SUSPENSION SYSTEM

- A. Coordinate layout and installation of suspension system components for suspended ceilings with other work supported by, or penetrating work of this section. Re-adjust ceiling suspension system, prior to the installation of plaster base and after installation of mechanical and electrical equipment and fixtures by the respective trades.
- B. Install all components of concealed grid system in accordance with the manufacturer's instructions, with current ASTM C 636 requirements, with design and installation of suspended grid system safely sustaining a membrane loading of at least 7.9 pounds per square foot.
- C. Install hangers not more than 24 inches on centers over locations of main tee members. Install hanger wires to hanger attachment with triple twists. Install additional wires required to provide support for main tees, at intervals not exceeding four feet, wherever main tees must be interrupted in order to install other work and at all other locations as may be directed by the Architect.
- D. Install main tees parallel to long dimension of the area, at spacing not to exceed 48 inches on-center. Secure with hanger wire as the work progresses. Install cross

tees as recommended by the system manufacturer, except spacing shall not exceed 16 inches on-center.

3.7 INSTALLATION OF CEILING AND SOFFIT FRAMING

- A. Install framing to height indicated, independent of walls, columns, and above ceiling work. Erect after Work above ceiling is complete. Coordinate the location of hangers with other work.
- B. Securely anchor hangers to structural members or embed in structural slab. Space hangers to achieve deflection limits indicated.
- C. Space main carrying channels at maximum 48 inch centers; not more than 4 inches from wall surfaces. Lap splice securely.
- D. Securely fix furring channels or metal studs to hangers to prevent turning or twisting and to transmitted full load to hangers.
 - 1. Place furring channels perpendicular to carrying channels at 16 inches on center, not more 1 inch from perimeter walls and rigidly secure. Lap splice securely.
 - 2. Screw fasten metal studs perpendicular to carrying channels at 16 inches on center, not more 1 inch from perimeter walls. Lap splice securely.
- E. Reinforce openings in suspension system which interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 24 inches past each opening.

3.8 TOLERANCES

- A. Install partition and ceiling framing and furring with a maximum variation from true flatness of 1/8 inch per 10 feet, non-cumulative.

End of Section

Section 09 29 00
GYPSUM BOARD

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. The work of this Section consists of gypsum board (drywall) and trim finishes for partitions, ceilings, and soffits, where shown on the Drawings, as specified herein, and required for a complete and proper installation.
- B. Furnish and install:
 - 1. Taped, compounded and sanded gypsum board finishes.
 - 2. Abuse resistant gypsum board.
 - 3. All trim and accessory components related to gypsum board work.
 - 4. Reveal trim in gypsum board work.
 - 5. Acoustical joint sealant and backing at perimeter of gypsum board partitions.
 - 6. Impact resistant gypsum board at Gymnasium.
- C. Install access panels occurring in gypsum board work furnished by Section 08 31 00 - ACCESS DOORS AND PANELS, and by trades requiring the same.

1.3 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- C. Section 06 10 00 - ROUGH CARPENTRY:
 - 1. Supplemental wood blocking supporting gypsum board.
 - 2. Installation of metal door frames in gypsum board work.
- D. Section 07 92 00 – JOINT SEALANTS: Furnishing and installing perimeter sealant and backing at gypsum drywall partitions.
- E. Section 08 31 00 - ACCESS DOORS AND PANELS, and by trades requiring the same: Shop primed access panels, occurring in partitions and walls.
- F. Section 09 22 16 - NON-STRUCTURAL METAL FRAMING: Non-load bearing partition and ceiling framing and furring.

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- G. Section 09 51 00 - ACOUSTICAL CEILINGS: Suspended acoustical tile ceilings.
- H. Section 09 91 00 - PAINTING: Applied finish coatings.
- I. Division 21 - FIRE SUPPRESSION: Sprinkler heads in ceiling system.
- J. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Supply and return air registers.
- K. Division 26 - ELECTRICAL: Independent hangers for suspended lighting fixtures.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - 2. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
 - 3. ASTM C645 – Standard Specification for Nonstructural Steel Framing Members.
 - 4. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 - 5. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
 - 6. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - 7. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - 8. ASTM C1177/C1177M – Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - 9. ASTM C1278/C1278M - Standard Specification for Fiber-Reinforced Gypsum Panel.
 - 10. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
 - 11. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
 - 12. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels.
 - 13. ASTM C1766 - Standard Specification for Factory-Laminated Gypsum Panel Products.

14. ASTM D1784 - Standard Classification System and Basis for Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
15. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
16. ASTM D3678 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Interior-Profile Extrusions.
17. ASTM E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
18. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
19. ASTM G21 – Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
20. GA 201 - Gypsum Board for Walls and Ceilings.
21. GA 214 - Recommended Specifications for Levels of Gypsum Board Finish, Glass Mat and Fiber-Reinforced Gypsum Panels.
22. GA 216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
23. GA 220 - Recommended Specifications for Gypsum Board Winter Related Job Problems.
24. UL - Fire Resistance Directory.
25. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
26. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. General: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.
2. Work of this Section shall be closely coordinated with the work of Section 09 22 16 - NON-STRUCTURAL METAL FRAMING, to assure the steady progress of the Contract.

B. Sequencing:

1. Do not install gypsum board until all pipes, ducts, conduits, and other such items which are to be enclosed thereby, have been permanently installed, inspected and approved.

1.6 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.
2. Shop Drawings:

- a. Details of any special conditions associated with fireproofing.
- b. Mark-up a set of blackline interior elevations indicate corrections to grid layout and provide dimensioning showing locations of all proposed control joints and expansion joints.
 - 1) Provide interior elevation drawings for interior elevations which are not included as part of the Contract Drawing set.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards, specified materials, and methods of construction.
- B. Sole Source: Obtain products required for the Work of this Section from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum board.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
 2. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Storage and Handling Requirements:
 1. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes.
 - a. Neatly stack board materials flat to prevent sagging.
 2. Handle board materials so to prevent damage to edges, ends and surfaces.
 3. Protect trim, accessories and corner beads from being bent or damaged.

1.9 SITE CONDITIONS

- A. Environmental Conditions: In accordance with GA 216, maintain minimum ambient temperature of 50 degrees Fahrenheit 48 hours before, during taping and compounding, and until completely dry thereafter.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 1. Gypsum board products:
 - a. United States Gypsum Company, Chicago IL. (USG).
 - b. National Gypsum Company, Gold Bond Products Division, Charlotte NC. (Gold Bond).
 - c. G-P Gypsum Corporation, Atlanta GA.

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- d. CertainTeed Corporation, Valley Forge, PA.
 2. Polyvinyl chloride trim and accessories:
 - a. Plastic Components, Inc., Miami FL.
 - b. Trim-Tex Drywall Products, Lincolnwood IL.
 - c. Vinyl Corporation, Miami FL.
 - d. Alabama Metal Industries Corporation, (AMICO)Birmingham, AL.
 3. Reveal trim:
 - a. Flannery, Inc., San Fernando, CA.
 - b. Fry Reglet Corporation, Norcross GA.
 - c. Gordon Inc., Shreveport LA.
 - d. Pittcon Industries, Inc., Riverdale MD.
 - e. Stockton Products, North Las Vegas, NV.
 4. Joint Sealants:
 - a. Tremco, Beachwood OH.
 - b. Pecora Corporation, Harleysville PA.
 - c. Owens Corning, Toledo OH.
 - d. Specified Technologies, Inc. (STI), Somerville NJ.
- B. The design and details as shown on the Drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

2.2 DESCRIPTION

- A. Regulatory Requirements
1. Obtain certificate of compliance from authority having jurisdiction indicating approval of specified products.
 2. Fire resistance ratings: Where gypsum board systems with fire-resistance ratings are indicated, provide materials and assemblies of the rating required, tested per ASTM E119, which are identical to those indicated by reference to Gypsum Association file numbers in "Fire Resistance Design Manual" or to design designation in the Underwriters Laboratories "Fire Resistance Directory" or in listing of other testing agencies acceptable to authorities having jurisdiction and to the Owners' insurance underwriters.

2.3 BOARD MATERIALS

- A. Fire rated gypsum board: UL fire resistance rated, ASTM C1396 'Type X' board, 5/8 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges.
1. Acceptable products include the following, or approved equal:
 - a. USG Sheetrock brand "Firecode Core"
 - b. National Gypsum Company, Gold Bond brand product "Fireshield Gypsum Board".
 - c. G-P Gypsum Corporation product, "Toughrock Fireguard".
 - d. CertainTeed Corporation, product "Type X Drywall".

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- B. Sag-resistant gypsum board ceiling panels: Non-rated 1/2 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges, conforming to ASTM C1396, ASTM C1395 and ASTM C1396.
1. Acceptable products include the following or approved equal:
 - a. USG Sheetrock brand product "Ultralight Panels Mold Tough".
 - b. National Gypsum Company, Gold Bond brand product "High Strength Ceiling Board".
 - c. G-P Gypsum Corporation product, "ToughRock CD Ceiling Board".
 - d. CertainTeed Corporation, product "Easi-Lite 30 Minute Lightweight Drywall".
 2. At fire-resistant rated ceilings, provide 5/8 inch thick fire-rated gypsum board as specified herein.
- C. Mold and moisture resistant (MR) gypsum board, fire resistant: water-resistant, mold-resistant interior wall panel; conforming to ASTM C630 and C1396 (Section 5), with Type "X" core 5/8 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges.
1. Treated paper faced acceptable products include the following or approved equal:
 - a. USG Sheetrock brand "Mold Tough Firecode Panels".
 - b. National Gypsum Company, Gold Bond brand product "XP Fireshield Gypsum Board".
 - c. CertainTeed Corporation, product "Moisture Resistant Gypsum Board".
- D. Abuse-Resistant Gypsum Board (ARGB): UL type FRX fire resistance type, ASTM C-1278 board, complying with ASTM C1658 and ASTM C36.
1. ASTM C1629 Test Result Characteristics, minimum Level ratings:
 - a. Abrasion: Level 2.
 - b. Indention: Level 1.
 - c. Soft Body Impact: Level 2.
 - d. Hard Body Impact: Level 1.
 2. Acceptable products include the following or approved equal:
 - a. USG Sheetrock brand product "Moldtough AR", or "Fiberock AR panels".
 - b. National Gypsum Company, Gold Bond brand product "Hi Abuse XP".
 - c. G-P Gypsum Corporation product, "Dense Armor Plus Abuse".
 - d. CertainTeed Corporation, product "Extreme Abuse Resistant Drywall with M2Tech".
- E. Impact-Resistant Gypsum Board (IRGB): UL type FRX fire resistance type, ASTM C-1278 board, complying with ASTM C1658 and ASTM C36.
1. ASTM C1629 Test Result Characteristics, minimum Level ratings:
 - a. Abrasion: Level 3.
 - b. Indention: Level 1.
 - c. Soft Body Impact: Level 3.
 - d. Hard Body Impact: Level 2.

2. Acceptable products include the following or approved equal:
 - a. USG Sheetrock brand product "Mold-Tough VHI".
 - b. National Gypsum Company, Gold Bond brand product "Hi Impact XP".
 - c. G-P Gypsum Corporation product, "Dense Armor Plus Impact".
 - d. CertainTeed Corporation product "Extreme Impact Resistant Drywall with M2Tech".

2.4 ACCESSORIES

- A. Gypsum board polyvinyl chloride trim accessories, conforming to ASTM D 1784 and C 1047.
 1. J Bead: Edge trim with exposed 1/2 inch face cap, furnish trim model number corresponding to the board thickness where installed.
 - a. Plastic Components model number: 200X-50 (for 1/2 inch thick board) or 200S-58 (for 5/8 inch thick board).
 - b. Trim-Tex, model: 1110 (for 1/2 inch thick board) or 1210 (for 5/8 inch thick board).
 - c. Vinyl Corp. model number: JB50 (for 1/2 inch thick board) or JB58 (for 5/8 inch thick board).
 - d. AMICO. model number: AMJB50 (for 1/2" thick board) or AMJB58 (for 5/8" thick board).
 2. L Bead: casing edge trim, furnish trim model number corresponding to the board thickness where installed
 - a. Plastic Components model number: 221-50 (for 1/2 inch thick board) or 221-58 (for 5/8 inch thick board).
 - b. Trim-Tex, model: 1710 (for 1/2 inch thick board) or 1810 (for 5/8 inch thick board).
 - c. Vinyl Corp. model number: SB50 (for 1/2 inch thick board) or SB58 (for 5/8 inch thick board).
 - d. AMICO. model number: AMSB50 (for 1/2 inch thick board) or AMSB58 (for 5/8 inch thick board).
 3. L-Bead with removable leg: Casing edge trim for joints at ceilings doors and windows, with removable leg strip, furnish trim model number corresponding to the board thickness where installed
 - a. Plastic Components model number: 224-50 (for 1/2 inch thick board) or 224-58 (for 5/8 inch thick board).
 - b. Trim-Tex model: 9002 (for both 1/2 inch thick board and 5/8 inch thick board).
 - c. Vinyl Corp. model number: CT-50(for 1/2 inch thick board) or CT-58 (for 5/8 inch thick board).
 - d. AMICO product "Zip Strip" model number: AMZIP50 (for 1/2 inch thick board) or AMZIP58 (for 5/8 inch thick board).
 4. Corner beads, 90 degree with 1-1/4 inch flanges:
 - a. Plastic Components model number: 209.
 - b. Trim-Tex model: 4010.
 - c. Vinyl Corp. model number: CB125.

- d. AMICO. model number: AMCB125.
5. Control joints: "V" type joint with nominal 3/16 inch reveal and removable temporary tape:
 - a. Gold bond model "EZ Strip Expansion Joint".
 - b. Plastic Components model number: 2027-16.
 - c. Vinyl Corp. model number: CJV16.
 - d. AMICO. model number: AMDCJV16.
- B. Paper faced trim accessories for use with Abuse Resistant Gypsum Board:
 1. Corner beads (at outside corners): Paper-faced galvanized steel sheet for finishing with joint compound conforming with ASTM C-1047, equal USG product "Sheetrock" Brand Paper-Faced Metal Corner Bead.
 2. Casing beads: Paper-faced galvanized steel sheet for finishing with joint compound conforming with ASTM C-1047, equal to USG product "Sheetrock" Brand Paper-Faced Metal Beads and Trims.
 - a. LC-Bead (J-Bead): Use at exposed panel edges.
 - b. L-Bead: Use where indicated
 - c. U-Bead: Use where indicated.
 3. Control joints: Solid zinc "V-shaped control joint, having 3/32 inch thick perforated grounds, equal to USG Control Joint No. 093.
- C. Reveal trim: extruded aluminum trim with 1 inch wide recess by nominally 1/2 inch deep reveal channel with punched tapered fins.
 1. Fry Reglet Corporation, model number: DRM 50-100.
 2. Gordon Inc., model number: 510-5/8.
 3. Pittcon Industries, Inc., model number: SWR-100-050.
- D. Reveal trim: extruded aluminum trim with 1 inch wide recess by nominally 5/8 inch deep reveal channel with punched tapered fins.
 1. Fry Reglet Corporation, model number: DRM 625-100.
 2. Gordon Inc., model number: 510-1/2.
 3. Pittcon Industries, Inc., model number: SWR-100-063.
- E. Reveal trim: extruded aluminum trim with 1 inch wide recess by nominally 3/4 inch deep reveal channel with punched tapered fins.
 1. Fry Reglet Corporation, model number: DRM 625-000.
 2. Gordon Inc., model number: 510-0/0.
 3. Pittcon Industries, Inc., model number: SWR-100-000.
- F. Tapes and compound:
 1. Joint tape: Nominal 2 inch wide, high strength, cross-fibered paper drywall tape.
 2. Joint Compound for setting tape: 'Speed-setting type compound', field mixed equal to USG "Durabond 20" or Gold bond "Stay Smooth 30".
 3. Joint Compound for finishing: field mixed joint compound equal to USG "Durabond 90" and Gold bond "Stay Smooth 90", or factory pre-mixed

compound equal to USG "Ready-Mixed Joint Compound" and Gold Bond "All Purpose Compound".

- G. Fasteners (interior board systems):
1. Type S, bugle head screws complying with ASTM C 1002, for applying gypsum board to metal framing, ceiling grid system, and furring channels.
 - a. Not less than 1 inch long for single layer gypsum board.
 - b. Not less than 1-5/8 inch [41mm] long for double-layer gypsum board.
 2. Type W, bugle head screws complying with ASTM C 1002, for applying gypsum board to wood framing and furring.
 - a. Not less than 1-1/4 inch [31mm] long for single layer gypsum board
 - b. Not less than 1-5/8 inch [41mm] long for double-layer gypsum board,
 3. Type S-12, fine thread self-drilling screws complying with ASTM C 1002, for applying gypsum board to light gage metal framing.
 - a. Not less than 1 inch [25 mm] long for 1/2 inch thick single layer gypsum board.
 - b. Not less than 1-1/4 inch [31mm] long for 5/8 inch thick single layer gypsum board.
 - c. Not less than 1-5/8 inch [41mm] long for double-layer gypsum board,
- H. Ceiling buttons, perforated type, 1 inch diameter, for use at multiple layered gypsum board ceiling systems.
- I. Laminating adhesive: USG Durabond Joint Compound 90, USG Ready-mixed All Purpose Compound, or equal.
- J. Joint Sealers (interior acoustical sealant type): One component acrylic latex, permanently elastic, non-staining, non-shrinking, non-migrating and paintable. Acceptable products include the following, or approved equal.
1. Tremco, Beachwood OH; product, "Acoustical Sealant".
 2. United States Gypsum Company, Chicago IL; product "USG Acoustical Sealant".
 3. Pecora Corporation, Harleysville PA; product "AC-20 FTR".
- K. Liquid sealer for cuts, holes and ends of moisture resistant board; provide one of the following or acceptable equal.
1. Shellac type sealer: mix 4 pounds of orange or bleached shellac dissolved in 1 gallon of denatured ethyl-alcohol.
 2. Varnish type sealer: Fast setting marine varnish.

2.5 SOURCE QUALITY CONTROL

- A. Obtain gypsum board and shaft wall products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that all items which are to be enclosed by Work of this Section, have been permanently installed, inspected and approved.
- B. Inspect framing and other substrates; verify that they are in proper condition to receive the work of this Section.
- C. Beginning of installation means acceptance of existing substrate and site conditions.

3.2 PREPARATION

- A. During the operation of gypsum board work, protect all wood, metal, glass, flooring, and other finished materials against undue soilage and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged and soiled.

3.3 INSTALLATION - GENERAL

- A. General: Perform erection procedures for the various gypsum board system conditions, except as otherwise specified, as set forth in GA 201, GA 216, GA 220, the written instructions of gypsum board manufacturer, together with the additional requirements specified herein and as indicated on the Drawings.
- B. Where fire-resistive rated assemblies are indicated, erect gypsum board systems in strict accordance with the manufacturers' UL listed test constructions for the required fire rating on each specific assembly.
- C. Install specified control joints where indicated on Drawings and where run of partitions, or furred surfaces exceeds 30 feet. Show locations of all control joints on shop drawings.
 - 1. Locate control joints at corners of head frames of doors.
 - 2. Run vertical control joints continuously to top of partition, shaft wall or furred area, as applicable.

3.4 INSTALLATION OF GYPSUM BOARD

- A. Screw fasten only, gypsum board to framing and furring, with ends and edges occurring over firm bearing. At all door jambs screw fasten gypsum panels 8 inches on center to both box studs
 - 1. Erect single layer fire-resistance rated gypsum board vertically.
 - 2. Erect standard and moisture resistant layer board in most economical direction.
 - 3. Erect ceiling and soffit gypsum boards to meet UL requirements, where applicable, stagger end joints over supports. Secure gypsum board with fasteners inserted through ceiling buttons; anchor fasteners directly to framing or suspended support system.
- B. Install gypsum board to provide ¼ inch gap above concrete slab.

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- C. Wherever items penetrate the gypsum board surfaces, use extra care in cutting the gypsum board to ensure a uniformly dimensioned joint between the penetrating item and the gypsum board, and fill joints with specified sealant material. Verify the expected deflection factor of the penetrating members, and cut the gypsum accordingly, to prevent damage thereto from the deflecting members.
- D. Treat cut edges and holes in moisture resistant gypsum board with approved liquid sealer.
 - 1. If shellac is used, apply in thin layers to dry quickly.

3.5 INSTALLATION OF REVEAL TRIM

- A. General: Install reveal trim in accordance with trim manufacturer's recommendations and as follows:
 - 1. Lay out drywall surface with chalk lines to exact heights and locations indicated. Cut out gypsum board with router.
 - 2. Cut extrusions to proper lengths and dry-fit to drywall. Mitre all corners for hairline joints.
 - 3. Screw install trim through at 8 inches on center maximum with standard bugle head drywall screws.

3.6 APPLICATION OF JOINT TREATMENT

- A. Install joint tape at all joints where gypsum boards abut and where boards form internal corners, whether or not such joints will be concealed from view.
- B. Apply compound to all joints, edges, corners, fastener head depressions and abrasions in the surfaces, whether or not such conditions will be concealed from view. Sand completely smooth all compound surfaces, which will be exposed to view, and leave ready to receive applied coatings or finish.
- C. Provide the minimum levels of gypsum board finishes as defined by the Gypsum Association recommended specifications GA-214 and GA-216, per the following:
 - 1. At areas hidden from view, except as otherwise specified: Level 1.
 - 2. At areas hidden from view, requiring a fire resistance rating: Level 1.
 - 3. At areas hidden from view, requiring smoke-resistance: Level 1.
 - 4. At areas hidden from view, corridor side of all corridor partitions: Level 1.
 - 5. At concealed plenum spaces above ceilings: Level 1.
 - 6. At non-occupied spaces: Level 1.
 - 7. At surfaces scheduled to receive tile: Level 2.
 - 8. At surfaces scheduled to receive painted finishes: Level 4.
 - 9. At surfaces scheduled to receive abuse resistant and impact resistant gypsum board: Level 4.

3.7 TOLERANCES

- A. Maximum variation for gypsum board partitions and ceilings from true flatness: 1/8 inch per 10 feet, noncumulative.

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3.8 CLEANING

- A. Daily clean work areas by sweeping and disposing of debris, scraps, and deposits of compound and gypsum fill.
- B. After completion of the work of this Section, remove equipment, and clean all wall, partition, and floor areas free from deposits of gypsum fill, and other materials installed under this Section.

End of Section

Section 09 51 00
ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install suspended acoustical ceilings including suspension system and associated edge moldings.
 - 1. Provide ACT (acoustical ceiling tile) ceiling systems.
 - 2. Provide linear acoustical baffle system.
 - 3. Provide edge moldings to fit penetrations exactly, including circular penetrations
 - 4. Furnish and install joint sealant at ceiling edge angles where abutting walls and edge moldings at all sides of radiant panels.
 - 5. Universal grid system for support of overhead work required as part of this Section 09 51 00.
- B. Patching acoustical tile ceilings to match existing ceilings where disturbed by demolition and Work of this Contract. This Section includes both concealed and exposed spline ceilings, suspension systems and associated edge moldings.
 - 1. In rooms where existing partitions have been removed, instead of patching, the Contractor shall replace the entire ceiling and suspension system in the room with new.

1.3 RELATED REQUIREMENTS

- A. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- B. Section 02 41 19 - SELECTIVE DEMOLITION: Demolition of work abutting existing ceilings and demolition of existing ceilings for new construction.
- C. Section 09 29 00 - GYPSUM BOARD: Suspended drywall ceilings and soffits.
- D. Division 21 - FIRE SUPPRESSION: Sprinkler heads in ceiling system.
- E. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Air diffusion devices in ceiling.
- F. Division 26 - ELECTRICAL:
 - 1. Fire alarm and smoke detection equipment mounted in ceiling system.

2. Light fixtures and independent hangers for suspended fixtures.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 1. ASTM A641 - Zinc- Coated (Galvanized) Carbon Steel Wire
 2. ASTM C423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method "UL Classified".
 3. ASTM C523 - Light reflectance of Acoustical Material by the Integrating Sphere Reflectometer.
 4. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 5. ASTM C636 - Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 6. ASTM E84 - Surface Burning Characteristics of Building Material "UL Classified"
 7. ASTM E119 - Fire Tests of Building Construction and Materials "UL Classified".
 8. ASTM E413 - Classification for Rating Sound Insulation.
 9. ASTM E580 - Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint.
 10. ASTM E1264 - Classification of Acoustical Ceiling Products.
 11. ASTM E1414 - Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum. "UL Classified".
 12. UL Fire Resistance Directory and Building Material Directory.
 13. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.
- B. General References The following reference materials are hereby made a part of this Section by reference thereto:
 1. CISCA (Ceilings and Interior Systems Contractors Association) - Acoustical Ceilings: Use and Practice.

1.5 PERFORMANCE REQUIREMENTS

- A. Fire Resistance: Where Fire-resistance ratings are indicated or required by authorities having jurisdiction, provide materials and construction which are identical to assemblies whose fire-resistance ratings have been tested in compliance with ASTM E 119 by independent agencies acceptable to the Architect and authorities having jurisdiction.
- B. Surface Burning Characteristics: Provide UL Classified material whose surface burning characteristics, when tested in compliance with ASTM E 84 are Class A.

- C. Where the following ratings are specified, provide materials and construction which are identical to those tested by Underwriters Laboratories or equivalent independent testing agencies acceptable to the Architect.
 - 1. Noise Reduction Coefficient (NRC): Ratings have been tested in compliance with ASTM C423.
 - 2. Ceiling Attenuation Class (CAC): Ratings have been tested in accordance with ASTM E1414.
 - 3. Light Reflectance (LR): Ratings has been tested in compliance with ASTM C523.

1.6 SEQUENCING

- A. Coordinate work of this Filed Subcontract with that of other trades, affecting or affected by this work, and cooperate with the other trades as is necessary to assure the steady progress of work.
- B. Do not order or deliver any materials until all submittals, required in the listed Specification Sections included as part of this Filed Subcontract, have been received and approved by the Architect.
- C. Before proceeding with installation work, inspect all project conditions and all work of other trades to assure that all such conditions and work are suitable to satisfactorily receive the work of this Section and notify the Architect in writing of any which are not. Do not proceed further until corrective work has been completed or waived.

1.7 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.
 - 2. Shop drawings:
 - a. 1/4 inch scale plans of each room or space; indicate grid layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of mechanical and electrical items related to the system.
 - b. Large scale installation details of special conditions.
 - c. All drawings bearing dimensions of actual measurements taken at the project.
 - 3. Verification samples:
 - a. 12 by 12 inch samples of acoustical units, illustrating material and finish.
 - b. 12 inch long samples of suspension system components including main runners, cross runner and edge trim.
- B. Maintenance Material Submittals: Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS. Clearly label and package extra materials securely to prevent damage. Deliver to the Owner extra ceiling tiles and suspension framing for future repairs and maintenance, from the same manufacturer as those installed, in the following amounts.

1. Provide to the Owner, extra ceiling panel and suspension components, 3 percent of each type installed.
2. Provide to the Owner, all extra salvaged ceiling panel and suspension components which have not been utilized in the Work.

1.8 QUALIFICATIONS

- A. Applicator specializing in applying the work of this Section with a minimum of 3 years' experience.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver acoustical ceiling panel in original, unopened packages and store protected in a fully enclosed space.

1.10 PROJECT CONDITIONS

- A. Maintain uniform temperature of minimum of 60 degrees Fahrenheit and humidity of 20 to 40 percent prior to, during, and after installation.

1.11 SEQUENCING AND SCHEDULING

- A. Coordinate the work of this Section with the respective trades responsible for installing interfacing work, to allow work which will be concealed by the ceilings to be completed prior to commencing installing the ceilings in such locations.
- B. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated and overhead work is completed, tested and approved.
- C. Install acoustical units after interior wet work is dry.

1.12 WARRANTY

- A. General: Submit the following warranties under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS, and in compliance with Section 01 78 36 – WARRANTIES.
 1. Warranties shall be effective starting from Date of Project Substantial Completion and are effective for specified term lengths.
- B. In addition to the specific guarantee requirements of the GENERAL CONDITIONS and SUPPLEMENTAL GENERAL CONDITIONS, the Contractor shall obtain in the Owner's name the standard written manufacture's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

1.13 EXTRA MATERIALS

- A. Provide to the Owner, extra ceiling panel and suspension components, 3 percent of each type installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Acoustical ceiling panel:
 - a. Armstrong World Industries, Inc., Lancaster, PA.
 - b. USG Interiors Inc., Chicago, IL.
 - c. The Celotex Corporation, Architectural Ceilings Division, Tampa, FL.
 2. Suspension system:
 - a. Armstrong World Industries, Inc., Lancaster, PA
 - b. Donn Corp., Westlake, OH.
 - c. Chicago Metallic Corp., Chicago, IL.

2.2 ACOUSTICAL CEILINGS

- A. Type ACT-1, ceiling system:
1. Panel, Basis of Design: Armstrong product: "Ultima" product number 1941.
 2. Panel size: 24 inches by 24 inches by 3/4 inch thick.
 3. Panel edge: Beveled Tegral.
 4. Description: ASTM E1264 Type IV, Form 2, Pattern E, Class A flame spread, wet formed mineral fiber with acoustically transparent membrane, non-combustible, vinyl latex paint finish.
 5. Color: White.
 6. Minimum light reflectance range: LR 0.87
 7. Acoustical characteristics:
 - a. NRC: 0.75.
 - b. CAC range: 35.
 8. Ceiling Grid: 15/16 inch exposed tee grid in matching WHITE color ceiling panels except as otherwise indicated.
 - a. Basis of Design: Armstrong; 15/16" Prelude Exposed Tee System.
- B. Type ACT-2, baffle system with associated suspension components:
1. Surface Texture: Smooth.
 2. Composition: ASTM E 84, Class A flame spread, fiberglass with a scrim face and vinyl latex paint finish.
 3. Color: As selected by the Architect from the manufacturer's full range of available colors.
 4. Size: lengths as indicated by 12 inches high by 2 inch thickness.
 5. Edge: Square edge
 6. Acceptable products or approved equal: Armstrong product "Soundscapes Blades".

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- C. Ceiling Tile to match existing (for repairs where disturbed or damaged by Work): Conforming to ASTM E1264 Class A ceiling panel with texture, finish and color to closely match existing, Submit full size samples to Architect for verification of match

2.3 ACCESSORIES

A. Universal Grid Support System:

- 1. Specified Manufacturer: To establish a standard of quality, design and function desired, Drawings and specifications have been based on Unistrut Corporation, Itasca IL.
 - a. Acceptable Manufacturers and products: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following.
 - 1) Unistrut Corporation, Itasca IL., product "Unistrut"
 - 2) Cooper US, Inc., Houston TX., product "Cooper B-Line".
 - 3) Gleason Partners, LLC., Grand Rapids, MI., product "Strut Channel Systems".
 - 4) Thomas & Betts Corporation, Memphis TN, product "Kindorf Superstrut".
 - b. There are no other manufacturers of this product type available in the United States, fabricators may choose to fabricate grid system components using structural steel shapes, with submittal and approval of complete engineering Drawings and calculations as a substitution.
 - c. Finish:
 - 1) Rust inhibiting acrylic enamel paint applied by electro-deposition, after cleaning and phosphating, and thoroughly baked. Color is per Federal Standard 595a color number 14109 (dark limit V-). Finish to withstand minimum 400 hours salt spray when tested in accordance with ASTM B 117.
- 2. All channel members shall be fabricated from structural grade steel confirming to the following ASTM specifications:
 - a. ASTM A 653 Grade A
- 3. All fittings shall be fabricated from steel conforming to one of the following ASTM specifications:
 - a. ASTM A 36, A 575, or A 576.
- 4. All materials shall be stamped and identifiable by manufacturer and part number (where appropriate). Materials that appear damaged, distressed, unidentifiable or rusted shall not be used and will not be accepted.

B. Edge/wall moldings for tegular edge acoustical tile ceilings where ceiling abuts walls and drop down soffits: Stepped profile "shadow" molding compatible with exposed grid system and color matched. Acceptable products include the following, or approved equal:

- 1. Armstrong model 7820.
- 2. Chicago Metallic model 1460.
- 3. USG/Donn model MS174.

- C. Hanger attachments: Of the most appropriate types for the specific receiving surfaces.
- D. Hangers: ASTM A641 Soft temper, pre-stretched galvanized carbon steel wire, with a yield stress of at least 3 times design load, but not less than 12 gage.
- E. Joint Sealer: One component acrylic latex, permanently elastic, non-staining, non-shrinking, non-migrating and paintable, acceptable products include the following, or approved equal:
 - 1. Tremco, Beachwood OH.; product, "Acoustical Sealant".
 - 2. United States Gypsum Company, Chicago IL.; product "USG Acoustical Sealant".
 - 3. Pecora Corporation, Harleysville PA.; product "AC-20 FTR".

2.4 CEILING GRID PERIMETER EDGE TRIM SYSTEM

- A. Perimeter edge trim system at "floating" suspended ceiling areas: Edge trim shall be 4 inch height, , designed to accommodate straight edges as well as converse curved and convex curved edges as may be indicated on Drawings. Attachment to grid system is provided by a specially designed attachment clip, which snaps into the locks against hems of trim and is screw-attached to the bulb of the intersection suspension system member. Independent sections of trim are joined together using the splice plate.
 - 1. Armstrong: Axiom Interlude Trim or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
- B. Beginning of installation means acceptance of site conditions.

3.2 PREPARATION

- A. Protection of In-situ Conditions: During the operation of work of this Section, protect existing finishes against undue soilage and damage by the exercise of reasonable care and precautions. Clean, or repair all existing materials which are soiled or otherwise damaged by Work of this Section, to match original profiles and finishes. Existing materials and finishes which cannot be cleaned, or repaired shall be removed and replaced with new work to match existing.
- B. Surface Preparation:
 - 1. Carefully examine all receiving surfaces, to which attachments will be made hereunder, and determine the most practical way of making such attachments. Request Architect's approval of any attachment method which differs from that indicated on the approved shop drawings before proceeding with installation.
 - 2. Permit acoustical ceiling tile to reach room temperature and a stabilized moisture content prior to installation.
- C. Existing Acoustical Ceilings to be Salvaged or Patched:

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1. Where existing ceilings are disturbed by the work of this Contract and are not scheduled to be replaced with new ceilings; remove ceilings including suspension system, as required. Remove only that portion of the acoustical materials and suspension system as is necessary for the required work. Coordinate with all trades to determine the extent of area to be removed.
2. Store materials in a neat manner and protect from damage and after all related work has been completed, reinstall the existing ceiling materials.
3. Where acoustical panels, acoustical tiles and suspension system have been removed because of new construction and cannot be reinstalled, install new material to match existing. All materials to be used for patching and matching shall be approved by the Architect in advance of work.

3.3 INSTALLATION

- A. Locate system on room axis, leaving equal sized border units of not less than one-half tile width.
- B. Install all components of the suspended grid systems in accordance with the manufacturer's instructions, the approved shop drawings, conforming to ASTM C-636 requirements. Ensure a deflection not to exceed 1/360 span of 48-inch simple span.
- C. Install specified edge moldings wherever ceilings intersect a wall or partition surface, and around all items having any dimension of 4 inches or more which penetrate the ceilings, including circular penetrations. Set moldings absolutely level, using as long lengths as practicable, and secure with fasteners recommended by manufacturer for the type of substrate.
 1. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
 2. Screw-attach moldings to substrate at intervals not over 16 inches on center, and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.
- D. Install hanger attachments to overhead construction in accordance with the approved shop drawings, spacing the attachments not more than 48 inches on centers over location of each main tee member.
 1. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers to span the extra distance.
 2. Install hanger wire to attachments with triple twists.
- E. Install main tees parallel to the long dimension of each area, spacing the tees 48 inches on centers. Secure the bottom of hanger wires through slots in the main tee members and tie with triple twists. Level the main tees as the work progresses.
- F. Uniformly space the cross tees at 24 inches on centers, and secure the cross tees into the main tees as recommended by the system manufacturer.
- G. Provide sealant at gaps between new acoustical ceiling edge angles and all irregular walls.

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- H. Fit acoustical ceiling tile units in place, free from damaged edges or other defects detrimental to appearance and function. Install acoustical ceiling tile level, in uniform plane, and free from twist, warp or dents.
 - 1. Field cut tegular type tile with a tegular reveal at all edge conditions.
 - 2. Where required by governmental agencies having jurisdiction, install retention clips, provide two clips per ceiling panel installed on opposite sides of panel.

3.4 TOLERANCES

- A. Maximum variation from flat and level surface: 1/8 inch in 10 feet.
- B. Maximum variation from plumb of grid members caused by eccentric loads: 2 degrees.

3.5 CLEANING

- A. Comply with requirements of Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for handling and disposition of all construction and demolition waste.
- B. Properly clean surfaces of panels and open grids free from dirt and handling marks. Wherever surfaces cannot be cleaned by normal methods or have defects, remove and replace with new components.

End of Section

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Section 09 65 13

RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Preparation of substrate.
- B. Furnish and install the following:
 - 1. Cove resilient base at resilient flooring.

1.3 RELATED REQUIREMENTS

- A. Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS: application of protection paper to finished resilient flooring.
- B. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- C. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM F1861 - Standard Specification for Resilient Wall Base
 - 3. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.

1.5 REGULATORY REQUIREMENTS

- A. Provide materials and assemblies conforming to applicable building codes and regulatory agencies for flame/fuel/smoke rating requirements of base trim in accordance with ASTM E84.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties and installation instructions.
 - 2. Selection samples: Manufacturers' sample chain of colors available for selection by Architect.
 - 3. Verification samples: Each type resilient base and color selected, 24 inches long.

1.7 QUALITY ASSURANCE

- A. Avoid color and pattern differential; provide base from one production run in any single room or contiguous areas.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver resilient base materials in original, unopened packages and store protected for three days prior to installation in area of installation to achieve temperature stability.
- B. Store materials in a clean dry, enclosed space off the ground and protected from the weather. Protect adhesives from freezing.

1.9 ENVIRONMENTAL CONDITIONS

- A. Maintain uniform temperature of minimum of 65 degrees Fahrenheit and humidity of 20 to 40 percent 48 hours prior to, during, and 48 hours after installation. Store resilient flooring materials and accessories in the spaces where they will be installed for at least 48 hours before beginning installation. Thereafter, maintain a minimum temperature of 55 degrees Fahrenheit in the areas where the work is completed.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate the work of this Section with the respective trades responsible for installing interfacing work.
- B. Sequence work to ensure resilient flooring is not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, wet work is dry and cured, and work overhead is completed.
- C. Ensure that installation of flooring and accessories occurs after other finishing operations, including painting.

1.11 WARRANTY

- A. Under the provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS, and in compliance with Section 01 78 36 – WARRANTIES.
 - 1. Provide manufacturer's standard wear warranties (minimum of 2 year), for all resilient base materials installed under this Section.

1.12 EXTRA MATERIALS

- A. Upon completion of the Work of this Section, deliver to the Owner extra base materials for future repairs and maintenance, from the same manufacturing runs as those installed, in the following amounts.
1. Resilient base: 24 linear feet of each type and color installed.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Basis of Design (Specified Manufacturer): To establish a standard of quality, design and function desired, Drawings and specifications have been based on Tarkett, Inc., Parsippany, NH, Product: "Type TP, Duracove" in color #29 "Moon Rock WG."
- B. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Johnsonite, Middlefield, OH.
 2. Burke-Mercer Products Company, San Jose, CA.
 3. Roppe Corporation, Fostoria, OH.
 4. Vinyl Products Inc., Floor Products Division, Sheboygan, WI.
 5. Tarkett, Inc., Parsippany, NH.

2.2 RESILIENT BASE

- A. Rubber Base: 2 inches or 4 inches high as indicated on the Drawings, coved or straight, ribbed back, 1/8 inch thick, rounded top, complying with ASTM F-1861, Type TP, Thermoplastic Rubber (TBR). To greatest extent possible, rubber base shall be furnished in continuous lengths, approximately 100 feet long.
- B. Base accessories: Premolded end stops of same material, size and color as base. Job-form all external and internal corners from base material, pre-molded corner pieces will not be acceptable.

2.3 ACCESSORIES

- A. Adhesives
1. General: Water resistant, low VOC, acceptable to the resilient flooring manufacturer, for substrate conditions.
 2. Acceptable products include the following, or approved equal:
 - a. Advanced Adhesive Technology, Inc, Dalton GA, product: "No. 432 Modified Acrylic Cove Base Adhesive".
 - b. DAP Incorporated, Dayton OH, product: "Cove Base Construction Adhesive".
 - c. Roberts Consolidated Industries, Inc., City of Industry, CA, product: "Premium Solvent-Free Cove Base Adhesive".
- B. Joint Sealer for between the top of wall base and irregular wall surfaces: Plastic filler as recommended by manufacturer.

- C. Cleaning material: Domestic neutral floor detergent having a pH 7 or pH 8, as recommended by the flooring manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Beginning of installation means acceptance of existing substrate and site conditions.

3.2 INSTALLATION - GENERAL

- A. Install all products in strict accordance with each manufacturer's written installation procedures and other provisions specified herein.
- B. Spread only enough adhesive to permit installation of materials before initial set.

3.3 INSTALLATION OF ACCESSORIES

- A. Resilient base: Install base on solid backing, bond to vertical substrate with continuous contact at horizontal and vertical surfaces. Apply wall base to walls, columns, casework and other permanent fixtures in areas where base is required.
 - 1. Install in lengths as long as practical.
 - 2. Scribe to fit to door frames and other interruptions.
 - 3. Form all external and internal corners in accordance with manufacturer's written instructions. Cope inside corners and fit neatly.
 - 4. Fill voids with plastic filler along the top edge of the resilient wall base on masonry surfaces or other similar irregular substrates.

3.4 CLEANING

- A. Comply with requirements of Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for handling and disposition of all construction and demolition waste.
- B. Post-installation Cleaning: As installation progresses, continually remove excess adhesive from floor, base and wall surfaces without damage.

End of Section

Section 09 65 19
RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Prepare substrates to receive resilient tile flooring to ensure specified tolerance level for finish surface of floor tile. Preparation work includes patching, smoothing and leveling substrate, including:
 - 1. Grinding down high spots of substrate.
 - 2. Providing Portland cement-based latex underlayment (filler).
- B. Furnish and install the following:
 - 1. Vinyl Composition Tile (VCT) flooring to match existing.
 - 2. Transition strips wherever edges of resilient tile flooring materials abut dissimilar flooring, where no thresholds occur.

1.3 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 73 00 - EXECUTION: Waste Management and Recycling during Final Cleaning.
- C. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- D. Section 09 65 13 - RESILIENT BASE AND ACCESSORIES: Coved and straight base.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM D2047 – Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.

BID PACKAGE #2

2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E648 – Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
4. ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
5. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
6. ASTM F970 – Standard Test Method for Static Load Limit.
7. ASTM F1066 – Standard Specification for Vinyl Composition Floor Tile.
8. ASTM F1700 – Standard Specification for Solid Vinyl Floor Tile.
9. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
10. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
11. FS SS-T-312 - Tile, Floor: Asphalt, Rubber, Vinyl, Vinyl Composition.
12. NFPA 99 – Standard for Health Care Facilities
13. NFPA 253 - Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
14. NSF/ANSI 332 – Sustainability Assured for Resilient Floor Coverings.
15. SCSglobal Services – SCS-EC10.3 – Indoor Air Quality Product Performance Standard for Building Interiors (FloorScore).
16. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.

1.5 REGULATORY REQUIREMENTS

- A. Provide materials and assemblies conforming to applicable building codes and regulatory agencies for flame/fuel/smoke rating requirements of flooring in accordance with ASTM E84.
- B. Provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
 1. ASTM E648 (Critical Radiant Flux) of 0.45 watts per sq. cm. or greater, Class 1.
 2. ASTM E662 (Smoke Generation) Maximum Specified Optical Density of 450 or less.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties and installation instructions for each item furnished hereunder.
 2. Submit the manufacturer's certification that the resilient flooring has been tested by an independent laboratory and complies with the required fire tests.

3. Shop drawings: 1/4 inch scale plans of each flooring area scheduled for Work of this Section. Drawings shall bear dimensions of actual measurements taken at the project.
 - a. Identify each flooring type, colors and patterns, indicate layout of tile units and direction of tile patterns.
 - b. Where more than one adhesive type is specified or otherwise required by flooring manufacturer, identify on shop drawings areas for each adhesive type.
4. Verification samples:
 - a. Full sized flooring tile, illustrating color, and pattern demonstrating match with existing flooring.

1.7 QUALITY ASSURANCE

- A. Provide Types of Resilient tile and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.
- B. Avoid color and pattern differential; provide flooring from one production run in any single room or contiguous areas.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver resilient flooring materials in original, unopened packages and store protected for three days prior to installation in area of installation to achieve temperature stability.
- B. Store materials in a clean dry, enclosed space off the ground and protected from the weather. Protect adhesives from freezing.

1.9 ENVIRONMENTAL CONDITIONS

- A. Maintain uniform temperature of minimum of 65 degrees Fahrenheit and humidity of 20 to 40 percent 48 hours prior to, during, and 48 hours after installation. Store resilient flooring materials and accessories in the spaces where they will be installed for at least 48 hours before beginning installation. Thereafter, maintain a minimum temperature of 55 degrees Fahrenheit in the areas where the work is completed.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate the work of this Section with the respective trades responsible for installing interfacing work.
- B. Sequence work to ensure resilient flooring is not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, wet work is dry and cured, and work overhead is completed.
- C. Ensure that installation of flooring and accessories occurs after other finishing operations, including painting.

1.11 WARRANTY

- A. Under the provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS, and in compliance with Section 01 78 36 – WARRANTIES.

1. Provide manufacturer's standard wear warranties (minimum of 2 year), for all flooring and stair tread materials installed under this Section.

1.12 EXTRA MATERIALS

- A. Upon completion of the Work of this Section, deliver to the Owner extra flooring materials for future repairs and maintenance, from the same manufacturing runs as those installed, in the following amounts.
 1. Vinyl composition tile: 3 percent of each material in each color, and pattern installed.
 2. Furnish a quantity of adhesive of each type used in sealed cans or containers sufficient to apply the above materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 1. Vinyl composition tile:
 - a. AHF Products, LLC., Mountville PA.
 - b. American Billrite Inc., Amtico Flooring Division (Amitco), Lawrenceville NJ.
 - c. Mannington Commercial Flooring, Salem NJ.
 - d. Tarkett Inc., Houston TX.
 - e. VPI Corp., Sheboygan WI.
 2. Leveling filler:
 - a. Ardex, Inc., Coraopolis, PA.
 - b. Quikrete Companies., Atlanta, GA.
 - c. Silpro Masonry Systems Inc., Ayer MA.
 3. Adhesives:
 - a. Advanced Adhesive Technology, Inc, Dalton GA.
 - b. DAP Incorporated, Dayton OH.
 - c. W.W. Henry Company, Huntington Park CA.
 - d. Roberts Consolidated Industries, Inc., City of Industry, CA.

2.2 SOLID VINYL TILE FLOORING

- A. Vinyl Composition Tile (VCT): 12 x 12 inch by 1/8 inch thick with solid color extending through thickness of tile; composed of vinyl resins, non-asbestos inorganic mineral fillers, and colorfast pigments complying ASTM F1066 Composition 1, Class 2.
 1. Color and pattern to match existing.

2.3 ACCESSORIES

- A. Filler for patching, smoothing and leveling subfloors and underlayments: Portland cement-based latex underlayment acceptable to flooring manufacturer, equal to the following:
1. Ardex, Inc., products "Feather Flash" and "Ardex SD-P".
 2. Quikrete Companies, product "Fast-Set Underlayment 1248".
 3. Silpro Masonry Systems Inc., product "Profinish".
- B. Adhered flooring systems general requirements for adhesives (except as otherwise specified in individual Specification Sections):
1. General Flooring Adhesives: High moisture resistant and alkali resistant adhesive: Synthetic Polymer, non-flammable in wet state, with NFPA, Class A rated, VOC compliant, capable of withstanding the following in continuous service:
 - a. Up to 95% RELATIVE HUMIDITY when measured in accordance with ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in-situ Probes.
 - b. Up to 8 lbs./1000 sq. ft./ 24 hours MVER when measured in accordance with ASTM F1869 - Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
 - c. VOC content: Less than 50 g/L.
 2. Acceptable adhesives, include the following, or approved equal, (subject to acceptance of flooring manufacturer for performance and compliance with warranty requirements, for each type of floor system specified):
 - a. Advanced Adhesive Technology Inc., Dalton GA. Adhesive: "AAT-Go2 Adhesiver" (maximum 95% RH / 8pounds MVER).
 - b. Armstrong World Industries, Inc., Flooring Division, Lancaster PA., adhesive: "S-515" (maximum 95% RH / 5 pounds MVER).
 - c. DriTac Corp., Clifton NJ., adhesive: "5900 Mega Bond" (maximum 99% RH / 8 pounds MVER).
 - d. W.W. Henry Company (Ardex), Aliquippa PA. adhesive: "695 High RH Vinyl Flooring Adhesive" (maximum 95% RH / 3 pounds MVER).
 - e. Mapei Corporation, Elk Grove IL Adhesive: "Ultrabond ECO 711" (maximum 95% RH / 8 pounds MVER).
 - f. Mohawk Group, Dalton, GA.
 - 1) Adhesive: "Aquaflex M100Plus" (maximum 100% RH)
 - 2) Adhesive: "Aquaflex M99" (maximum 95% RH)
- C. Transition and edge strips:
1. General: Homogeneous rubber, of profiles required for thickness of abutting materials.
 2. Edge strips: Tapered or bull nose edge.
 3. Colors: Match existing flooring
- D. Cleaning material: Domestic neutral floor detergent having a pH 7 or pH 8, as recommended by the flooring manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
- B. Verify concrete substrate has been cured and is sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond and moisture test.
- C. Beginning of installation means acceptance of existing substrate and site conditions.

3.2 PREPARATION - GENERAL

- A. General: Comply with flooring manufacturer's requirements for preparation of substrate to receive resilient flooring.
 - 1. Close spaces to traffic during the installation of the flooring.
- B. Remove, by light sanding and grinding, all protruding edges, high spots. Ensure that substrate is free from paint, varnish, wax, oil, or other foreign matter.
- C. Fill minor or local low spots, cracks, joints, holes, and other defects with subfloor filler. Apply, trowel and float finish subfloor filler and leave a smooth, level, hard surface. Prohibit traffic from area until filler is cured.
- D. Vacuum clean substrate, and ensure that substrate is dry, clean and smooth prior to application of flooring.

3.3 INSTALLATION - GENERAL

- A. Install all products in strict accordance with each manufacturer's written installation procedures and other provisions specified herein.
 - 1. Apply primers as recommended by adhesive manufacturer's written instructions.
- B. Patterns and colors: Resilient tile flooring patterns are shown on the Sample Wall and Flooring Patterns Drawings. The purpose of these Drawings is to facilitate pricing by the Resilient Flooring Filed subcontractor. Final Drawings indicating patterns of equal complexity will be provided by the Architect once approved samples have been processed. The Resilient Flooring Filed subcontractor shall note the required flooring layouts including fields, borders, striping, accent patterns, dots, number of colors, and required cutting necessary to produce the representative pattern(s). No adjustment in the Contract Sum will be provided on the basis that the final pattern provided by the Architect differs from the representative pattern provided at the time the Resilient Flooring Filed subcontractor's bid was submitted.
 - 1. The Resilient Flooring Filed subcontractor shall note locations where the installation of tile flooring is not perpendicular to the primary room axis. Provide all cutting and calculate resulting waste in order to produce patterns containing elements where the orientation of the flooring has been placed at an angle to that axis.

BID PACKAGE #2

- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Mix tile to ensure that concentration of surface patterns is uniform throughout. Use tile from cartons in same sequence as manufactured and packaged, if so numbered.

3.4 INSTALLATION - FLOOR TILE

- A. Lay flooring in pattern to match existing. Lay tile with joints straight and continuous in both directions.
- B. Neatly fit resilient materials to all intersecting surfaces, and make joints as inconspicuous as possible.
- C. Terminate flooring at centerline of door in closed position where adjacent floor finish is of different material or color.
- D. Apply resilient materials to have uniform contact with receiving surfaces throughout, with tight joints, and with all finish surfaces smooth, in true plane, free from buckles, waves, and other imperfections.
- E. Extend resilient flooring to wall lines beneath all movable equipment and movable casework. Fit resilient flooring onto breaks and recesses, against non-resilient bases, around pipes and other protrusions, under saddles, and to and around other fixed surfaces, making neat cuts in the flooring and minimizing joints.

3.5 INSTALLATION OF ACCESSORIES

- A. Resilient edge and transition strips:
 - 1. Install edge strips at all edges of flooring which would otherwise be exposed.
 - 2. Place resilient edge strips tightly butted to flooring and secure with adhesive recommended by the edge strip manufacturer.

3.6 PROTECTION

- A. Prohibit traffic on finished floor areas until flooring adhesive has fully set.
- B. Prohibit washing, scrubbing or other similar 'wet' operations to occur on finished floor areas for a minimum period of 5 calendar days after installation.
- C. Provide protection of completed flooring areas from construction traffic until Substantial Completion of the General Contract. Cover all resilient tile floor surfaces with non-staining heavyweight kraft paper and overlay with red-rosin paper, taping the edges to maintain position of the protection paper. Reapply papers to maintain floor protection.

3.7 POST-INSTALLATION CLEANING

- A. As installation progresses, continually remove excess adhesive from floor, and wall surfaces without damage.
 - 1. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

BID PACKAGE #2

- B. Sweep floors to remove all loose dirt and debris.
- C. After specified waiting period, clean all materials installed hereunder with a non-abrasive commercial detergent approved by the material manufacturers, and thoroughly rinse with clear water.
 - 1. Vinyl composition tile floors: Wait at least 5 full days following completion of tile installation before commencing with cleaning.

3.8 FINAL CLEANING

- A. General: Perform final cleaning not before 4 days prior to Owner's intended occupancy date.
- B. Vinyl composition tile floors:
 - 1. Wash floors with non-abrasive commercial detergent with floor machine equipped with green or blue pad. Apply manufacturer's recommended stripping solution when floors are badly soiled.
 - 2. Apply a minimum of four coats of acrylic floor polish to protect flooring until regular maintenance procedures can be started.
 - 3. After application and curing of floor polish, ensure that polished floors are protected with heavy kraft paper.

3.9 PROTECTION

- A. After cleaning and polishing, ensure that the flooring is be protected with heavy kraft paper.

End of Section

Section 09 91 00

PAINTING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Summary: This Section consists of painting work where shown on the Drawings, as specified herein, for a complete and proper installation. Painting work includes, but is not limited to the surface preparation and application of coated finishes, and subsequent touch-up, of interior and exterior items and surfaces as indicated on the Contract Drawings and as scheduled herein.
 - 1. No attempt is made in this Section to list all surfaces, fixtures and equipment requiring painting on this project. It is the responsibility of the Subcontractor to determine for itself the scope and nature of the Work required for a complete installation from the information provided herein and in the Drawings.
- B. Surfaces and Materials: In general, without limiting the generality thereof, the following surfaces, fixtures and equipment require a painted finish:
 - 1. Electrical raceways at Athletic Building.
 - 2. Gypsum board partition and wall surfaces.
 - 3. Gypsum board ceilings and soffits.
 - 4. Concrete masonry unit partitions and walls.
 - 5. Metal doors and frames.
 - 6. Interior and exterior handrails and guardrails.
 - 7. Interior wood trim and paneling.
 - 8. Stage flooring.
 - 9. Exposed to view sprinkler piping.
 - 10. Exposed to view electrical conduit and raceways.
 - 11. Exposed to view exterior gas piping.
 - 12. Elevator ladder, exposed to view lintels and other miscellaneous metal items furnished under Section 05 50 00 - METAL FABRICATIONS which are not factory finished.
 - 13. Exterior stairs.
 - 14. Access panels and frames.
 - 15. Exterior site bollards.
 - 16. Exposed concrete floors where indicated on the Drawings.

BID PACKAGE #2

- C. DO NOT PAINT the following surfaces and materials.
1. Concealed from view surfaces, except as indicated otherwise in the Contract Documents or as specified herein.
 2. Chrome or nickel plating, stainless steel, bronze, brass.
 3. Aluminum other than mill finished or factory primed.
 4. Factory finished mechanical and electrical equipment, pumps, machinery and similar items which occur in mechanical, storage or equipment rooms or areas.
 5. Factory finished materials, specialties, and accessories unless otherwise specified.
 6. Ceramic tile, acoustical tile, resilient flooring, wood flooring, and other integrally finished floor, wall and ceiling finishes.
 7. Prefinished millwork items.
 8. Fire resistant testing and certification labels, code required labels, safety warning labels, performance rating plates, nomenclature plates, identification plates, and similar other labels.

1.3 RELATED REQUIREMENTS

- A. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- B. Section 06 20 00 - FINISH CARPENTRY: Wood trim items, setting and filling of nails, sanding of wood trim.
- C. Section 08 31 00 - ACCESS DOORS AND PANELS, and by trades requiring the same: Shop primed access panels, occurring in partitions and walls.
- D. Document 09 91 23 - INTERIOR PAINTING SCHEDULE:
1. Painting schedule for interior surfaces and materials.
 2. Painting schedule for Mechanical and Electrical Equipment.
- E. Division 22 - PLUMBING: Prefinished items such as plumbing fixtures, sprinkler heads, convectors, anemostates and similar surfaces and materials.
- F. Division 26 - ELECTRICAL: Prefinished items such as light fixtures, switch gear, electrical distribution cabinets and similar surfaces and materials.
- G. Respective sections: Factory-finishing of mechanical, plumbing, fire protection and electrical equipment.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.

BID PACKAGE #2

1. ANSI/ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.
2. ASTM D2016 - Test Method for Moisture Content of Wood.
3. SSPC-Vis1 - Pictorial Surface Preparation Standards for Painting Steel Structures.
4. SSPC-SP2 - Steel Structures Painting Manual, Volume 2, Systems and Specifications.
5. All applicable federal, state and municipal codes, laws and regulations for flammability and smoke generation of interior finishes.

1.5 DEFINITIONS

- A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials specified herein, whether used as prime, intermediate or finish coats.
- B. Sheen: Specular gloss readings in accordance with ASTM D52
 1. Flat: less than 5 (measured at 85 degrees)
 2. Eggshell: 5 – 20 (measured at 60 degrees)
 3. Satin: 15-35 (measured at 60 degrees)
 4. Low Luster: 25 – 35 (measured at 60 degrees)
 5. Semi-Gloss: 30 -65 (measured at 60 degrees)
 6. Gloss: 65 or more (measured at 60 degrees)

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Literature:
 2. Samples:
 - a. Manufacturer's color selector for custom mixed colors for Architect's color scheduling.
 - b. Opaque coatings: Two 9 x 12 inch finished samples on hardboard of each color scheduled in each finish for review and approval. Identify boards with finish type, color mix number and scheduled substrate surfaces or materials.
- B. Closeout Submittals: Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS:
 1. Color chips: After final approval of all colors and tints by the Architect, submit to the Owner, color chips of all coatings used, with manufacturer's name and mix designation of the coating for the purpose of future re-ordering of coatings. Color chips shall be at least six (6) square inches in size, for each color and tint.

1.7 QUALITY ASSURANCE

- A. Single source responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- B. Environmental Requirements for Volatile Chemicals:
 - 1. For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24) and the following chemical restrictions:
 - a. Flat Paints and Coatings: VOC not more than 50 g/L.
 - b. Non-Flat Paints and Coatings: VOC not more than 150 g/L.
 - c. Anti-Corrosive Coatings: VOC not more than 250 g/L.
 - d. Clear wood finishes:
 - 1) Varnishes: VOC not more than 350 g/L.
 - 2) Lacquer: VOC not more than 550 g/L
 - e. Floor coatings: VOC not more than 100 g/L
 - f. Sealers:
 - 1) Waterproofing sealers: VOC not more than 250 g/L.
 - 2) Sanding sealers: VOC not more than 275 g/L.
 - 3) All other sealers: VOC not more than 200 g/L.
 - g. Stains: VOC not more than 250 g/L.
 - 2. Do not use water based paints formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure), formaldehyde, halogenated solvents, mercury or mercury compounds, or tinted with pigments of lead, cadmium, chromium VI and their oxides. Water based paints shall be low VOC and shall have a flash point of 61 degrees C or greater.
 - 3. Where it is necessary to use solvent-based paints, with less than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - 4. The following shall be low VOC and not be formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure).
 - a. High performance water based acrylic coatings.
 - b. Pigmented acrylic sealers.
 - c. Catalyzed epoxy coatings.
 - d. High performance silicone grafted epoxy coatings.
 - 5. Restricted Components: Paints used on this Project shall not contain any of the following:
 - a. 1,2-dichlorobenzene
 - b. Alkylphenol ethoxylates (APEs)
 - c. Formaldehyde-donors
 - d. Heavy metals, including lead, mercury, cadmium, hexavalent chromium and antimony in the elemental form or compounds
 - e. Phthalates
 - f. Triphenyltins (TPT) and tributyltins (TBT)

1.8 FIELD SAMPLES

- A. Provide field samples under provisions of Section 01 45 00 – QUALITY CONTROL for purpose of verifying selected colors.
- B. Paint on-site sample areas, minimum 40 square feet, illustrating selected color, and tint.
- C. Locate samples where directed. The Contractor shall provide in the base Contract, a total amount of samples equal to one sample per room.
- D. Accepted samples may remain as part of the work.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site in sealed and labeled containers; container labeling shall include manufacturer's name, type of paint, color mix designation, expected coverage, surface preparation instructions, instructions for mixing and reducing, drying time, and clean-up recommendations.
- B. Store materials, conforming with applicable codes and fire regulations, in designated spaces. Keep storage area secure when direct access is not required or when not performing work under this Section. Take precautionary measures to prevent fire hazards and spontaneous combustion, maintain a dry-chemical type fire extinguisher in all areas where materials of this Section are being stored or used.
- C. Store paint materials in a well-ventilated area at minimum ambient temperature of 45 degrees Fahrenheit and a maximum of 90 degrees Fahrenheit.
- D. Do not use the sanitary system for mixing or disposal of refuse material. Carry water to mixing rooms and dump waste material in a suitable refuse receptacle. Remove oily rags and waste each day.

1.10 PROJECT CONDITIONS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees Fahrenheit for 24 hours before, during and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is above 50 percent unless required otherwise by manufacturer's instructions.
- C. Apply paints and finishes above minimum temperature conditions in strict accordance with manufacturer's instructions.
- D. Provide sufficient lighting to maintain 80 foot-candles measured mid-height at substrate surface.

1.11 SEQUENCING AND SCHEDULING

- A. The applicator of work specified herein is responsible to ensure that all paints, enamels, and coatings, proposed to be applied hereunder, are compatible with coatings used for shop-primed items and items which have been prime-coated under the work of other trades.

- B. Immediately notify the Architect in writing of conditions which may require a change in the specifications of this Section before proceeding with the work. Failure to do so, in a timely fashion, so as not to interfere with the schedule of work of this Contract, shall be construed as acceptance of the coatings specified. Perform all corrective measures, at no cost to the Owner, for any defects in the work, resulting from the use of such materials.
- C. Painting work should be scheduled so as to minimize touch-ups. Interior painting is to be without flashmarks. Should flashmarks occur due to touch-ups, the Contractor shall be required to redo the entire surrounding wall surface.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - 1. Paints and general finishes:
 - a. California Paints, Cambridge MA.
 - b. Benjamin Moore & Company, Montvale, NJ.
 - c. Akzo Nobel Paints, LLC, Devoe High Performance Coatings, Strongsville, OH.
 - d. Pittsburgh Paints / PPG Industries, Inc., Pittsburgh PA.
 - e. Pratt & Lambert Inc., Buffalo, NY.
 - f. Sherwin Williams, Cleveland OH.
 - 2. Cold galvanizing touch-up paint:
 - a. ZRC Worldwide Inc., Marshfield MA.
 - b. Duncan Galvanizing, Malden Ma.
 - c. Rustoleum Corp., Vernon Hills IL.
 - 3. Caulking
 - a. Pecora Corporation, Harleysville PA.
 - b. Sonneborn Building Products Inc., Minneapolis MN.
 - c. Tremco, Beachwood OH.

2.2 MATERIALS

- A. Coatings: Ready mixed, except for field catalyzed coatings with good flow and brushing properties; capable of drying or curing free of streaks or sags. Color pigments shall be processed to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating. Provide best quality grade, where manufacturer makes more than one grade of any material specified.
- B. Liquid zinc coating, for touch-up of welds, scratches, and abrasions in galvanized steel: Low VOC organic zinc-rich coating containing 92% metallic zinc, by weight in the dried film (ASTM D520, Type III) and conforming to SSPC Paint 20, Type II, Level 1. Liquid zinc coating shall be recognized under the Component Program of Underwriter's Laboratories, Inc. as an equivalent to hot-dip galvanizing; conforming

to MIL-P-21035B and SSPC Paint 29, Type II, Level I, for repair of hot-dip galvanizing and meeting the requirements for Zinc-Rich Paints.

1. VOC limit: not more than 250 g/L.
 2. Specified manufacturer and product: ZRC Worldwide, Marshfield MA, product "ZRC-221".
- C. Joint sealant for fill of minor cracks prior to painting: One component acrylic latex caulking compound, conforming to FS 19-TP-21M and ASTM C 834, paintable within 24 hours after application, with a minimum movement capability of ± 12.5 percent, equal to one of the following:
1. Pecora, product "AC-20+".
 2. Sonneborn Building Products Inc., product, "Sonolac".
 3. Tremco, product, "Trimflex 834".

2.3 ACCESSORIES

- A. Accessory materials: other materials not specifically indicated, but are required to achieve the finishes specified of commercial quality.
- B. Cleaning Materials:
1. Tri-Sodium Phosphate (TSP) substitute products:
 - a. Savogran, Norwood MA, products "TSP-PF", or "Liquid TSP Substitute".
 - b. Custom Building Products, Seal Beach, CA., product "Custom T.S.P. Substitute".
 - c. DAP Inc., Baltimore MD., product "T.S.P. Substitute Heavy Duty Cleaner".

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section. Notify Contractor of any condition that may potentially affect proper application of coatings.
- B. Measure moisture content of surfaces, do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Gypsum board: 12 percent.
 2. Masonry or concrete: 12 percent.
 3. Interior wood: 15 percent.
- C. Beginning Work of this Section means acceptance of substrate surfaces and site conditions.

3.2 PREPARATION

- A. Furnish and lay suitable drop cloths in all areas where coating work is being done to protect floors and all other surfaces from damage during the work. Protect adjoining surfaces with painter's mask tape.

BID PACKAGE #2

- B. Prior to preparing surfaces or finishing, remove all finish hardware for painting doors and frames, except hinges and locks on exterior door; remove electrical plates, light fixture trim and fittings. Re-install hardware and other removed items after painted surfaces are thoroughly dry.
- C. Mix coatings thoroughly, unless otherwise directed by the manufacturer of the specific coating used, to ensure uniformity of color and mass. Strain previously opened coatings to remove skins, lumps, and other foreign matter prior to painting.
- D. Thin or reduce materials only as recommended by the specific material manufacturer, and only with the approval of the Architect.
- E. Impervious surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to thoroughly dry.
- F. Concrete and unit masonry surfaces scheduled to receive paint finish:
 - 1. Remove all loose scale and mortar, dirt, salt or alkali powder and other surface contaminates, using a detergent expressly formulated for cleaning of concrete and masonry.
 - 2. Remove oil and grease with a solution of tri-sodium phosphate.
 - 3. Remove stains caused by weathering corroding metals with a solution of sodium metasilicate after thoroughly wetting with water.
 - 4. Thoroughly rinse the cleaned surfaces with clear water, and allow the surfaces to completely dry, allow a minimum of 4 hours before commencing application of coatings.
- G. Shop primed steel surfaces:
 - 1. Remove rust, blistered and defective shop prime paint, and all foreign materials, down to bright metal by wire brushing, scraping, sanding, or commercial paint remover. Feather edges to make touch-up patches inconspicuous.
 - 2. Remove all grease or dirt with mineral spirits.
 - 3. Spot prime bare metal with alkyd base metal primer product of the finish coating manufacturer. Seal top and bottom edges of metals doors with primer.
- H. New galvanized surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- I. New interior wood items scheduled to receive paint finish.
 - 1. Smooth minor defects and remove all foreign matter by sanding, and if necessary, steel wool.
 - 2. Wash sap spots and knots with mineral spirits. When dry, touch up knots, pitch streaks, and sappy sections with commercial stain sealer.
 - 3. Fill up nail holes and cracks with wood putty or plastic wood after primer of first coat of finish is dry, and sand smooth.

3.3 APPLICATION

- A. Apply all materials in strict accordance with the approved manufacturer's printed instruction, and in accordance with the best trade practices. Each coat shall be reviewed and approved by the Architect before succeeding coats are applied.

BID PACKAGE #2

- B. Do not apply successive coating until the preceding coat is thoroughly dry, and in no case in less than 24 hours after the preceding coat.
- C. Number of coats is indicated under Painting Schedules. Number of coats is indicated as a minimum number to be applied over scheduled substrates. An additional coat or coats may be required for proper color coverage of substrate as determined by the Architect, at no additional cost to the Owner. Examples of these conditions include, but are not limited to:
 - 1. Dark colored substrates may require an additional primer or intermediate coat to stabilize color, if final applied top-coat color is light.
 - 2. Pre-finished or pre-primed products may require an additional field applied coat to stabilize the shop/factory applied base color prior to application of top-coat finishes.
 - 3. Dark color top coat finishes may require additional finish coat over white or light colored substrates to obtain correct color density.
- D. Apply each coat to a uniform finish; Apply primer and first coat of slightly lighter in color tint than the scheduled color of the final coat.
- E. Sand lightly between coats to achieve required finish and remove sanding dust prior to applying succeeding coat.
- F. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- G. Prime back surfaces of all interior and exterior woodwork scheduled for painted finish with primer.

3.4 CLEANING

- A. Upon completion of the work in each area, remove all coating splatters from glass, prefinished surfaces, bright metals, and from other surfaces that have not been painted or finished hereunder. Do not use abrasive paper or abrasive cleaner on any prefinished surface or bright metal. Remove all materials and debris; leave work area in a clean condition.

3.5 PROTECTION AND TOUCH-UP

- A. During painting work, protect the work of other trades against undue soilage and damage by the exercise of reasonable care and precautions. Properly clean, repair or replace any work so damaged and soiled.
- B. Protect all painted and finished surfaces against damage until the date of final acceptance of the work. The Architect will conduct a final review of all work performed hereunder. Re-coat or touch-up, all scratches and other blemishes on surfaces, and as directed by the Architect, any areas found which do not comply with the requirements of this Section, and bear all costs therefore.
- C. Any re-coating or touch-up work, required after the work of this Section has been reviewed and accepted by the Architect, will be paid for by the Contractor.

3.6 PAINTING SCHEDULE

- A. Colors: The Architect will furnish a schedule of colors for each area and surface. Tinting and matching shall be to the satisfaction of the Architect. No limit is placed on the number of colors that may be required, or the number of colors in any one room, area, or surface. Premium paints of deep-hued, bright, pigment intensive, accent and primary colors may be scheduled for up to 25 percent of all interior and exterior surfaces without additional cost to the Owner.
 - 1. Colors of priming coats (and body coats where specified) shall be lighter in tint than those of finish coat.
 - 2. Colorants: Pure, non-fading pigments, mildew-proof, ultra-violet resistant, finely ground in approved medium; and be limeproof, when used in coatings to be applied on masonry, concrete, plaster, and gypsum board surfaces.
- B. Paint Schedule for exterior surfaces and materials: Refer to Document 09 91 13.
- C. Paint Schedule for interior surfaces and materials: Refer to Document 09 91 23.
- D. Painting Schedule for mechanical and electrical equipment: Refer to Document 09 91 23.

End of Section

Document 09 91 23

INTERIOR PAINTING SCHEDULE

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. General: Number of coats scheduled herein below is minimum required, refer to Article entitled "APPLICATION" in specification Section 09 91 00 - PAINTING, regarding coverage.
- B. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- C. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 PAINTING SCHEDULE FOR INTERIOR SURFACES AND MATERIALS

- A. Interior CONCRETE MASONRY walls and partitions:
 - 1. One coat block filler:
 - a. California: "Mason-Cote 100% Acrylic Latex Block Filler", N°. 3751.
 - b. Glidden Professional: Concrete Coatings Block Filler Interior/Exterior N°. 3010.
 - c. Moore: "Latex Block Filler" N°. M88
 - d. Pittsburgh: "Speedhide Interior Masonry Latex Block Filler", 6-7 Series
 - e. Sherwin-Williams: "ProMar Int. Ext Block Filler" B25-W25.
 - 2. Two coats semi-gloss paint:
 - a. California: "Fres-Coat 100% Acrylic Latex Semi-Gloss", N°. 563XX.
 - b. Glidden Professional: Ultra-Hide 250 Semi-Gloss No 1406.
 - c. Moore: "EcoSpec Interior Latex Semi-Gloss" N°. 224.
 - d. Pittsburgh: "Speedhide Interior Low Odor Latex Semi-Gloss Enamel", N°. UC 80023.
 - e. Sherwin-Williams: Harmony Interior Low Odor Latex Semi-Gloss B10 Series
- B. Interior GYPSUM BOARD (drywall) partitions, previously painted:
 - 1. Two coats latex eggshell paint:
 - a. California: "CalPro2000 Series Acrylic Eggshell", N°. 557.
 - b. Glidden: "Ultra-Hide 250 Eggshell" N°. 1402.
 - c. Moore: "Ultra Spec 500 Low Sheen Eggshell N537.
 - d. PPG: "Speedhide Latex Eggshell Enamel", 6-411 Series.
 - e. Sherwin-Williams: " ProMar 200 Zero VOC Interior Latex Eg-Shel", B20-2600 Series.
- C. Interior GYPSUM BOARD (drywall) partitions:

1. One coat latex primer.
 - a. California: "Prime Touch Primer Sealer" N^os. 545.
 - b. Glidden Professional: PVA Wall Primer Sealer N^o. 1030.
 - c. Moore: "Ultra Spec 500 Primer N534.
 - d. PPG: "Speedhide Interior Quick Drying Latex Sealer", 6-2 Series.
 - e. Sherwin-Williams: "ProMar 200 Zero VOC Interior Latex Primer", B28w2600 Series.
 2. Two coats latex eggshell paint:
 - a. California: "CalPro2000 Series Acrylic Eggshell", N^o. 557.
 - b. Glidden Professional: Ultra-Hide 250 Eggshell N^o. 1402.
 - c. Moore: "Ultra Spec 500 Low Sheen Eggshell N537.
 - d. PPG: "Speedhide Latex Eggshell Enamel", 6-411 Series.
 - e. Sherwin-Williams: " ProMar 200 Zero VOC Interior Latex Eg-Shel", B20-2600 Series.
- D. Interior underside of OVERHEAD DECKING, (above areas having suspended acoustical blades) scope includes including exposed to view joists, overhead steel, sprinkler piping, conduits, ducts and similar items:
1. Two coats waterborne acrylic dry fall finish:
 - a. California: "Economy Latex Dry Fall Spray Flat", N^o. 3701.
 - b. Moore: "Coronado Late Dry Fall Flat N110.
 - c. PPG: "Speedhide Latex Dry Fog Spray Paint", 6-714/715 Series.
 - d. Sherwin-Williams: "Pro Industrial Waterboarne Acrylic Dryfall, Flat", B42 Series.
- E. Interior METAL, FERROUS, to receive semi-gloss finish: (includes galvanized metal doors and frames):
1. One coat of rust prohibitive primer for unfinished metal surfaces, and touch up bare metal at shop primed surfaces:
 - a. California: "Rust-Stop DTM Primer/Finish", N^o. 1061.
 - b. Devoe Coatings: Devflex 4020PF DTM Primer and Flat Finish.
 - c. Moore: "Acrylic Metal Primer", N^o. P04.
 - d. Pittsburgh: "Pitt-Tech DTM Primer/Finish 100% Acrylic", 90-709/712 Series
 - e. Sherwin-Williams: "DTM Acrylic Primer Finish", B66 W1 Series.
 2. Two coats latex semi-gloss enamel:
 - a. California: "Rust-Stop DTM Primer/Finish", N^o. 1061.
 - b. Devoe Coatings: Devflex 4216HP High Performance Waterborne Acrylic Semi-Gloss Enamel.
 - c. Moore: "Super Spec HP DTM Semi-Gloss Enamel", N^o. P29.
 - d. Pittsburgh: "Pitt-Tech Plus High Performance, Semi -Gloss DTM Industrial Enamel", 90-1210 Series.
 - e. Sherwin-Williams: "Sher-Cryl HPA Semi-Gloss", B66 Series.

- F. Interior metal, galvanized, (includes exposed ductwork):
1. Touch-up with metal primer.
 - a. California: "Rust-Stop DTM Primer/Finish", N°. 1061.
 - b. Devoe Coatings: Devflex 4020PF DTM Primer and Flat Finish.
 - c. Moore: "Acrylic Metal Primer", N°. P04.
 - d. Pittsburgh: "Pitt-Tech DTM Primer/Finish 100% Acrylic", 90-709/712 Series.
 - e. Sherwin-Williams: "DTM Acrylic Primer Finish" B66 W1 Series.
 2. Two coats acrylic semi-gloss enamel:
 - a. California: "Rust-Stop DTM Primer/Finish", N°. 1061.
 - b. Devoe Coatings: Devflex 4216HP High Performance Waterborne Acrylic Semi-Gloss Enamel.
 - c. Moore: "Super Spec HP DTM Semi-Gloss Enamel", N°. P29.
 - d. Pittsburgh: "Pitt-Tech Plus High Performance, Semi -Gloss DTM Industrial Enamel", 90-1210 Series.
 - e. Sherwin-Williams: "Sher-Cryl HPA Semi-Gloss", B66 Series.
- G. Interior exposed METAL, PIPING: Same as specified for ferrous metal.

1.3 PAINTING SCHEDULE FOR MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black enamel.
- B. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- C. Plywood backboards for electrical panels and other equipment. Paint both front and back surfaces and all edges of plywood backboards before backboards are installed.
1. One coat latex primer-sealer (undercoater):
 - a. ICI Paints: "Prep & Prime Odor-Less Interior Water-Based Primer-Sealer" LM 9116.
 - b. Moore: "EcoSpec Interior Latex Primer Sealer" 231.
 - c. Pittsburgh: "Pure Performance Interior Latex Primer".
 - d. Sherwin-Williams: "Harmony Interior Latex Primer" B11W900.
 2. Two coats latex semi-gloss paint:
 - a. ICI Paints: "Lifemaster 2000 Interior Semi-gloss" LM9200.
 - b. Moore: "EcoSpec Interior Latex Semi-gloss" N°. 224.
 - c. Pittsburgh: "Pure Performance Interior Semi-gloss", 9-500 Series.
 - d. Sherwin-Williams: "Harmony Interior Latex Semi-gloss" B10 Series.
- D. Prime and paint insulated and exposed cold pipes, conduit, electrical boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are located in storage, mechanical or equipment spaces or those items which are factory prefinished.

- E. Exposed to view un-insulated hot pipes within finished painted areas: Two coats heat-resistant enamel conforming to Federal Specification TT-E-496, Type I, applied when surfaces are less than 140 degrees Fahrenheit.
- F. In compliance with International Building Code and as additionally specified herein, provide identification for all fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions and any other wall or partition which is required to have protected openings or penetrations.
 - 1. Application:
 - a. Apply to outside of fire rated shafts, and to both sides of partitions at intervals not to exceed 30'-0" for entire length of partition or wall, or once on any partition 30'-0 feet or less in length.
 - b. Locate identification in all accessible concealed floor, floor-ceiling and attic spaces. Locate identification within 12 to 18 inches above finished ceilings.
 - c. Apply stenciled lettering by spray or brush, or provide permanent signage. Identification shall be waterproof, fade-proof and non-combustible. Signage shall be mechanically fastened or permanently adhered to partition.
 - d. Stencil character height: 1 inch minimum.
 - e. Color: Easily identifiable color, contrasting with background, acceptable to Owner.
 - 2. Apply stenciled lettering to the following types of partitions using wording specified:
 - a. Applied identification for 2 hour fire rated partitions shall read: "2 HOUR FIRE WALL - PROTECT ALL OPENINGS".
 - b. Applied identification for 1 hour fire rated partitions shall read: "1 HOUR FIRE WALL - PROTECT ALL OPENINGS".
 - c. Applied identification for Smoke barriers shall read: "1 HOUR SMOKE BARRIER - PROTECT ALL OPENINGS".
 - d. Applied identification for Smoke partitions shall read: "SMOKE BARRIER PARTITION - PROTECT ALL OPENINGS".

End of Document

Section 10 14 00

SIGNAGE

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install the following informational and directional signage:
 - 1. Interior acrylic plate signage, including, but not limited to:
 - a. Wayfinding (directional) signage.
 - 2. Electronically-cut, adhered, vinyl signage and graphics.

1.3 RELATED REQUIREMENTS

- A. Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS: Temporary project sign and safety signage.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements relating to recycling goals, waste management program and reporting.
- C. Section 09 91 00 – PAINTING: Painted graphics.
- D. Division 26 – ELECTRICAL:
 - 1. Illuminated exit signs.
 - 2. General requirements for electrical fixtures and lighting.
 - 3. Power supply to illuminated signage provided under this Section 10 14 00.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. NEC: National Electric Code - Latest Edition.
 - 2. UL: Underwriters Laboratories Inc.
 - 3. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.

4. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
5. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
6. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
7. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
8. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
9. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
10. ASTM A312/A312M - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
11. ASTM A320/A320M - Standard Specification for Alloy-Steel and Stainless Steel Bolting for Low-Temperature Service.
12. ASTM A499 - Standard Specification for Steel Bars and Shapes, Carbon Rolled from "T" Rails.
13. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
14. ASTM A554 - Standard Specification for Welded Stainless Steel Mechanical Tubing.
15. ASTM A563/A563M - Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric).
16. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
17. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
18. ASTM A743/A743M - Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
19. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
20. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
21. ASTM B316/B316M - Standard Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods.
22. ASTM B483/B483M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Tube and Drawn Pipe for General Purpose Applications.
23. ASTM B429/B429M - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
24. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
25. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
26. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

27. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
28. ASTM D1003 – Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
29. ASTM D1044 – Standard Test Method for Resistance of Transparent Plastics to Surface Abrasion by the Taber Abraser.
30. ASTM F594 - Standard Specification for Stainless Steel Nuts.
31. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
32. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.
33. ASTM G90 - Standard Practice for Performing Accelerated Outdoor Weathering of Materials Using Concentrated Natural Sunlight.
34. All applicable federal, state and municipal codes, laws and regulations regarding accessibility requirements.

B. Inclusionary References: The following reference materials are hereby made a part of this Section by reference thereto:

1. ANSI A 117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
2. ADAAG: Americans with Disabilities Act Accessibility Guidelines.
3. NFPA 170 – Standard for Fire Safety and Emergency Symbols.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. General: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

B. Pre-Installation Meetings: At least two weeks prior to commencing the work of this Section, conduct a pre-installation conference at the Project site. Comply with requirements of Section 01 31 00 - PROJECT MANAGEMENT AND COORDINATION. Coordinate time of meeting to occur prior to installation of work under the related sections named below.

1. Required attendees: Owner or designated representative, Architect, General Contractor, Signage Installer's Project Superintendent, and representatives of other related trades as directed by the Architect or Contractor.
2. Agenda:
 - a. Scheduling of signage proofing and fabrication.
 - b. Schedule of signage installation.
 - c. Review of staging and material storage locations.
 - d. Coordination of work by other trades.
 - e. Installation procedures for ancillary equipment.

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- f. Protection of completed Work.
 - g. Establish weather and working temperature conditions to which Architect and Contractor must agree.
 - h. Emergency rain protection procedure.
 - i. Discuss process for manufacturer's inspection and acceptance of completed Work of this Section.
- C. Sequencing:
- 1. Field Measurements
 - a. Take field measurements before preparation of shop drawings and fabrication, where possible, to ensure proper fitting of Work.
 - b. Allow for adjustments within specified tolerances wherever taking of field measurements before fabrication might delay Work.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
- 1. Literature: Manufacturer's product data sheets, specifications, physical properties for each item furnished hereunder.
 - 2. Schedule: The Architect will prepare and issue a schedule for all identification devices to be furnished hereunder, including character types, and colors. After receipt of the Architect's schedule, prepare and submit shop drawings and verification schedule.
 - a. Proofs: All text must be reviewed and approved by Architect prior to production of signage. Signage fabricator is responsible for providing corrected copies of text, and to recommend proper letter and word spacing. Text will be reset until approved by the Architect, and the approved proofs shall serve as the standard for all further typesetting and approvals.
 - 1) Each proof shall clearly identify the individual number assigned to each plate, panel, mural, or sign.
 - 3. Shop drawings:
 - a. Plan drawing showing location of each sign. Coordinate plan with schedule.
 - b. Elevation drawings showing full size elevations of each sign. Indicate for each sign: sign styles, lettering and locations, and overall dimensions.
 - c. Large scale design details of signs, showing attachment clips and brackets; and complete installation details.
 - 4. Selection samples:
 - a. Sample plastic chips indicating Manufacturer's full range of colors available for initial selection by Architect.
 - 5. Verification samples:
 - a. For individual letter signage: Full size sample method of attachment.
 - b. Full size sample sign, of type, style and color specified including method of attachment.

- c. Full size cast letter in specified size, finish and typeface, with mounting collar and stud.
- d. Full size sign in specified finish and typeface. Approved sample may be used in finished Project.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
- B. Sole Source: Obtain products required for the Work of this Section from a single signage fabricator, or from manufacturers recommended by the prime signage fabricator of plastic plate signage.
- C. Qualifications:
 - 1. Signage Fabricator: Minimum of 5 years documented experience demonstrating previously successful work of the type specified herein.
 - 2. Installer/Applicator: Minimum of 3 years documented experience demonstrating previously successful work of the type specified herein.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Do not deliver items to the site, until all specified submittals and proofs have been submitted to, and approved by, the Architect.
 - 2. Deliver materials in original unopened packages, containers or bundles bearing brand name, and identification of manufacturer, with labels and package seals intact and legible.
 - a. Delivered packaged sign, clearly labeled in name groups organized for installation.
- B. Storage and Handling Requirements:
 - 1. Store and handle materials following manufacturer's recommended procedures, and in accordance with material safety data sheets.
 - 2. Protect materials from damage due to moisture, direct sunlight, excessive temperatures, surface contamination, corrosion and damage from construction operations and other causes.
- C. Packaging Waste Management: Comply with packaging requirements specified under Section 01 60 00 - PRODUCT REQUIREMENTS.
 - 1. Shipping materials: Manufacturer shall utilize to the greatest extent possible packaging materials which are biodegradable and recyclable.
 - 2. Jobsite packaging waste management: Recycle packaging materials coordinated with general construction waste management specified under Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- D. Damaged material: Remove all damaged signage materials from job site and replace with new.

1.9 ENVIRONMENTAL CONDITIONS

- A. Do not install adhesive applied signs when ambient temperature is below 70 degrees Fahrenheit. Maintain this minimum during and after installation of signs.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - 1. Interior acrylic signs:
 - a. Apco New England, East Providence, RI.
 - b. Design Communications, LTD., Boston, MA.
 - c. Sunshine Sign, North Grafton, MA.
 - 2. Vinyl film signage:
 - a. 3M Corporation, St. Paul, MN.
 - b. Orafol Americas, Black Creek, GA.
 - c. Avery Dennison Graphics Solutions, Mentor OH.

2.2 SIGNAGE - GENERAL

- A. General: Provide sign copy to comply with the requirements indicated in the Drawings, for sizes, styles, spacing, content, positions, materials, finishes and colors of letters.
 - 1. All Signs shall conform to United States "*Americans with Disabilities Act*" and ICC/ANSI A117.1, *Accessible and Useable Buildings and Facilities*, 2010 Edition, as published by the International Code Council, Inc. (I.C.C.) and American National Standards Institute (ANSI)..
 - 2. Final placing and sizing of lettering shall be done as part of the shop drawing approval process, at which time the manufacturer shall make recommendations for Architect's review. Lettering shall have stroke width to height ratio and width to height ratio in accordance with the Americans with Disabilities Act.
 - 3. Tactile Signage:
 - a. Raised Lettering: raised minimum 0.793 mm (1/32 in). and be in compliance with Americans with Disabilities Act.
 - b. Braille: Accurate Grade 2 translations, and conforming to the provisions of ADAAG and ICC/ANSI A117.1 with regard to size, position, spacing, and profile characteristics.
- B. Installation of all signs shall be done by vandal-proof method, fully described on the approved shop drawings.
- C. Regulatory Requirements
 - 1. Provide all signage as required by accessibility regulations and requirements of authorities having jurisdiction.

- a. Comply with all applicable federal, state and municipal codes, laws and regulations regarding signage for exits and handicapped barriers.
2. Products requiring electrical connections: Listed and classified by UL, as suitable for the purpose specified and indicated.

2.3 MATERIALS

A. Aluminum:

1. Provide alloy and temper recommended by aluminum producer or finisher for the type of use and finish indicated. Provide thicknesses indicated on approved shop drawings.
 - a. Extruded bar and shapes: ASTM B221, alloy 6063--T6 or alloy 6463--T52.
 - b. Extruded pipe and tube: ASTM B429, alloy 6063-T6.
 - c. Drawn Seamless tube: ASTM B483, alloy 6063-T832.
 - d. Plate and sheet: ASTM B209/B209M, alloy 6063--T6 or Alloy 3003-H14
2. Aluminum in contact with dissimilar metals shall have bituminous or other protective coating to prevent electrolytic action.'
3. Finish aluminum as indicated on approved shop drawings. Exposed to view aluminum shall be free from scratches and other blemishes. Finish shall be uniform without waves or imperfections of any kind.
4. Recycled content of Aluminum: Use maximum available percentage of recycled aluminum. Aluminum incorporated into the work shall contain not less than 16 percent of recycled aluminum.

B. Acrylic:

1. Acrylic Sheet: 3/8 inch thick Cyro Industries "Acrylite AR" cast acrylic, or approved equal, having the following characteristics:
 - a. Manufacturer, equal to:
Cyro Industries
100 Valley Road
Mt. Arlington, NJ 07856 USA
 - b. Properties:
 - 1) Tensile Strength: 68.9 MPa tested per ASTM D638.
 - 2) Flexural Strength: 117.2 MPa tested per ASTM D790.
 - 3) Modulus of Elasticity: 3309 MPa tested per ASTM D790.
 - 4) Light transmission: 92 percent tested per ASTM D1003.
 - 5) Abrasion resistance of the coating:
 - a) Tabor Abrasion: 1.5 percent change in haze tested per ASTM D1044.
 - b) Mar Resistance: 8.8 percent change in haze tested per DIN 52 348 (with 3kg of sand).

C. Vinyl Film (for electronically-cut graphics): Opaque non-reflective cast vinyl film, with pressure sensitive adhesive backing, suitable for permanent interior and exterior applications.

1. Basis of Design: 3M Corporation, St. Paul, MN., Product: "Scotchcal ElectroCut Graphic Film Series 7125." having the following characteristics:

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- a. Film type: Cast.
 - b. Thickness: 2 mil thickness.
 - c. Print Compatibility: Thermal Transfer, solvent screen print, UV screen print.
 - d. Gloss: Matte.
 - e. Tensile Strength: 8 pounds per inch.
 - f. Rated for exterior durability of 10 years.
 - g. Manufacturer's warranty: 7 years.
2. Color(s): As Selected.

2.4 INTERIOR PLAQUE SIGNAGE

- A. Photopolymer plaque signage (general requirements): Identification signs with raised tactile graphics, text, and Grade 2 Braille. Signs shall consist of 1/32 inch thick synthetic light sensitive photo emulsion permanently bonded to a rigid phenolic substrate, aluminum or acrylic plaque.
1. Raised lettering: Bond photopolymer permanently to sign plaque, with appropriate laminating film, as recommended by the photopolymer manufacturer.
 2. Lettering height: As indicated on Drawings.
 3. Lettering font: As shown on Drawings.
 4. Screen-printing: All screen printing graphics, including raised areas of tactile plaques except Braille, shall be screen printed in a contrasting color so as to meet the color contrast requirements of Americans with Disabilities Act.
 - a. All non-tactile text shall be screen printed with catalyzed epoxy ink. Applied vinyl lettering and graphics is not acceptable.
 - b. Apply screen printing inks evenly without pinholes, scratches or orange-peeling.
 5. Graphics: All text, symbols and graphics shall be reproduced utilizing computer generated digital art. All screen printed graphics shall utilize photographically prepared screens and shall be printed in accordance with industry standards. Hand-cut screens are not acceptable.
 - a. All edges and corners and letter forms shall be true and clean. Letterforms, color areas, or lines with rounded positive or negative corners, built-up edges, bleeding, spattering, shall not be accepted.
 - b. Prepare artwork from typesetters reproduction of the test specified, minimum 1200 dpi resolution, camera ready artwork. All camera ready artwork and typesetting shall be no less than 75 percent of actual finished size.
 6. Mounting: Surface applied by means of silastic adhesive mounting.
 7. Sign colors: As selected by Architect from manufacturer's standard and standard special colors.
 - a. All signs shall be two color signs.
 8. Allow one room identification sign for every room entry door on the plans.

2.5 ACCESSORIES

- A. Fasteners and Installation Hardware:
1. General: Except as otherwise indicated, use concealed fasteners fabricated from metals not corrosive to sign material and mounting surface.
 2. Bolts, nylon insert lock nuts: ASTM A320, Grade B stainless steel.
 3. Anchors and Inserts: Use nonferrous metal or hot dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled in place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
 4. Adhesives, where used for wall mounted signs, shall be per the sign material.
 5. Adhesive tape (Interior conditioned spaces only): Double sided tape, permanent adhesive.
 6. Anchor Bolts: ASTM F1554, Grade 36.
 - a. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
 7. Anchors and inserts for individual lettering signage:
 - a. Aluminum collars, matte finished to match letter edges.
 - b. Mounting studs: Threaded type 304 stainless steel studs.

2.6 FABRICATION - GENERAL

- A. Design components to allow for expansion and contraction for a minimum material temperature range of 56 °C (100 °F), without causing buckling, excessive opening of joints or over stressing of adhesives, welds and fasteners.
- B. Form work to required shapes and sizes, with true curve lines and angles. Provide necessary rebates, lugs and brackets for assembly of units. Use concealed fasteners whenever and wherever possible.
- C. Shop fabricate so far as practicable. Joints fastened flush to conceal reinforcement, or welded where thickness or section permits.
- D. Contact surfaces of connected members be true. Assembled so joints will be tight and practically unnoticeable, without use of filling compound.
- E. Signs shall have fine, even texture and be flat and sound. Lines and miters sharp, arises unbroken, profiles accurate and ornament true to pattern. Plane surfaces be smooth flat and without oil-canning, free of rack and twist. Maximum variation from plane of surface plus or minus 0.3 mm (0.015 inches). Restore texture to filed or cut areas.
- F. Level or straighten wrought work. Members shall have sharp lines and angles and smooth surfaces.
- G. Extruded members to be free from extrusion marks. Square turns and corners sharp, curves true.

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- H. Drill holes for bolts and screws. Conceal fastenings where possible. Exposed ends and edges mill smooth, with corners slightly rounded. Form joints exposed to weather to exclude water.
- I. Finish hollow signs with matching material on all faces, tops, bottoms and ends. Edge joints tightly mitered to give appearance of solid material.
- J. Fabricate acrylic glazing sheets as required to openings with edge clearances and bite as recommended by the manufacturer with clean-cut edges where concealed, and smooth-ground, and polished where exposed to view.
- K. All painted surfaces properly primed. Finish coating of paint to have complete coverage with no light or thin applications allowing substrate or primer to show. Finished surface smooth, free of scratches, gouges, drips, bubbles, thickness variations, foreign matter and other imperfections.
- L. Movable parts, including hardware, are to be cleaned and adjusted to operate as designed without binding or deformation of members. Doors and covers centered in opening or frame. All contact surfaces fit tight and even without forcing or warping components.
- M. Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- N. No signs are to be manufactured until final sign message schedule and location review has been completed by the Architect and Owner.

2.7 FINISHES

- A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other characteristics related to appearance, provide color matches indicated.
- B. Paints: Paint for signs is acrylic polyurethane enamel, eggshell finish. Paint for background of tactile photo-polymer signs is eggshell finish automotive grade lacquer. All surfaces shall be cleaned, primed and pre-treated according to the manufacturer's specifications and noted in Shop Drawings as part of the finished surface work.
- C. Inks:
 - 1. Inks for metal signs, glass and wall surfaces are Alkyd enamel based inks.
 - 2. Inks for plastic signs are lacquer based inks.
 - 3. Inks for tactile graphics on photo-polymer signs are eggshell finish Low Odor Vinyl Ink.
 - 4. All inks and paints are evenly applied without pin-holes, scratches or application marks. Prime coats or other surface pre-treatments, where recommended by the manufacturers are included in the work and noted in the shop drawings as part of the finished surface work.

PART 3 - EXECUTION**3.1 INSTALLATION - GENERAL**

- A. Locate sign units and accessories where indicated, locations in accordance with the approved shop drawings. Use mounting methods of the type described and in compliance with manufacturer's instructions.
- B. Install signs plumb, level and true to height indicated, with sign surfaces free from distortion or other defects in appearance.
 - 1. Installation of signs shall conform to requirements of Americans with Disabilities Act (ADA) and/or state or local accessibility standards.
- C. Shop fabricate signs where practical and deliver to site completely assembled. All joints of such fabricated work are completely smooth without apparent marks showing throughout the finish. All work "broken down" is erected so that all parts fit accurately with hairline joints, with all joints flush. Joints in lighted signs shall be light-proof.
- D. For drilled anchors in concrete, verify location of embedded reinforcing steel, posttensioning, or pre-stressing cables prior to installation.
- E. Wall Mounted Panel Signs: Attach to wall surfaces with Hilti "Hit" anchors or ITW Ramset/Red Head Hammer Set anchors into concrete or masonry surfaces as shown on Drawings. DO NOT OVERDRIVE anchors, as overdriven anchors will damage sign faces and spall concrete.
- F. Bracket Mounted Units: Provide manufacturer's standard brackets, fittings, and hardware as appropriate for mounting signs which project at right angles from walls or ceilings. Attach brackets securely to walls or ceilings with concealed fasteners and anchors per manufacturer's directions.
- G. Interior Wall and door mounted signs: Attach to surfaces as follows:
 - 1. Vinyl Tape Mounting: Use very high bond, double sided foam tape, of thickness indicated, to mount signs to smooth nonporous surface. Use construction adhesive in conjunction with foam tape.
 - 2. Silicone Adhesive Mounting: Use appropriate liquid silicone adhesive to attach sign units to irregular, porous, or vinyl-covered surfaces. Use double-sided vinyl tape to hold the sign in place until the adhesive has fully cured.

3.2 INSTALLATION DIMENSIONAL LETTERS, NUMBERS AND GRAPHICS

- A. Dimensional Letters and Numbers: Mount letters and numbers using threaded studs, foam tape and construction adhesive as indicated in the detail drawings. Provide heavy paper template to establish letter spacing and to locate holes for fasteners.

3.3 INSTALLATION – VINYL SIGNAGE

- A. Vinyl Film (for electronically-cut graphics): Prepare substrates and install in strict accordance with film manufacturer's written instructions and technical bulletins.
 - 1. Clean work surfaces and substrates fully as required by manufacturer. Avoid contamination of graphics.

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2. Utilize pre-spacing tape when applied graphics are pre-spaced on a liner.
 3. Application temperature: Install when ambient and surface temperature is within the temperature range specified in the film's product bulletin. Typical temperatures are 60 degrees to 100 degrees Fahrenheit. Do not apply signage when surface or air temperature is below 60 degrees F.
 4. Do not use chalk, chalk lines or grease pens for registration markings.
- B. Install film using manufacturer's recommended "wet application method" on glass or smooth metal surfaces and "dry application method" over other surfaces as specified in manufacturer's written bulletins.
1. General requirements:
 - a. Do not allow liners to get wet before removing from the film.
 - b. Puncture air bubbles with an air release tool or pin. Do not use knife or razor.
 - c. Seams and overlaps shall be in accordance with manufacturer's written instructions.
 - d. Squeegees shall be fitted with low friction sleeves. Overlap squeegee strokes, and re-squeegee graphic after 24 hours.

3.4 CLEANING

- A. Clean and polish installed signs.
- B. Upon completion of the work of this Section in any given area, remove tools and all rubbish and debris from the work area; leave area in broom-clean condition.
- C. Remove all names, stamps and decals of sign manufacturers, and installers. No visible advertising of any kind is permitted.

End of Section

Section 12 30 00

CASEWORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. This section specifies all work and materials for casework of types and sizes shown on the Drawings, as specified herein. The types of work of this section includes, but is not limited to:
 - 1. Wood veneered wall-mounted tall storage cabinets, with shelving.
- B. Furnish and provide all materials and services as may be additional or separately described under other Sections of this Specification.
 - 1. No attempt is made in this Section to list all elements of casework required on this project or to describe how each element will be installed. It is the responsibility of the Contractor to determine for itself the scope and nature of the work required for a complete installation from the information provided herein and in the Drawings.

1.3 RELATED REQUIREMENTS

- A. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- B. Section 06 20 00 – FINISH CARPENTRY: Wood benches (seating).

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 2. ASTM D523 - Standard Specification for Specular Gloss.
 - 3. ASTM D1037 - Test Methods of Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.

4. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
5. APA Grades and Specifications.
6. AWI/AWMAC/WI joint publication: *North America Architectural Woodwork Standards*, version 3.1, as amended by published errata, referenced herein as NAAWS.
7. National Lumber Grades Authority, American Lumber Standards, and Grading Rules and Standards of the various lumber associations whose species are being used, with grade-marks for same.
8. U.S. Department of Commerce Simplified Practice Recommendation R-16, for sizes and use classifications of lumber; and Product Standard (PS):
 - a. PS-1 - Construction and Industrial Plywood Standard.
 - b. PS-20 - American Softwood Lumber Standard.

1.5 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties and installation instructions.
 2. Materials schedule: A complete schedule of casework components, coordinated with the Contract Drawings.
 3. Manufacturer's instructions for resin tops: Manufacturer's installation instructions indicating special procedures, and perimeter conditions requiring special attention.
 4. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades.
 5. Selection samples:
 - a. Plastic laminate chips for initial color selection by Architect.
 - b. Sample card indicating Manufacturer's full range of wood veneer stains, colors of laminate, edging or other surfacing material, available for selection by Architect.
 - c. Provide additional samples requested by Architect for initial selection of colors and finishes.
 6. Verification samples:
 - a. Complete stained and finished sample base cabinet unit of each type specified, 24 inches wide, with countertop and at least one door with specified hardware including lock, and one drawer with specified hardware and slide. Sample shall show full construction of all joints in casework and sample joint in worktop. Reviewed and accepted sample will be used for the purpose for establishing a quality control standard, and may not be incorporated into the work.
 - b. Sample of each type of hardware in specified finish.
 7. Certificates: Wood products lacking acceptable documentation for the following will be rejected and their removal required.
 - a. Composite Wood and Agrifiber Products: Include certification indicating compliance with the testing and product requirements of the California

Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda for all composite wood and agrifiber products.

1.6 QUALITY ASSURANCE

- A. Joinery: All joinery work performed under this Section shall be of Premium Quality Grade, as defined in NAAWS.
- B. Cabinet Finishes:
1. Performance Tests: Chemical spot test shall be made by applying 10 drops of each reagent to the surface at 77 degrees F. and covered with an upright wide mouth bottle, 2 oz. capacity, to regard evaporation. Spot tests of volatile solvents marked with an * shall be tested as follows: A one inch diameter ball of cotton shall be saturated with the solvent and placed on the surface to be tested and covered with an inverted wide mouth bottle, 2 oz. capacity, to regard evaporation and keep the surface wet with solvent for duration of tests. All reagents shall remain on the surface for a period of one hour. At the end of the test, bottles are removed, excess solvents swabbed with cotton ball, and entire test surface rinsed thoroughly, dried carefully and examined. There shall be no effect other than slight discoloration, change of gloss, or temporary slight softening of the film.
 - a. Reagents Used

| | |
|-------------------------|-----------------------|
| Hydrochloric Acid, 37% | Methyl Alcohol* |
| Sulfuric Acid, 55% | Ethyl Alcohol* |
| Nitric Acid, 30% | Ethyl Acetate* |
| Acetic Acid, Glacial | Acetone* |
| Phosphoric Acid, 75% | Methyl Ethyl Ketone* |
| Ammonium Hydroxide, 28% | Benzene* |
| Sodium Hydroxide, 10% | Toluene* |
| Gasoline* | Chloroform* |
| Naptha* | Carbon Tetrachloride* |
 2. Heat resistance: Hot water (190 degrees-205 degrees) shall be allowed to trickle onto the surface, which shall be set at an angle of 45 degrees from horizontal for a period of 5 minutes. After cooling and wiping dry, the finish shall show no visible effect from the hot water.
 3. Moisture resistance: A cellulose sponge (2 inches by 3 inches by 1 inch) shall be soaked with water and place on the surface of the finish for a period of 100 hours. The sponge shall be maintained in a wet condition throughout duration of tests. At the end of the test, the surface shall be dried and upon examination, shall show no blushing or whitening of the finish.
 4. Impact resistance: A one pound steel ball (approximately 2 inches in diameter) shall be dropped for a distance of one foot onto the finished surface of a 1/4" thick plywood panel supported underneath by solid surface. There shall be no evidence of cracks or checks in the finish due to impact upon close examination.

1.7 FIELD MEASUREMENTS

- A. Field dimensions: The casework vendor is responsible for details and dimensions not controlled by Project conditions and shall show on his shop drawings all required field measurements beyond his control.
1. The Contractor shall acknowledge the casework vendor's need for accurate field dimensions prior to custom fabrication.
 2. The Contractor and the casework vendors shall cooperate to establish and maintain these field dimensions.
 3. The casework vendor shall verify confirm all dimensions at the Project site relative to casework, all, and bring any significant discrepancies to the attention of the Architect prior to casework fabrication.

1.8 SEQUENCING AND SCHEDULING

- A. Coordinate the work of this Section with the respective trades responsible for installing interfacing work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

1.9 PRODUCT HANDLING

- A. Delivery and Storage: Deliver materials under protective cover and store within dry enclosed space.
- B. Protection: Use all means necessary to protect materials of this Section during transition, before, during, and after installation and to protect installed work and materials of all other trades.
1. Store under cover in a ventilated building not exposed to extreme temperature and humidity changes.
 2. Do not deliver casework to site until all concrete, masonry work is dry. Do not begin installation until veneer plaster has fully cured and is dry.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect, at no change in Contract Sum.

1.10 WARRANTY

- A. General: Submit the following warranties under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS, and in compliance with Section 01 78 36 – WARRANTIES.
1. Warranties shall be effective starting from Date of Project Substantial Completion and are effective for specified term lengths.
 2. Provide manufacturer's two year warranty against all defects in material or workmanship.

PART 2 - PRODUCTS

- A. whenever possible.

2.2 MANUFACTURERS

- A. Casework specified manufacturer (wall cabinets): To establish a standard of quality, design and function desired, Drawings and specifications have been based

on Kewaunee Scientific Corporation, Statesville, NC production line modular casework. Moderate and reasonable variations of manufacture or products of other manufacturers will be considered.

1. Particleboard for cabinet construction is not acceptable.

B. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

1. Casework:

- a. Kewaunee Scientific Corporation, Statesville, NC.
- b. CIF Lab Solutions, Vaughan, Ontario, Canada.
- c. Diversified Casework, Suring, WI.

2.3 CASEWORK MATERIALS

A. Wood materials:

1. General Requirements: In general, all materials shall be the best of their respective kinds for the purpose intended and all methods used in construction shall conform to the best practices of the Scientific Laboratory Equipment Industry, including any specialized materials required.
 - a. Woods Used: All woods shall be carefully and thoroughly air-dried, then kiln dried by the laboratory equipment manufacturer in his own humidity controlled kilns to a moisture content of 4-1/2 percent. All kiln dried lumber shall then be tempered to a moisture content of 6 percent before use. This moisture content shall be maintained throughout production.
 - b. Exposed Surfaces: All exterior casework surfaces exposed to view after installation, and the exposed interior ends, top and bottom of open cases shall be plain sliced White Maple. Backs shall be printed hardboard finished to match interior. The solid woods used for all surfaces exposed to view after completion of installation shall be clear, with color and graining in conformance with the normally accepted standards required of the Scientific Laboratory Equipment Industry. The finished installation must provide an attractive and harmonious appearance.
 - c. Direction of wood grain: Vertical on door, end panels and exposed backs, drawer faces, aprons and top rails.
2. Structure: Solid White Maple, plain sawn frame.
3. Drawer Fronts: Solid White Maple, plain sawn.
4. Exposed Plywood: 3/4 inch White Maple plain sawn plywood
 - a. Exposed surface: 1/8 inch thickness veneer of highest grade hardwood selected as to grain and color
5. Unexposed interior plywood used in cabinets and cases shall be clear Poplar Grade A veneer face, Grade B, back. All interior plywood shall have high grade, clear veneers and assembled with polyvinyl emulsion glue. All interior unexposed shelves shall be 7-ply Poplar plywood, White Maple banded, interiors of all open cabinets, and underside of wall cabinets.
 - a. Exposed surfaces inside casework: 1/8 inch thick veneer of unselected but sound hardwood stained to match exterior.

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6. Hardboard meeting or exceeding Commercial Standards CS 251 and Federal Specifications LLL-B-00810. Tempered hardboard 1/4 inch thick - smooth both sides.
 7. Fiberboard to be of uniform density and meet the following minimum standards:
 - a. Screw Holding, Face 355 lbs.
 - b. Screw Holding, Edge 300 lbs.
 - c. Modulus of Rupture 4,500 psi.
 - d. Modulus of Elasticity 500,000 psi.
 - e. Internal Bond 100 psi.
 8. Framing and blocking at mechanical grille enclosures: Nominal 2x framing, American Softwood Lumber Standard PS 20-70 and with specific grading requirements of SPIB: Kiln dried (KD15), Structural Light Framing, N^o. 2 grade, free of warping and large knots
- B. Stainless Steel: Alloy 18-8, Type 302/304 in accordance with AISS Specifications. All exposed surfaces except as otherwise noted shall be finished with No. 4 satin finish.

2.4 CASEWORK CONSTRUCTION, GENERAL

- A. General: Solid hardwood framed construction with solid hardwood and hardwood plywood panels as specified for particular cabinet types.
1. Quantities, sizes and configurations as shown on Drawings. Frameless cabinets are not considered equal to those specified.
 2. Joint construction:
 - a. Blind, not extended to faces of cabinets.
 - b. Acceptable joinery methods: mortise and tenon, multiple dowel or stopped tongue and groove.
 - c. Reinforcement: screws, cleats, hot glue and stapled pins.
 3. Hinged doors are to overlay the cabinet body. Maintain a maximum 1/8 inch reveal between pairs of doors,.
 4. There shall be a one inch clear dimension from the bottom of the countertop to the door or drawer below.
- B. Cabinets:
1. Totally enclosed cabinet constructed from integrally joined parts; solid ends and backs; flush interior for ease of cleaning; casework toe space 2-1/2 inches deep by 4 inches high, fully enclosed and integral to base cabinet construction.
 2. Basic construction requirements for frame sizes as follows:
 - a. Intermediate rails 3/4 by 1-3/4 inches glued to end panels utilizing blind mortise and tenon joints. Intermediate rail mounted at the front between the drawers and between all drawers and doors.
 - b. Top Horizontal:
 - 1) Front and Rear Member 2-1/2 x 1-1/4 inch White Maple
 - 2) Side Member 1-1/4 x 1-1/4 inch Hardwood

- 3) Center Mullion 1-1/4 x 1-1/4 inch Hardwood
- c. Bottom Horizontal:
 - 1) Front and Rear 2-1/2 x 3/4 inch Hardwood
 - 2) Side Member 1-1/4 x 3/4 inch Hardwood
 - 3) Center Mullion 3-1/4 x 3/4 inch White Maple
- 3. Cupboard bottom: 3/4 inch plywood;; solid White Maple facing at exposed edge.
- 4. Cabinet end panels: 3/4 inch thick White Maple plywood with sliced White Maple hardwood facing; end panels glued to top and bottom frames utilizing blind mortise and tenon joints, and countersunk screws.
- 5. Cabinet backs:
 - a. Standard cabinet back: 1/4 inch thick non-print hardboard rabbeted into the end panels.
 - 1) Rear, unexposed, side of back to receive continuous hot melt glue at joint between back and sides/top/bottom for sealing against moisture and vermin, and further contribute to case rigidity.
- 6. Astragal strip between double swinging doors.
- 7. Door and Drawer Spreaders: Provide minimum 3/4 x 6 inch full width White Maple veneer plywood cabinet body spreaders immediately behind all door/drawer and multiple drawer horizontal joints to maintain exact body dimensions, and close off reveal. Front edge Solid White Maple banding.
- 8. Dimensions: Manufacturer's standard sizes unless otherwise indicated on Drawings.
 - a. Heights of base cabinets are indicated on Drawings as height to finished countertop. Fabricator is responsible to coordinate fabrication height of base cabinets with thickness of the various countertop types.
 - b. Depth of base cabinets to provide 6 inch clear utility space below counter, between base cabinet back and wall as shown on Drawings.
- C. Tall Cabinets:
 - 1. Totally enclosed cabinet constructed from integrally joined parts; solid ends and backs; flush interior for ease of cleaning.
 - 2. Construction and materials as for base cabinets with the following exceptions:
 - a. 3/4 inch White Maple plywood top.
 - b. Access panels in cabinet backs not required.
 - 3. Dimensions: Manufacturer's standard sizes as given below unless otherwise indicated on Drawings.
 - a. Heights of tall cabinets; 83 inches.
 - b. Depth of tall cabinets: 16 inches.
 - 4. Swinging doors for tall cabinets: 1 inch thick White Maple framed, with sliced White Maple veneer.
 - 5. Door edges
 - a. Typical edge band for doors: Minimum 5mm, or 1/4 inch thick solid White Maple.

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- D. Shelving: Full-width adjustable shelves in all base, wall and tall cabinets where shown on Drawings
 - 1. Thickness: 3/4 inch White Maple plywood to 36 inches wide; one inch White Maple plywood shelving 36 inches wide and over.
 - 2. Exposed edges: White Maple banding on exposed edge.
- E. Filler Panels: Flush panels fabricated from 3/4 inch White Maple plywood with sliced White Maple veneer to match adjacent casework; sizes as determined in field.

2.5 HARDWARE

- A. Hinges:
 - 1. Hinge for full overlay cabinet doors: Self closing concealed hinge having maximum 110 degree angle of opening, 3 way adjustment. Hinges shall be equal to Blum "Soft-Close BLUMotion Clip-Top Overlay Hinge" with straight arm, model N°. 71B3550.
 - a. Number of hinges: Provide number of hinges indicated in Drawings, or if not indicated, provide number recommended by manufacturer for size and weight of door.
 - 2. Base plates for maintaining 1/8" reveals between door/drawers within the same cabinet, and between doors of adjoining cabinets.
 - 3. One and one-half pair of hinges per door over 48 inches in height.
 - 4. Hinge mounting: Flathead screws so applied to door and cabinet as to withstand a weight load of 150 pounds minimum.
- B. Pulls: Stainless steel Richelieu "Model 754" or approved equal with large end posts provide 10 inch pulls except where 6 inch is indicated on the Drawings.
- C. Catches:
 - 1. Base and wall cabinets: Spring-tension nylon roller catch with steel strike plate; one catch for each door required at double doors without locks.
 - 2. Tall cases: One pair of heavy-duty spring tension rubber roller catches for each door; positive catch and lower type latch installed on left hand door.
- D. Locks: Heavy duty, cylinder-type lock with five disc tumblers equal to Illinois Lock Company. Positive tumbler operations shall be accomplished by cam action without the aid of springs.
 - 1. Locations: All drawers and hinged doors on casework
 - 2. Keying: All casework locks keyed alike within each room; Masterkey all casework in Project. No two rooms shall be keyed alike unless otherwise directed by Owner's Representative. Provide 4 keys for each room, and 6 masterkeys (total).
 - a. The lock system shall guarantee security which restricts the duplicating of keys to registered locksmiths.
 - 3. Strike plates: Finish 26D.
- E. Adjustable shelf supports: Manufacturer's standard adjustable shelf supports. Flush cabinet interior sides, without shelf system permanent projection.

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1. Shelf supports: BHMA B84072, wrought steel, mortise mounted.
 2. Shelf support clips: Pin type, corrosion resistant coated finish.
 3. Shelf adjustment on 1-1/4 inch centers.
- F. Install hardware uniformly and precisely after final finishing is complete. Set hinges snug and flat in mortises for leaf concealment. Turn screws to flat seat. Adjust and align hardware so that moving parts operate freely and contact points meet accurately. Allow for final field adjustment after installation.
- G. Hardware Finish: Satin finish stainless steel US32D, unless otherwise noted.

2.6 CASEWORK FINISH

- A. Finish System: Premium Grade, NAAWS "Polyurethane, Catalyzed" system having a Semi-gloss sheen.
1. Basis of Design Finish: M.L.Campbell, Fort Erie, Ontario, Canada product "EuroBild", or approved equal, recommended by woodwork fabricator to match Architect's finished control sample. Finish system to include:
 - a. Application of dye stain colorant to desired finish: M.L.Campbell "WoodSong Stain."
 - b. One coat catalyzed sealer: M.L.Campbell "EuroBild Sealer."
 - c. Sand sealer (minimum 320 grit).
 - d. First application topcoat, applied 3.0 to 6.0 mils wet.
 - e. Second application topcoat, applied 3.0 to 6.0 mils wet.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Erect casework straight, level and plumb and securely anchor in place. Scribe and closely fit to adjacent work. Cut and fit work around pipes, and ducts.
- B. Install all items complete and adjust all moving parts to operate properly.
- C. Leave surface clean and free from defects at time of final acceptance.

End of Section

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SECTION 210000

FIRE PROTECTION

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SECTION 210000**FIRE PROTECTION****PART 1 - GENERAL**

1.1 GENERAL PROVISIONS

- A. All the Contract Documents and General Provisions of the Contract including, but not limited to, General and Supplementary Conditions, and Division 1 Specification Sections apply to this Section.
- B. The work of this Section provides and contains general information which is inherently made a part of each Section and applies to all work performed under this Contract.
- C. The Drawings on which this Contract is based are listed in Section 00860. Consult all Drawings, note all conditions that may affect the Work and care for same in executing the Contract.
- D. Refer to Section 012300, Alternates, for alternates which may affect the work of this Section. The following alternates include Fire Protection Scope:

1.2 DESCRIPTION OF WORK

- A. Provide all labor, materials, equipment, services and accessories necessary to Design, Furnish and Install the work of this Section, complete and functional, as indicated in the Contract Documents and as specified herein. The Design shall conform to the documents and shall be subject to approval by the Architect.
- B. Without limiting the generality thereof, the work to be performed under this Section includes:
 - 1. A hydraulically designed combination automatic sprinkler system to provide 100% protection for the new building as noted on the Drawings. Refer to Fire Protection Criteria on the Drawings. Prepare Working Drawings for approval of the Architect, the local authority having jurisdiction, and the owner's insurance company under stamp of an independent Rhode Island Registered Professional Fire Protection Engineer.
 - 2. Pipe and Fittings
 - 3. Hangers
 - 4. Sprinkler Heads
 - 5. Furnishing and installation of Supervisory Switches and Controls
 - 6. Systems Identification
 - 7. Flushing and Testing of the interior system as provided herein. Coordinate, witness, and certify the flushing and testing of the exterior system and submit certificates. The exterior installation is provided in Division 2.
 - 8. Drilling, Coring, Cutting & Patching of holes and openings (where the largest dimension thereof does not exceed 12 inches), for Fire Protection Piping and Equipment. All such holes require sleeves.
 - 9. Scaffolding, Rigging, and Staging required for all Fire Protection Work. Comply with Division 1 requirements.
 - 10. Provide Seismic Restraints for all Fire Protection Systems conforming to the requirements of the State Building Code which Section is herein incorporated by reference as work of the Fire Protection Sub Contractor. Seismic Restraints are required in both new and renovated buildings.

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11. Furnishing of Access Panels
12. Smoke and Firestopping Seals and sealing of all wall penetrations as detailed on the drawings. Refer to Section 078400 which defines the firestopping materials and methods.
13. When open-flame or spark producing tools such as blower torches, welding equipment, and the like are required in the process of executing the work, the General Contractor shall be notified not less than twenty four hours in advance of the time that the work is to begin and the location where work is to be performed. Provide fire protective covering and maintain constant non-working fire watch through the Local Fire Department where work is being performed and until it is completed.
14. It shall be the responsibility of this division 210000 to provide all personnel as required to fully coordinate with the commissioning agent. The hours of training and instruction outlined in this division 210000 and the Testing requirements shall be in addition to those tests and requirements outlined in sections 018000 and 210800 and required to fulfill commissioning obligations.

1.4 RELATED WORK

- A. The following items of work related to the Fire Protection Work are included under other Sections of the Specifications:
 1. Cutting & Patching beyond 1.2B.84 above: SECTION 010450 - CUTTING AND PATCHING.
 2. Installation of Access Panels: Respective finish section.
 3. Finish Painting: SECTION 099000: PAINTING
 4. Temporary Facilities: SECTION 015000 - TEMPORARY FACILITIES
 5. Commissioning of Fire Protection – SECTION 210800 COMMISSIONING OF FP

1.5 CODES, ORDINANCES, AND PERMITS

- A. Perform all work in accordance with the following Codes:
 1. 780 CMR: The State Building Code.
 2. 527 CMR: The Fire Prevention Regulations.
 3. NFPA-13-2013 and Owner's insurance company requirements.
 4. All applicable Local, State, and Federal Codes, Statutes, or Regulations.
- B. Obtain all permits, inspections, and approvals, from the governing authorities and pay all fees and include cost in the bid, including approvals for the cross connection control device. Provide the Owner with the cross connection permit for the device in the Owner's name.

1.6 DISCREPANCIES IN DOCUMENTS

- A. Where Drawings or Specifications conflict or are unclear, advise Designer in writing before Award of Contract. Otherwise, Designer's interpretation of Contract Documents shall be final, and no additional compensation shall be permitted due to discrepancies or unclarities thus resolved.
- B. Where Drawings or Specifications do not coincide with manufacturers' recommendations, or with applicable codes and standards, alert Designer in writing before installation. Otherwise, make changes in installed work as Designer requires within Contract Price.
- C. If the required material, installation, or work can be interpreted differently from drawing to drawing, or between drawings and specs, this contractor shall provide that material,

installation, or work which is of the higher standard.

- D. It is the intent of these contract documents to have the contractor provide systems and components that are fully complete and operational and fully suitable for the intended use. There may be situations in the documents where insufficient information exists to precisely describe a certain component or subsystem, or the routing of a component. In cases such as this, where the contractor has failed to notify the Designer of the situation in accordance with the paragraph above, the contractor shall provide the specific component or subsystem with all parts necessary for the intended use, fully complete and operational, and installed in workmanlike manner either concealed or exposed per the design intent.
- E. In cases covered by the paragraph above, where the contractor believes he needs engineering guidance, he shall submit a sketch identifying his proposed solution and the Designer shall review, note if necessary, and approve the sketch.

1.7 MODIFICATIONS IN LAYOUT

- A. HVAC, Plumbing, Fire Protection, and Electrical Drawings are diagrammatic. They indicate general arrangements of mechanical and electrical systems and other work. They do not show all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with structure and other trades and to meet architectural requirements.
- B. In all spaces, prior to installation of visible material and equipment, including access panels, review Architectural Drawings for exact locations and where not definitely indicated, request information from Designer.
- C. Check Contract Drawings as well as Shop Drawings of all subcontractors to verify and coordinate spaces in which work of this Section will be installed.
- D. Maintain maximum headroom at all locations. All piping and associated components to be as tight to underside of structure as possible.
- E. Make reasonable modifications in layout and components needed to prevent conflict with work of other trades and to coordinate according to Paragraphs A, B, C, D above. Systems shall be run in a rectilinear fashion.
- F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Designer for review and approval.

1.8 RECORD DRAWINGS

- A. General: Refer to DIVISION 01 - GENERAL REQUIREMENTS for general requirements for maintaining as-built drawings and submitting final reproducible record documents.
- B. The General Contractor will provide two sets of black or blue line on white Drawings to the Fire Protection Subcontractor, one set of which shall be maintained at the site and which shall, at all times, be accurate, clear, and complete, showing the actual locations of all equipment and piping as it is being installed. The Record Drawings shall be available to the Architect/Engineer's field representative at all times.
- C. Provide electronic AutoCAD drawings to indicate revisions to piping size and location both exterior and interior; including locations of valves and other equipment requiring

periodic maintenance or repair; actual equipment locations, dimensioned from column lines; concealed equipment, dimensioned to column line; mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located.

- D. Include in the Record Drawings any addenda, sketches, and supplementary Drawings issued during the course of construction.
- E. Non-availability of Record Drawings or inaccuracies therein will postpone the final inspection until they are available.
- F. All valves shown on these Drawings shall be numbered with numbers corresponding to those on the valve charts.
- G. All costs related to the foregoing requirements shall be paid by the Fire Protection Subcontractor.

1.9 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS

- A. Provide operating instructions to the owner's designated representative with respect to operation functions and maintenance procedures for all equipment and systems installed. At the completion of the project, turn over to the Architect four (4) complete manuals in three-ring, loose-leaf binders, containing the following:
 - 1. Complete Shop Drawings of all equipment.
 - 2. Operation description of all systems.
 - 3. Names, addresses, and telephone numbers of all suppliers of the system.
 - 4. Preventive maintenance instructions for all systems.
 - 5. Spare parts list of all system components.
 - 6. Valve tag chart noting location of any and all valves controlling the fire protection systems including main control, main drain, auxiliary drain, drum drip, inspectors test connections and any low point drains connected to these systems.

1.10 SHOP DRAWINGS AND MATERIAL SCHEDULES

- A. Refer to SECTION 013300 - SUBMITTALS for substitution of equipment and submittal of Shop Drawings. If apparatus or materials are substituted for those specified, and such substitution necessitates changes in or additional connections, piping, supports or construction, same shall be provided as the responsibility, and at the expense, of the Fire Protection Subcontractor.
- B. Fabrication of any material or performing of any work prior to the final approval of the Submittals will be entirely at the risk of the Subcontractor. The Subcontractor is responsible for furnishing and installing materials called for in the Contract Documents, even though these materials may have been omitted from approved Submittals.
- C. Submit Shop Drawings for the following materials and equipment.
 - 1. Coordinated Working Drawings and hydraulic calculations including size, type, length, temperature rating of sprinkler heads, piping and the like. Indicate flow test results, design criteria, hydraulic reference points, diffuser and light locations.
 - 2. Access Panels and Covers
 - 3. Sprinkler Heads
 - 4. Hangers and Seismic Restraints
 - 5. Pipe, Fittings, and Appurtenances

6. Systems Identification
7. Valves
8. Fire Department Connection
9. Cross Connection Devices

1.11 COORDINATION DRAWINGS

- A. Before materials are purchased or Work is begun, prepare and submit to the Architect, Coordination Drawings showing the size and location of all equipment and piping lines relevant to the complete system. Ensure that these Drawings are compatible and correctly annotated and cross-referenced at their interfaces.
- B. Coordination Drawings are for the Contractor's and the Architect's use during Construction and shall not be construed as replacing any Shop or Record Drawings required elsewhere in these Contract Documents.
- C. Detailed procedures for Coordination Drawings are contained in DIVISION 01 of these Contract Documents.

1.12 GUARANTEE

- A. Guarantee all work under this Section free from defects in workmanship or materials for a period of one (1) year from the date of final acceptance of the building, as set forth in the Contract.
- B. Replace any such defective work developing during this period, unless such defects are clearly the result of bad usage of equipment by others. Where such defective work results in damage to work of other Sections of the Specifications, restore such work to its original condition by mechanics skilled in the affected trade.

1.13 DRAWINGS

- A. All work shown on the Drawings is intended to be approximately correct to scale but shall be taken in a sense as diagrammatic. Sizes of pipes and general method of running them are shown, but it is not intended to show every offset and fitting. To carry out the true intent and purpose of the plans, furnish all necessary parts to make a complete working system ready for use.
- B. The Drawings and Specifications are intended to supplement each other so that any details shown on the Drawings and not mentioned in the Specifications, or vice-versa, shall be executed the same as if mentioned in the Specifications and shown on the Drawings.
- C. Refer to the Architectural, Structural, and Other Mechanical and Electrical Drawings which indicate the construction in which this work shall be installed. Locations shown on the plans shall be checked against the general and detailed drawings of the construction proper. All measurements must be taken at the building.

1.14 SYSTEM DESCRIPTION

- A. The new building is to be 100% sprinkled with an automatic sprinkler system. The systems shall be designed in accordance with NFPA-13-2013. Do not reduce sizes of sprinkler fire main nor the sizes of risers shown on the drawings.

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- B. Refer to Fire Protection Criteria on the Drawings. Conform to the zoning shown on the plans.
- C. Refer to reflected ceiling plan for location of all sprinkler heads. All sprinkler heads are to be installed dead center of tile.
- D. The Contractor shall prepare hydraulic calculations for the entire project. The main distribution system piping including the service, mains and risers shall not reduce in size from those contained in the contract drawings.

1.15 PIPE MARKER IDENTIFICATION SYSTEM

- A. Mark all fire mains installed under this Section with a marking system in basic colors conforming to those specified in ANSI/ASME A-13.1. Markings shall indicate pipe content and direction of flow. Apply snap on markers every 20 feet on center on piping which is exposed in mechanical or storage areas and above suspended accessible ceilings. Also, apply at all access panels, valves, tee joints, alarms, and/or controls. Adhesive pipe ID system not accepted.

1.16 VALVE TAGS

- A. All valves installed in the Fire Protection Contract shall be tagged. Tags shall be secured to valves with chain link and shall be marked with 3/4 inch high letters as to function. All valve tags shall indicate the Fire Zone.
- B. A corresponding framed Valve Tag Chart shall be installed within each Sprinkler Riser or Control Valve Room indicating location of each valve and the section it serves. This chart shall also be included within the Owner's O&M Manual with valve tag locations noted on the As-Built Sprinkler drawings.

1.17 IDENTIFICATION SIGNS

- A. All equipment and systems shall be identified with signs furnished and attached in accordance with NFPA 13.

1.18 PAINTING

- A. All interior exposed piping is to be painted and all painting, except as noted, will be done by the Painting Subcontractor. All uncovered piping and hangers shall be thoroughly cleaned of rust, oil, and other containments by the Fire Protection Subcontractor and left ready to receive primer coat.
- B. Painting for pipe markings shall be done under this Section.

1.19 BREAKDOWN

- A. Submit a breakdown of the contract price to aid the Architect in determining the value of the work installed as the job progresses.
- B. No requisition will be approved until the breakdown is delivered to the Architect.

1.20 VISIT TO SITE

- A. Prior to submitting a bid, visit the site of work and become familiar with existing conditions

at the site of the work. Any assumptions made are at this Subcontractor's expense.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials and equipment furnished under this Section shall be new, unused, first quality of a manufacturer of established reputation and shall be U.L./F.M. approved. Each valve, fitting, section of pipe, and piece of equipment shall have cast or indelibly stamped thereon the manufacturer's name and pressure rating where applicable. All threads for fire department connection shall conform to the standards of the Local Fire Department.

2.2 PIPE AND FITTINGS

- A. Pipe and fittings shall conform to the latest A.S.A., A.S.T.M., C.A., and F.S. Standards. All grooved products shall be of one manufacturer to conform to NFPA Standards.

- B. All piping installed under this Section shall be in accordance with the following:

Service

Materials

Trim piping around alarm valves, sprinkler piping 1-1/2 inch and smaller

ASTM A-53, Schedule 40 steel pipe, black for wet system, galvanized for dry

Sprinkler piping 2 inch to 6 inch

Schedule 10, ASTM A-135 U.L./F.M. steel black for wet system, galvanized for dry

- C. Fittings on fire line piping, 2 inch and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings.
- D. Fittings for risers, 2-1/2 inch and larger, and where ever required to conform to Seismic Requirements shall be Victaulic Vic-Flex Style 75 or 77 with Fire Lock Gasket.
- E. Branch line fittings shall be welded or shall be Victaulic 920/920N Mechanical Tees.
- F. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe where used with mechanical couplings shall be rolled groove and shall be threaded where used with screwed fittings.
- G. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.
- H. All pipe and fittings shall be U.L./F.M. approved for sprinkler and standpipe service. All pipe and fittings shall be galvanized for dry or pre-action system and black for wet system.
- I. Fittings on underground fire service piping shall be 250 psi gray iron fittings with mechanical joint ends. Coordinate with site contractor to assure all joints are properly thrust blocked.
- J. Grooved fittings shall be manufactured by Victaulic, Grinnell, Anvil, or equal.

2.3 JOINTS

- A. Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads.
- B. Joints on piping, 2 inch and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet or dry sprinkler system as recommended by manufacturer. Couplings on dry systems shall be galvanized. Cutting, roll grooving, lubrication, and assembly of all joints shall be made strictly in accordance with manufacturer's recommendations. Exercise particular caution in the use of lubricant to avoid "squeeze out" of lubricant when system is in service.
- C. Grooved joints and fittings shall be manufactured by Victaulic, Grinnell, Anvil, or equal.
- D. Furnish and install where piping crosses building expansion joints furnish and install listed expansion joints and anchors per NFPA-13 2013. Expansion joints shall be Metraflex "Fireloop", or manufactured by Flexonic Company or Hyspan, or equal. Expansion joints shall be UL approved for use for fire sprinkler systems.
- E. All joints on Fire Service under slab shall be restrained up to the service stub flange connection above slab.

2.4 VALVES

- A. All shutoff and control valves shall be U.L./F.M. approved, indicating type valves equipped with a supervised trouble switch wired to the fire alarm system. Shutoffs and zone valves may be either OS&Y indicating gates or butterfly valves.
- B. Gate valves shall be outside screw and yoke indicating type, 175 psi W.P. and U.L./F.M. listed, Jenkins or equal. All such valves shall have supervised trouble switch.
- C. Butterfly valves shall be Victaulic Series 705-W for 2-1/2 inch and larger, and Milwaukee indicating type U.L./F.M. butterfly for threaded service. Coordinate with Electrical Sub-contractor to have factory installed monitor switches compatible with the remainder of the Fire Alarm System.
- D. Check valves shall be iron body bronze mounted U.L./F.M., 175# W.P. or U.L./F.M. wafer checks. Grooved end valves shall be Victaulic Style 717 Fire Lock Check Valve.
- E. Pressure relief valves shall be located on wet systems pressure regulating valves and downstream of check valves per NFPA-13-2013. Pressure relieve valves shall be listed and not less than 1/2 in. in size and shall be by AGF, Watts, Cla-Val or equal.
- F. Ball drips shall be Potter Roemer #5682, 3/4 inch straight design ball drip valve, or by Victaulic, Viking, or equal.
- G. Drains shall be provided in the systems as may be required by field conditions. Provide drains at all low points and wherever necessary to insure that all portions of the sprinkler piping may be completely drained. Test connections shall be provided as required to test all portions of the system. Pipe low point drains and test connections to suitable receptor as determined in field or shown on Drawings.
- H. Install an inspector's test connection at the furthest point of each sprinkler zone. Run

discharge back to a suitable receptor. Exterior wall penetration is permitted with test drain but only as approved by the Architect.

- I. Valves shall be manufactured by Victaulic, Nibco, Viking, or equal. Inspector's test stations shall be manufactured by AFG, Tyco, Victaulic, or equal.

2.5 SPRINKLERS

- A. All sprinklers to be used on this project shall be Quick Response type and shall be stamped with date of manufacture and temperature rating. Temperature ratings shall be determined by the location of the heads per NFPA 13-2013, section 8.3.2.5, and shall be minimum 155 degrees F. throughout except in special areas around heat producing equipment, skylights, and attics in which case use temperature rating to conform with hazard as specified in NFPA 13-2013. Orifice diameter and K factor shall be appropriate to meet the hydraulic design criteria, the available water supply, and NFPA Standards.
- B. Furnish spare heads of each type installed located in a cabinet along with special sprinkler wrenches. The number of spares and location of cabinet shall be in complete accord with NFPA 13-2013.
- C. Sprinklers shall be manufactured by Tyco, Victaulic, Viking, or equal.
- D. Upright sprinkler heads in areas with no ceilings shall be Victaulic Model "V2704" Quick Response, upright natural brass finish heads. Include Victaulic FireLock Sprinkler guards in all mechanical, storage rooms, gymnasium outdoor activity, & all areas noted on drawings.
- E. Sidewall heads shall be Tyco Model "TY-FRB" Quick Response with white polyester head and escutcheon.
- F. Pendent wet sprinkler heads shall be Tyco Model "TY-FRB" Quick Response recessed adjustable escutcheon, white polyester finish.
- G. Concealed heads shall be Tyco Model "RFII" Quick Response concealed type, 1-1/2 inch adjustment white cover plate. In special areas, as may be noted on the Drawings, provide alternate cover plate finishes.
- H. Pendent dry sprinkler heads shall be Tyco Model "DS-1" Quick Response dry type, white polyester finish and escutcheon.
- I. Dry sidewall heads shall be Tyco Model "DS-1" dry horizontal sidewall heads, white polyester finish.
- J. Window sprinkler heads shall be Tyco Model "WS" pendent vertical sidewall heads, white polyester finish.
- K. Sprinkler heads located in concealed combustible spaces shall be Tyco Model "CC2" upright sprinkler head, natural brass finish.

2.6 SUPPLEMENTARY STEEL, CHANNEL, AND SUPPORTS

- A. Furnish and install All Supplementary Steel, Channels, and Supports required for the proper installation, mounting, and support of all equipment.

BID PACKAGE #2

- B. Supplementary Steel and Channels shall be firmly connected to building construction in a manner approved by the Architect.
- C. The type and size of the Supporting Channels and Supplementary Steel shall be determined by the Fire Protection Subcontractor and shall be sufficient strength and size to allow only a minimum deflection in conformance with the manufacturer's requirements for loading.
- D. All Supplementary Steel and Channel shall be installed in a neat and workmanlike manner parallel to the walls, floor, and ceiling construction. All turns shall be made with 90 degree fittings, as required to suit the construction and installation conditions.

2.7 HANGERS AND SEISMIC RESTRAINTS

- A. Hangers shall be furnished, installed, and supported from the building structure in accordance with NFPA – 13 and the State Building Code.
- B. All piping whether in the building shall be seismic restrained.

2.8 ACCESS DOORS

- A. Furnish Access Doors for access to all concealed control valves, drains, inspector's tests, supervisory devices, and to all other concealed parts of the system that require accessibility for the proper operation and maintenance of the system. These doors shall be installed under the appropriate Section of the Specifications for the surface upon which the panels are mounted.
- B. All Access Doors shall be located in a workmanlike manner in closets, storage rooms, and/or non-public areas, positioned so that the valve or part can be easily reached, and the size shall be sufficient for this purpose (minimum size 12 inch x 16 inch). When access doors are required in corridors, lobbies, or other habitable areas, they shall be located as directed by the Architect.
- C. Access Doors shall be prime painted and be complete with cylinder lock and two keys as manufactured by Acudor, Inland Steel Products Company "Milcor", or Walsh-Hannon-Gladwin, Inc., "Way Loctor". Type shall be as follows:

| | |
|-------------------------|----------------|
| Acoustical Tile Ceiling | Acudor AT-5020 |
| W.B. Surfaces | Acudor DW-5040 |
| Masonry Construction | Acudor UF-5000 |
| Fire Rated Construction | Acudor FB-5060 |

- D. Access Doors Shop Drawings shall be submitted to the Architect for approval.

PART 3 - EXECUTION

3.1 WORKMANSHIP AND INSTALLATION METHODS

- A. All work shall be installed in a first-class manner consistent with the best current trade practices. All materials shall be securely installed plumb and/or level, and all flush mounted equipment shall have front edge flush with finished wall surface.
- B. Protect all concealed heads. Coordinate and advise finishing trades so as to prevent painting of sprinkler heads or inadvertent filling with paint or jointing compound of

required air spaces in the case of the concealed type sprinkler heads.

3.2 WORK COORDINATION AND JOB OPERATIONS

- A. The equipment shall not be installed in congested and possible problem areas without first coordinating the installation of same.
- B. Before materials are purchased or work is begun, prepare and submit to the Architect, Coordination Drawings showing the size and location of all equipment and piping lines relevant to the complete system. Ensure that these Drawings are compatible and correctly annotated and cross-referenced at their interfaces.
- C. Coordination Drawings are for the Contractor's and the Architect's use during construction and shall not be construed as replacing any Shop or Record Drawings required elsewhere in these Contract Documents.
- D. Detailed procedures for Coordination Drawings are contained in DIVISION 01 - GENERAL REQUIREMENTS of these Contract Documents.
- E. Particular attention shall be directed to the coordination of piping and other equipment installed in the ceiling areas. Coordinate the elevations of all piping in hung ceiling areas to insure adequate space for the installation of recessed lighting fixtures before other mechanical equipment is installed.
- F. Furnish to the General Contractor, and all other Subcontractors, all information relative to the portion of the Fire Protection installation that will affect them, sufficiently in advance so that they may plan their work and installation accordingly.
- G. In case of failure to give proper information as indicated above, sufficiently in advance, pay for all back-charges for the modification, renovation, and relocation of any portion of the work already performed.
- H. Obtain from the other trades, all information relative to the Fire Protection Work to be executed in conjunction with the installation of their respective equipment.

3.3 CUTTING AND CORE DRILLING

- A. Perform all cutting and core drilling operations that are outlined in Part 1 of this SECTION. Throughout the performance of the cutting and coring work, ensure that the structural integrity of the walls, floors, overhead structure, and other structural components is maintained until permanent work is installed. Prior to any coring or cutting, verify all locations of same with the General Contractor. All cutting and coring is to be performed in accordance with approved Coordination Drawings.
- B. Cut all masonry and concrete with an approved diamond blade concrete saw in a neat straight direction, perpendicular to the plane of the wall or floor.
- C. Use a core drilling process which produces clean, sharp edges and the minimum hole size which will accommodate the size of pipe sleeve specified.
- D. Patch all holes up to the sizes indicated in this Section with material and methods as are specified in the Section of the Specifications for the finish trade involved. Holes which are improperly done due to poor materials or method, shall be patched to the satisfaction of the Architect by the finish trade and back-charged to this Subcontractor.

3.4 CLEANING AND PROTECTION

- A. Protect all materials and equipment during shipment and installation and properly handle and store at the job site so as to prevent damage. Assume full responsibility for protection of work until its completion and final acceptance.
- B. Keep the premises reasonable clean at all times and remove rubbish caused by the Fire Protection work as directed by the Architect.
- C. Upon completion of this work, clean all sprinklers, and equipment and replace damaged parts. Failure to fulfill this obligation will result in back-charges for correction of the defective work by others.

3.5 SLEEVES, INSERTS, AND ESCUTCHEONS

- A. All piping passing through slabs, floors, walls, and partitions shall be sleeved and all such sleeves shall be furnished and installed by the Fire Protection Subcontractor as detailed on the Drawings and herein specified. Fire Protection Contractor, shall do his core drilling as approved by the Architect and the cored opening shall have a sleeve caulked and leaded in place. Set sleeves in concrete floors and walls as soon as forms set and before concrete is poured.
- B. All pipes passing through floor, whether slab-on grade or above grade levels shall be sleeved with sleeve extending 1 inch above floor. This includes all piping in toilet room pipe space, stairwells, closets, and partitions. In mechanical penthouses, pipe sleeves shall extend 4 inches above floor.
- C. All sleeves shall be Schedule 40 galvanized steel pipe and shall be reamed. There shall be annular space between the sleeve and pipe per NFPA requirements. Sleeves on drywall, masonry, or concrete walls and partitions shall be flush with wall on both sides.
- D. The space between sleeve and pipe, in all cases, shall be filled with U.L./F.M. approved caulking compound. This includes pipes concealed in chases and/or partitions.
- E. Inserts, where required, shall be furnished and set by the Fire Protection Subcontractor and, where necessary, may be drilled or power driven and shall be sized such that the insert will not exceed a depth of penetration of 1 inch into concrete.
- F. Escutcheons: All exposed pipe, uncovered, passing through walls, or floors, or ceilings, shall be fitted with C.P. brass spun or split type escutcheons with approved clamping device for holding in position. Floor escutcheons shall be deep enough to fit over sleeves, fastened to pipe, and extend down to floor.

3.6 TESTING

- A. Flush the system and test all work in the presence of the Architect and/or Engineer and as required by NFPA and the Insurance Company. The flushing and testing procedures to be followed are specified herein. At the completion of the testing, submit fully executed copies of Contractor's Material and Test Certificate for both above ground and underground piping as contained in NFPA-13.
 - 1. Sprinkler System:
 - a. Hydrostatic Testing: The interior system shall be hydrostatically tested at 200 psi for 2 hours in accordance with NFPA 13.

CONSTRUCTION DOCUMENTS

BID PACKAGE #2

CALCUTT MIDDLE SCHOOL - FEI

Ai3 Architects, LLC
Central Falls, Rhode Island

END OF SECTION

FIRE PROTECTION
21 00 00 - 13

Construction Documents – Bid Package #2 / 06.22.2023

SECTION 26 00 00

ELECTRICAL

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**SECTION 26 00 00
ELECTRICAL****PART 1 - GENERAL**

1.1 GENERAL REFERENCES

- A. Bidding Requirements, Contract Forms, General Conditions Contract for Construction Services and Division 1, General Requirements are hereby made a part of this Section.

1.2 SCOPE OF WORK

- A. The scope of work consists of the installation of all materials to be furnished under this Section, and without limiting the generality thereof, consists of furnishing all labor, materials, equipment, plant, transportation, rigging, staging, scaffolding, appurtenances, programming, software, vendor inspections, component energization, startup testing, training, scheduling, documentation, and services necessary and/or incidental to properly complete all electrical work as shown on the Drawings, as described in the Specifications, or as reasonably inferred from either, in the opinion of the Architect as being required.
- B. The work of this Section includes:
1. Access Panels.
 2. Conduit.
 3. Disconnect Switches.
 4. Electrical Supporting Devices.
 5. Fire Alarm System Extension of Existing.
 6. Fire Stopping.
 7. Fuses.
 8. Grounding.
 9. Lighting Fixtures.
 10. Nameplates.
 11. Outlet Boxes and Accessories.
 12. Panelboards.
 13. Pull Boxes, Junction Boxes and Wireways.
 14. Sleeves, Inserts and Supports.
 15. Starters.
 16. Telephone, Data, Video Outlet and Conduit System.
 17. Thermal Switches.
 18. Wire and Cable.
 19. Wiring Device Plates.
 20. Wiring Devices.
 21. Alternates.
 22. Furnish, erect and maintain staging and scaffolding, including electrical hoisting and rigging equipment required for the performance of the electrical work.
 23. Existing Work and Demolition.
- C. The Electrical Subcontractor shall be responsible for all cutting related to the work of this Section except in finished surfaces. Patching is the responsibility of the trade effected.
1. For coordination of cutting and patching refer to Section 01 31 00, Project Management and Coordination.
 2. For cutting and patching Specifications, refer to Section 01 73 00, Execution.

1.3 CODES, REGULATIONS AND PERMITS

- A. All work done under this Section shall conform to the Codes and regulations governing

such work as follows:

1. ANSI American National Standards Institution.
2. ASTM American Society for Testing Materials.
3. CS Commercial Standards.
4. FS Federal Specifications.
5. IEEE Institute of Electrical and Electronic Engineers.
6. IES Illuminating Engineering Society.
7. NECA National Electrical Subcontractors Association.
8. NEMA National Electrical Manufacturer's Association.
9. NFPA National Fire Protection Association.
10. UL Underwriters Laboratory.
11. NESC National Electrical Safety Code.
12. IPCEA Insulated Power Cable Engineers Association.
13. EEI Edison Electrical Institute.
14. EIA Electronic Industry Association.
15. All Local Governing Codes.
16. NETA, National Electrical Testing Association.
17. 2015 NFPA 1 Uniform Fire Code.
18. 2012 Rhode Island Energy Conservation Code.
19. 2015 NFPA 101 Life Safety Code.
20. 2013 Rhode Island State Building Code.
21. 2013 Rhode Island Electrical Code.

- B. Give notices, file plans, obtain and pay for permits and licenses and obtain necessary approvals from authorities having jurisdiction. Permits shall be secured through the City. Deliver certificates of inspection to Architect. No work shall be covered before examination and approval by Architect, inspectors and authorities having jurisdiction. Imperfect or condemned work shall be replaced with work conforming to requirements, without extra cost to Owner, subject to the approval of the Architect. If work is covered before due inspection and approval, the Electrical Subcontractor shall pay costs of uncovering the installed work, whether it meets contract requirements or not. Refer to Section 00 21 13 Instruction to Bidders and General Conditions Contract for Construction Services for payment of fees.
- C. Give notices, file plans, obtain and pay for permits and licenses and obtain necessary approvals from authorities having jurisdiction. Permits shall be secured through the City. Deliver certificates of inspection to Architect. No work shall be covered before examination and approval by Architect, inspectors and authorities having jurisdiction. Imperfect or condemned work shall be replaced with work conforming to requirements, without extra cost to Owner, subject to the approval of the Architect. If work is covered before due inspection and approval, the Electrical Subcontractor shall pay costs of uncovering the installed work, whether it meets contract requirements or not. Refer to Section 00 21 13 Instruction to Bidders and General Conditions Contract for Construction Services for payment of fees.

1.4 COMMISSIONING REQUIREMENTS

- A. An independent Commissioning Agent (CA) will be retained for this project. The commissioning process will be implemented in accordance with NE-CHPS.
- B. The Electrical Subcontractor shall assist and support the CA as necessary in accordance with the requirements of Specification Section 01 91 13 – Commissioning Requirements/Plan.
1. Commissioning of a system or systems specified in this Section is part of the construction process. Documentation and testing of these systems, as well as

training of the Tenant's and Building Owner's operation and maintenance personnel, is required in cooperation with Tenant's and Building Owner's Representatives and the Commissioning Agent. Project Closeout is dependent on successful completion of all commissioning procedures, documentation and issue closure. Refer to Commissioning Requirements/Plan, Section 01 91 13, for detailed commissioning requirements.

1.5 DEBRIS REMOVAL AND CLEAN-UP

- A. The Electrical Subcontractor shall, at the end of each day's work, remove waste materials and debris resulting from the installation of the electrical system. The Electrical Subcontractor shall deposit such waste and debris in a dumpster on site. Dumpster shall be provided by the General Contractor. The General Contractor shall be responsible for the emptying of dumpster when required.
- B. The Electrical Subcontractor shall, at the completion of his work, remove from the property all tools, equipment and surplus materials resulting from the installation of the electrical system.

1.6 DEFINITIONS

- A. "E.C." or "Contractor" as used herein after in this Section shall mean the "Electrical Subcontractor," i.e., the filed bid Subcontractor under this Section 26 00 00.
- B. "Concealed" shall be defined as areas where conduit and wiring is located in chases, walls, partitions, shafts, and above finished ceilings.
- C. "Underground" shall mean conduit and wiring exterior to or within the Building that is buried. All other conduit and wiring shall be considered "exposed."
- D. "Exposed" shall mean conduit and wiring run on the surface of the Building construction.
- E. "Conduit" shall mean in addition to conduit, all fittings, hangers and other accessories relating to such conduit systems.
- F. "Provide" shall mean "provided complete in place," that is, "furnished and installed."

1.7 DRAWINGS AND SPECIFICATIONS

- A. The Drawings and Specifications are complementary each to the other, and any labor or material called for by either, whether or not by both, or necessary for the successful operation of any components shall be furnished and installed.
- B. Before installing any work, verify that it does not interfere with the clearances required for other work. Installed work which interferes with existing necessary services shall be modified as directed by the Architect, at no additional cost to the Owner.
- C. Be familiar with the Drawings and Specifications of all other trades to prevent interferences and assure complete coordination.

1.8 ELECTRICAL CHARACTERISTICS

- A. In general, and unless specifically indicated otherwise in the Specifications or noted on the Drawings, all new Building service, heating, ventilating, air conditioning and plumbing equipment shall be of the following characteristics:

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1. Motors up to and including 1/3 HP shall be suitable for 120 volt, single phase operation.
2. Motors larger than 1/3 HP shall be suitable for 208 volt, three phase operation.

1.9 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

- A. Bidders are advised to visit the site and inform themselves as to conditions under which this work will be performed. Failure to do so will, in no way, relieve the successful bidder from the responsibility of furnishing any materials or performing any work in accordance with the true intent and meaning of the Drawings and Specifications.
- B. No claim for extra compensation will be recognized if difficulties are encountered which an examination of the site conditions and contract documents prior to executing the contract would have revealed.
- C. The Electrical Subcontractor shall be responsible for ordering and furnishing the correct quantity of material required. Routing and equipment arrangements shown on the Drawings are approximate only and are not warranted to be accurate.
- D. Arrangements shall be made with the Owner prior to the visit for inspection of the existing Buildings.
- E. The Electrical Subcontractor and the General Contractor shall be responsible to coordinate with the work of other trades and vendors. The Electrical requirements involved with HVAC, Plumbing, and Fire Suppression, shall be considered part of the Electrical Subcontractors scope of work.

1.10 GIVING INFORMATION

- A. Keep fully informed as to the shape, size and position of all openings and foundations required for all apparatus furnished under this Section and give full information to the General Contractor sufficiently in advance of the work, so that all such openings and foundations may be built in advance. Furnish all sleeves and supports herein specified, so the General Contractor may install same in place.
- B. In the case of failure to give proper information as noted above, assume the cost of having necessary changes to the work made by the General Contractor.

1.11 GUARANTEE AND SERVICE

- A. The Electrical Subcontractor shall guarantee the performance of the installation and all equipment included in this Section in writing for one year from the date of final acceptance of same. Should any defects in materials or workmanship appear during this period, they shall be corrected or replaced by the Electrical Subcontractor to the satisfaction of the Architect, and at no additional expense to the Owner.

1.12 INTENT

- A. It is not intended that the Drawings show every conduit, fitting and appurtenance. All such parts necessary for the complete execution of the work, in accordance with the best practices of the trade and to the satisfaction of the Architect shall be provided whether these parts may have been specifically mentioned or not, or indicated on the Drawings.
- B. Electrical Subcontractor is responsible to provide equipment, components, and systems that are complete and fully working, with all necessary tests and documents.

1.13 MATERIALS AND EQUIPMENT

- A. All materials and equipment furnished under this Section shall be new and of the best grade for the service intended. The manufacturers mentioned in the Specifications are intended to indicate the quality desired. Any substitutions shall be approved by the Architect as herein provided by the "or equal" clause, in addition to meeting the limitations of space and capacity shown or specified. Re-built materials and equipment will not be accepted.

1.14 OBTAINING INFORMATION

- A. Obtain detailed information from the manufacturers of apparatus which is to be provided, for the proper methods of installation. Obtain all information from the General Contractor and other Subcontractors which may be necessary to facilitate the work and the completion of the whole project.
- B. Electrical Subcontractor shall inspect the site associated with this project prior to submitting his bid and shall investigate all conditions under which this work will be performed. This shall include determination of exact locations of items indicated as existing on the Drawings. Such existing locations are diagrammatic and shall not be construed as exact enough to use for equipment and labor estimating purposes. Failure to inspect existing conditions or to fully understand the work which is required shall not excuse the Electrical Subcontractor from his obligation to supply and install work in accordance with the Specifications and Drawings and under all existing site conditions. It shall be the responsibility of the Electrical Subcontractor to investigate and locate all existing underground utilities which may conflict with the installation of this electrical work. Coordinate elevations of conduits required to be installed under this Contract to avoid interference with any existing underground utilities.

1.15 OPERATIONS AND MAINTENANCE MANUALS

- A. At least two (2) months prior to the time of turning over this contract to the Owner for use and occupancy or substantial completion, secure and deliver to the Architect three (3) complete indexed files containing approved operating and maintenance manuals, Shop Drawings and other data as follows:
1. Operation description of all systems.
 2. Complete Shop Drawings of all equipment.
 3. Preventive maintenance instructions for all systems.
 4. Spare parts lists of all system components.
 5. Names, addresses and telephone numbers of all suppliers of the systems.
- B. Non-availability of operating and maintenance manuals or inaccuracies therein may be grounds for cancellation and postponement of any scheduled final inspection by the Owner until such time as the discrepancy has been corrected and/or retainage of sufficient monies to prepare same.
- C. Provide qualified trained personnel to insure proper operation of the systems and to train the Owner's operating and maintenance personnel in the proper operation and maintenance of the systems. Instruction period shall be five (5) eight-hour days.
1. Training of the Tenant's and Building Owner's operation and maintenance personnel is required in cooperation with the Tenant's and Building Owner's Representatives. Provide competent, factory authorized personnel to provide instruction to operation and maintenance personnel concerning the location, operation and troubleshooting of the installed systems. The instruction shall be

scheduled in coordination with the Tenant's and Building Owner's Representative after submission and approval of formal training plans. Refer to Commissioning Specification, Section 01 91 13, for Electrical Subcontractor training requirements.

- D. Sequence of Operation details and/or drafts of the Operations and Maintenance Manual shall be submitted in accordance with requirements for the preparation of Commissioning prefunctional and functional test protocols. Submittals to be scheduled in advance of final equipment/system installation and prior to performance of startup tests.

1.16 RECORD DRAWINGS

- A. General: Refer to Division 1, General Requirements, Section 01 78 00, Closeout Submittals for Requirements.
- B. The Record Drawings required to be furnished under this Section are of the "E" Series Drawings.

1.17 RELATED WORK SPECIFIED ELSEWHERE

- A. The following related work or material shall be provided under the designated Divisions:
 - 1. Excavation, backfill, pumping, and shoring: Division 31, "Earthwork."
 - 2. Concrete work: Division 03, "Concrete."
 - 3. Flashing and counterflashing for all roof openings: Division 07, "Thermal and Moisture Protection."
 - 4. Field Painting: Division 09, "Finishes."
 - 5. Specialty Equipment: Division 11, "Equipment."
 - 6. Elevator: Division 14, "Conveying Systems."
 - 7. Sprinkler System: Section 21 00 00, "Fire Suppression."
 - 8. Plumbing Equipment: Section 22 00 00, "Plumbing."
 - 9. HVAC Equipment: Section 23 00 00, "HVAC."
 - 10. Door Hardware: Section 08 71 10.
 - 11. For restrictions concerning the hanging of materials, piping, mounts, brackets, hangers, hooks and other items from metal decking. Steel Decking, Section 05 31 00.
 - 12. Commissioning.

1.18 SHOP DRAWINGS

- A. General: Refer to Division 1, General Requirements, Section 01 33 00, Submittal Procedures, for submittal provisions and procedures.
- B. In accordance with Division 1, General Requirements, submit to the Architect for approval complete sets of detailed information consisting of manufacturer's bulletins, capacities, Shop Drawings, and parts lists of all material to be provided for this project.
- C. Any manufacturer's names and/or model numbers identified herein are intended to assist in establishing a general level of quality, configuration, functionality, and appearance required. This is NOT a proprietary Specification unless otherwise noted and it should be noted that or approved equal applies to all products denoted herein. It is understood that all manufactures will have minor variations in configuration, appearance, and product Specifications and such minor variations shall not eliminate such manufacturers as an approved equal. It is the intent of this Specification to encourage open and competitive involvement from multiple manufacturers' that are able to supply similar products.
- D. In accordance with the requirements of the Commissioning Specification, Section 01 91 13

and NE-CHPS, provide a copy of submittals to the Commissioning Agent to obtain comments during the design review cycle.

1.19 TEMPORARY LIGHT AND POWER

- A. Provide capacity from existing building power distribution and pay all expenses related thereto.
- B. Refer to Division 1, Section 01 50 00 for requirements.

PART 2 - PRODUCTS

2.1 ACCESS PANELS

- A. Provide access panels for access to concealed junction boxes and to other concealed parts of system that require accessibility for operation and maintenance. In general, electrical work shall be laid out so access panels are not required.
- B. Access panels shall be located in a workmanlike manner in closets, storage rooms, and/or other non-public areas, positioned so that junction can be easily reached and size shall be sufficient for purpose (minimum size 12" x 16"). When access panels are required in corridors, lobbies, or other habitable areas, they shall be located as directed by the Architect.
- C. Access panels shall be as specified under Section 08 31 00, Access Panels and Doors.

2.2 CONDUIT

- A. Electric metallic tubing shall be electrogalvanized or sherardized steel and the rigid steel conduit shall be hot-dipped galvanized or sherardized, inside and outside, manufactured by one of the following: Pittsburgh Standard, Republic Steel Corp., Allied Tube and Conduit Corp. or equal.
- B. Flexible metal conduit shall be galvanized steel and shall contain a separate copper grounding conductor. Liquid-tight flexible metal conduit shall be similar, but shall also have an extruded moisture and oil proof outer jacket of polyvinyl chloride plastic.
- C. Non-Metallic Conduit (NMC): Rigid polyvinyl chloride (PVC) shall be Schedule 40, rated for use with 90 degree conductors, UL rated or approved equal, conforming to industry standards and NEMA TC-2, NEMA TC-3, Fed. Spec. W-C-1094, and UL 651.
- D. Rigid steel conduit fittings, couplings and connectors shall be threaded and shall be galvanized or cadmium plated. Conduit fittings and outlet boxes shall be held in place by fittings of a type approved by the Architect. Steel supports or racks shall be galvanized steel channel and fittings, Unistrut, Kindorf or Husky Products Company, or equal.
- E. Couplings and connectors for electric metallic tubing shall be galvanized steel of the compression type other than the identer type and with insulated throat or set-screw type.
- F. Steel support rods or support bolts for conduits shall be 1/8" diameter for each inch or fraction thereof of diameter of conduit size, but no rod or bolt shall be less than 1/4" in diameter.
- G. Conduit shall be supported from the Building structure, and shall be independent of ducts, pipes, ceilings and their supporting members.

2.3 DISCONNECT SWITCHES

- A. The Electrical Subcontractor shall furnish and install disconnecting means to comply with the National Electrical Code for all motors. Disconnect switches shall be fused or unfused as shown on the Drawings, NEMA Type HD safety switches for heavy duty, with interlocking cover, side operated with provisions for padlocking the switch handle in the off position.
- B. All motor isolating switches indicated on the Drawings shall be rated in horsepower, and shall be rated for the voltage of the motor and shall be furnished and installed at the motor location whether or not the motor is within sight of the motor feeder disconnecting means.
- C. Disconnect switch enclosures shall be of the proper NEMA type for the intended location as defined by NEMA and shall be phosphate coated or equivalent code gauge galvanized sheet steel with USAFI No. 24 dark gray baked enamel finish.
- D. Disconnect switches shall bear the Underwriters' Laboratories label and be manufactured by Square D Company, Eaton/Cutler-Hammer, Siemens, or equal.

2.4 ELECTRICAL SUPPORTING DEVICES

- A. All conduit and fittings on all work are to be secured by one or more of the following:
 - 1. Masonry - metal clips secured by toggle bolts or lead expansion sleeves.
 - 2. Woodwork - metal clips secured by wood screws.
 - 3. Bar joists - wedge hangers.
 - 4. Flanged beams - flange clips.
- B. All pipe hangers and equipment supports shall be constructed and installed in accordance with Seismic Zone requirements as outlined in the State Building Code. The Electrical Subcontractor shall submit one (1) copy of Shop Drawings and calculations detailing seismic hanger restraints to the local Building Authority and Architect, along with a letter of compliance signed by a registered structural engineer confirming that the piping hangers meet State Seismic Code requirements. Cable provided for seismic systems shall be color-coded and pre-stressed.

2.5 FIRE ALARM SYSTEM (EXTENSION OF EXISTING)

- A. The present building is equipped with a selective coded/non-coded fire alarm system manufactured by Edwards. The new fire alarm system shall be an extension of this system, integrated to provide a complete single fire alarm system.
- B. Furnish and install an addition to the existing closed circuit, electrically supervised automatic and manual, (zone coded) local energy, auxiliary fire alarm system, according to the following Specification. The system shall be wired, connected, tested and left in first class operating condition. The equipment and completed installation shall be in compliance with local and national codes, authorities having jurisdiction and in accordance with applicable sections of the latest edition of NFPA 72 for auxiliary fire alarm systems. All equipment shall be listed by Underwriters' Laboratories, Incorporated and shall meet Americans with Disabilities Act (ADA), NFPA72 and with the approval of the State Fire Marshal.
- C. Electrical Subcontractor shall provide an allowance for fire watches in his bid. If the existing system is off-line for more than 4 hours the Electrical Subcontractor shall be responsible to negotiate with local AHJ for hours, fees and number of personnel to perform the fire

watch with associated project. No additional compensations shall be permitted.

- D. All new equipment shall be provided by the manufacturer of the existing equipment for complete number compatibility with the existing system and to provide one (1) manufacturer with total responsibility for the entire system operation, warranty and maintenance. No other manufacturer will be considered acceptable. Match existing devices to whatever extent is possible. Should the Electrical Subcontractor determine that the existing system may not be expanded to accommodate the devices indicated on the drawings, the Electrical Subcontractor shall furnish and install the complete replacement system in their base bid. Additional compensation will not be awarded if system upgrades or replacements are required by the existing system manufacturer. Perform a site visit prior to the submission of bids as needed to determine expandability of the existing system.
- E. All final connections, programming, testing and adjusting of the system shall be done under the direct supervision of the system supplier. After completion of the installation, a trained technician employed by the system supplier shall demonstrate the system to be satisfaction of the Owner's Representative and shall make all additional adjustments to the system operation as required by the Owner's Representative as a result of this demonstration.
- F. Warrant the new equipment to be free from defects in material and workmanship and within one (1) year from date of installation, repair or replace all or any part of the equipment found to be defective at no cost to the Owner.
- G. Shop Drawings
System Shop Drawings are required to be prepared by a NICET 3 and reviewed and signed by a NICET 4 then submitted for approval. Submittals shall contain the following information:
1. A detailed list of each new piece of equipment with model numbers for each component.
 2. Manufacturer's Specification Sheets on each item of equipment.
 3. Confirmation that the manufacturer's representative will provide jobsite supervision during the installation of the system, perform the final testing of the system and instruct the operating personnel on the operation of the system.
 4. Detailed one (1) line schematic wiring diagrams of the system and its interconnecting wiring. Typical wiring diagram will not be accepted. All data submitted shall be complete for all equipment and shall apply only to this specific project. All extraneous material shall be deleted.
 5. Provide revised battery and circuit calculations reflecting all new and existing devices. Circuit calculations shall demonstrate proper consideration of wire size, circuit loading and spare capacity allowances.
 6. Shop Drawings that are submitted for approval without all of this information will not be considered for approval.
- H. Operation
1. The activation of any manual fire alarm station or the automatic actuation of any thermal detector, ceiling smoke detector, duct smoke detector, sprinkler system water flow switch or any other approved alarm initiating device shall immediately result in the following:
 - a. The existing city circuit shall trip, causing the Fire Department to be notified.
 - b. The zone in alarm shall light its respective alarm lamp or display the appropriate alarm message on the system LCD at the fire alarm control panel and at all remote fire alarm annunciators.

- c. All audible alarm signals (existing and new) shall sound, and all visual units shall flash in a synchronized fashion.
 - d. All smoke doors (existing and new) shall automatically close.
 - e. Upon activation of an elevator lobby smoke detector or other designated recall device, recall all elevators to the ground floor or an alternate level as required by the local authority having jurisdiction. Provide for damper control and fire fighters hat illumination as shown and in accordance with applicable codes.
 - f. Existing control by event operations and I/O sequences shall remain unchanged and new devices shall perform in accordance with existing operation.
2. Certain duct smoke detectors shall activate damper control circuits as indicated in addition to their fire alarm system function.
 3. Provide 24 volt DC power to the new LCN door closers from the fire alarm control panel.
- I. Equipment
1. Fire Alarm Control Panel
 - a. Modify and expand the existing fire alarm control panel to provide for proper system operation from both new and existing devices. Provide new control panel modules incorporated into the existing cabinets, with 200 percent extra cabinet capacity for future system expansion capability. The operating controls and zone and supervisory indicators shall be located behind a locked door with a full size tempered glass viewing window. All control modules shall be labeled, all zone locations shall be identified and the panel shall be provided with a set of permanently mounted operating instructions. The panel shall contain the following modules.
 - b. A control module shall be provided to act as a central processing and indicating location for the fire alarm system. It shall include acknowledge, reset, LED test and trouble silence switches, annunciator trouble, system trouble and earth LED's and a trouble sonalert and an alphanumeric LCD. The control module shall also be provided with an alarm resound feature to permit subsequent alarms to resound the signals.
 - c. Provide Class A Style Y loop style alarm initiating circuit modules with two (2) electrically supervised, normally open circuits, monitoring for alarm (shorts), trouble (opens) and ground faults. The modules shall provide alarm and trouble LED's, LED test (from control), alarm annunciator outputs and alarm resound with flasher acknowledge (from control). They shall also be equipped with zone test and disconnect switches which match the existing configuration. They shall allow the mixing of smoke detectors, heat detectors, flow switches and other initiation devices on the same zone, without the use of limiting resistors at manual stations and detectors and without using a separate source of power for the detectors.
 - d. Provide Class "A" four (4) wire loop style notification appliance circuit modules for control and supervision of the audible and visual signals. Each signal circuit shall have a trouble LED and fuse. Supervision shall be provided for opens, shorts and earth grounds.
 - e. Provide adequate power supply module supplying 6 amperes each of continuous filtered power. The power supply shall be capable of furnishing the system power and power for devices such as duct smoke detectors, auxiliary relays, door holders, and notification appliances, etc. It shall contain a normal power LED, battery trouble LED and power supply trouble LED, all viewable on front of enclosure. Where power supplies are in separate or remote enclosures, they shall be supervised by the FACP for loss of AC power, battery fail, and ground fault, and each notification

- appliance circuit served shall be individually supervised.
- f. Provide terminal connectors and harnesses for field connections of remote annunciators, or for the modules' auxiliary contacts. Each connector shall have provisions for at least sixteen (16) separate points and shall be fastened securely on the rack end.
 - g. Provide any and all modules and modifications including system programming to the fire alarm control panel necessary for proper system operation.
 - h. Remote Annunciators
 - 1) Modify the existing annunciators to provide capacity for the new fire alarm zones.
 - 2) Provide additional modules for zone annunciation to match existing.
 - i. Manual Fire Alarm Stations
 - 1) Match existing double action, semi-flush, non-coded stations shall be furnished where shown on Plans. A downward pull of the lever shall actuate a positive snap action switch. Station shall remain actuated until the station is reset by means of a key furnished with each station.
 - j. Thermal Detectors
 - 1) Furnish and install, where shown, the following low profile, matte white:
 - a) 135°F rate of rise fixed temperature type.
 - b) 190°F fixed temperature type.
 - k. Smoke Detectors
 - 1) Furnish and install, where indicated on the Plans, microprocessor-based analog/addressable photoelectric smoke detectors which match existing devices.
 - 2) Detectors shall be listed by Underwriters' Laboratories, Incorporated under the current standards for photoelectric type smoke detectors, UL 268.
 - 3) Each detector shall be designed to latch into alarm following a predetermined alarm verification time allowance. An alarm condition shall be indicated by a red LED indicator. Supervised remote LED alarm indicators shall be connected to detectors where shown on the Plans.
 - 4) For ease of maintenance and installation, detectors shall utilize a separate base assembly having screw terminals for external wire connections. The base assembly shall mount on a standard 4 inches (10.16cm) square or 4 inches (10.16cm) octagonal outlet box.
 - 5) Provide a base with each smoke detector, except for locations requiring auxiliary functions. Provide a base with integral auxiliary relay for those locations.
 - l. Duct Mounted Smoke Detectors
 - 1) Furnish and install photoelectric air duct smoke detectors which match existing to operate directly from the fire alarm panel power supply. It shall have a detection chamber capable of being removed without breaking conduit connections or requiring an access panel in the duct. Each detector shall have a remote test and annunciating station. The detector shall have two associated programmable alarm relay contacts
 - m. Programmable Modules
 - 1) Furnish and install addressable monitor modules to monitor waterflow, tamper or other related dry contact status inputs.

- 2) Furnish and install addressable control modules to provide programmable auxiliary contact outputs from the system. Each contact shall be rated for 2 amps @24VDC or .5 amps @ 120VAC.
 - n. Audio Visual Alarm Signals
 - 1) Furnish and install combination audio/visual alarm assemblies, except where noted.
 - 2) Audible signals shall match existing and produce a sound output of 85dba at 10 feet, or 15dba above ambient; whichever is greater.
 - 3) Provide xenon strobe visual signals with a minimum effective intensity of 15 candela or otherwise shown or required in accordance with UL1971, ADA and NFPA72.
 - o. Low Frequency Alarm
 - 1) Provide Low Frequency sounders that operate within frequency range 520Hz +-10% square wave tone per NFPA-72 code change in all sleeping rooms. If digital voice communicator (DVC) does not exist the Electrical Subcontractor shall provide DVC, all associated parts, panels and all related wiring as required.
- J. Installation
- 1. Furnish and install, in accordance with manufacturer's instructions, all wiring, conduit and outlet boxes required for the installation of the complete system as specified and described herein and as shown on the Drawings. Ensure that any new work or wiring performed within the new area shall in no way impair or adversely affect the performance of the existing building's fire alarm system in areas adjacent to the new area.
 - 2. All wiring shall be of the same approved type as used for electric light and power wiring and shall meet the requirements of National Electric Codes. The sizes of the different wires shall be no smaller than #14 AWG. Color codes shall be used throughout. All wires shall be tagged at all junction points and shall test free from grounds or crosses between conductors. The wiring color code system shall be carried right through all equipment.
 - 3. Final connections between the new equipment, the wiring system (and the existing equipment) shall be made under direct supervision of a Factory-Trained NICET 3 Manufacturer's Representative.
- L. Manufacturer's Guarantee and Final Test
- 1. The Installing Electrical Subcontractor shall guarantee all equipment and wiring free from inherent mechanical and electric defects for a period of one (1) year from date of final test and acceptance form.
 - 2. The manufacturing, supplying and servicing company of the previously specified system shall be a single responsibility. All equipment shall carry the original manufacturer's label, part number and UL/FM listing. Multiple suppliers will not meet the intent of a single responsibility for the total system concept.
 - 3. The manufacturer of this equipment shall maintain local offices within fifty (50) miles of installation for prompt and efficient service when required. Manufacturers without local service facilities and equipped accordingly shall not be considered equal under these Specifications.
 - 4. Provide a complete final test and recertification of the modified system if accordance with NFPA72 and UL procedures. The tests shall be witnessed and conducted under the direction of the local Authority Having Jurisdiction. A complete test report, riser diagram, address directory and as-built drawings and UL certificate shall be provided as part of the final as-built documentation.

2.6 FUSES

A. General

1. Furnish and install a complete set of fuses for all fusible equipment on the project as specified by the Electrical Drawings. Final tests and inspection shall be made prior to energizing the equipment. This shall include tightening all electrical connections and inspecting all ground conductors. Fuses shall be as manufactured by Mersen, Cooper Bussman, and Littelfuse, or equal.

B. Mains, Feeders and Branch Circuits

1. Fused circuits rated 601 amperes and above shall be protected by current-limiting Class L A4BQ fuses. Fuses shall be time delay and shall hold 500% of rated current for a minimum of 4 seconds, clear 20 times rated current in .01 seconds or less and be UL listed and CSA certified with an interrupting rating of 200,000 RMS symmetrical amperes.
2. Fused circuits rated 600 amperes or less shall be protected by current-limiting Class RK1 time delay A2D (250V) or A6D (600V) or Class J time delay AJT fuses. Fuses rated 8 amperes and above shall have the Smart Spot blown fuse indicator. This indicator shall provide guidance for ascertaining if the opening was caused by an overload or a short circuit. No holes are permitted in the fuse body for the indicator function. Fuses shall hold 500% of rated current for a minimum of 10 seconds (30A, 250V Class RK1 case size shall be a minimum of 8 seconds) and shall be UL listed and CSA certified with an interrupting rating of 200,000 RMS symmetrical amperes.
3. Metal end caps of fuses rated 61 through 600 amperes shall be electrically connected to the fuse blades to facilitate safe voltage testing during OSHA required LOTO (lock out/tag out) procedures.

C. Motors and Motor Controllers

1. Motor Protection
 - a. All individual motor circuits shall be protected by Class RK1, Class J, or Class L time delay fuses.
2. Motors under 10 H.P.
 - a. ATDR fuses (Class CC) may be used on motors rated less than 10 H.P. at 480VAC and rated less than 5 H.P. at 240VAC. Fuse holders for Class CC fuses shall incorporate blown fuse indication.
 - b. Fuse sizes for motor protection shall be chosen from tables published for the appropriate fuse. Heavy load and maximum fuse ratings are also shown for applications where typical ratings are not sufficient for the starting current of the motor.

APPLICATION INFORMATION

LOW VOLTAGE FUSES FOR MOTOR PROTECTION

Three Phase Motor Fuse Selection UL Classes RK5, RK1, J, CC and L

| MOTOR HP | FULL LOAD AMPERES | RECOMMENDED FUSE AMPERE RATING | | | | | | | | |
|----------|-------------------|--------------------------------|-----------------|-------------------------|-----------------|-----------------|-------------------------|------------------|-----------------|-------------------------|
| | | MOTOR ACCELERATION TIMES | | | | | | | | |
| | | MINIMUM 2 SECS. | TYPICAL 5 SECS. | HEAVY LOAD OVER 5 SECS. | MINIMUM 2 SECS. | TYPICAL 5 SECS. | HEAVY LOAD OVER 5 SECS. | MINIMUM 2 SECS. | TYPICAL 5 SECS. | HEAVY LOAD OVER 5 SECS. |
| 460V | | RK5-TRS (Tri-onic®)/RK1-A6D | | | J-AJT | | | UL CLASS CC ATDR | | |
| 1/2 | 1.1 | 1-4/10 | 1-6/10 | 2 | 1-1/2 | 1-6/10 | 2 | 3 | 3-1/2 | 4-1/2 |
| 3/4 | 1.6 | 2 | 2-1/4 | 2-8/10 | 2 | 2-1/4 | 2-8/10 | 3-1/2 | 5 | 6-1/4 |
| 1 | 2.1 | 2-1/2 | 3-2/10 | 4 | 2-1/2 | 3-2/10 | 4 | 5 | 6-1/4 | 9 |
| 1-1/2 | 3 | 3-1/2 | 4-1/2 | 5-6/10 | 3-1/2 | 4-1/2 | 5-6/10 | 6 | 9 | 12 |
| 2 | 3.4 | 4 | 5 | 6 | 4 | 5 | 6 | 8 | 10 | 12 |
| 3 | 4.8 | 5-6/10 | 7 | 9 | 6 | 8 | 9 | 12 | 15 | 17-1/2 |
| 5 | 7.6 | 10 | 12 | 15 | 10 | 12 | 15 | 15 | 25 | 30 |
| 7-1/2 | 11 | 15 | 17-1/2 | 20 | 15 | 17-1/2 | 20 | 25 | 30 | - |
| 10 | 14 | 17-1/2 | 20 | 25 | 17-1/2 | 20 | 25 | 30 | - | - |
| 15 | 21 | 25 | 30 | 40 | 25 | 30 | 40 | - | - | - |
| 20 | 27 | 35 | 40 | 50 | 35 | 40 | 50 | - | - | - |
| 25 | 34 | 40 | 50 | 60 | 40 | 50 | 60 | - | - | - |
| 30 | 40 | 50 | 60 | 70 | 50 | 60 | 70 | - | - | - |
| 40 | 52 | 70 | 80 | 100 | 70 | 80 | 100 | - | - | - |
| 50 | 65 | 80 | 100 | 125 | 80 | 100 | 125 | - | - | - |
| 60 | 77 | 100 | 125 | 150 | 100 | 125 | 150 | - | - | - |
| 75 | 96 | 125 | 150 | 175 | 125 | 150 | 175 | - | - | - |
| 100 | 124 | 175 | 200 | 225 | 175 | 200 | 225 | - | - | - |
| 125 | 156 | 200 | 225 | 300 | 200 | 225 | 300 | - | - | - |
| 150 | 180 | 225 | 250 | 350 | 225 | 250 | 350 | - | - | - |
| 200 | 240 | 300 | 350 | 450 | 300 | 350 | 450 | - | - | - |
| 250 | 302 | 400 | 450 | 600 | 400 | 450 | 600 | - | - | - |
| 300 | 361 | 450 | 600 | - | 450 | 600 | - | - | - | - |
| | | CLASS L-A4BT | | | | | | | | |
| 300 | 360 | - | 601 | 650 | | | | | | |
| 400 | 477 | - | 800 | 900 | | | | | | |
| 500 | 590 | - | 1000 | 1100 | | | | | | |

Minimum - This sizing is recommended if motor acceleration times do not exceed 2 seconds. Minimum sizing with RK1, RK5, and Class J fuses will provide overload relay back up protection but may not coordinate with some NEMA Class 20 overload relays. Minimum sizing is generally not heavy enough for motors with code letter G or higher.

Typical - Suggested for most applications. Will coordinate with NEMA Class 20 overload relays. Suitable for motor acceleration times up to 5 seconds.

Heavy Load - Maximum fuse size in accordance with Table 2. If this fuse size is not sufficient to start the load, RK1, RK5, and J time delay fuse size may be increased to a maximum of 225% of full load amperes. Class CC fuses may be increased to 400% of full load amperes. The Heavy Load column should be used for Design E and high efficiency Design B motor fuse sizing.

3. Motor Controllers
 - a. IEC style and NEMA style motor controllers shall be protected from short circuits by time delay fuses. Controllers and fuses shall be coordinated for Type 2 protection of the motor controllers based upon the motor controller manufacturer's published recommendations. The fuses shall be Class RK1 A2D (250V) or A6D (600V) or Class J AJT, Class CC ATDR or Class L A4BQ.
4. AC and DC Variable Speed Drives
 - a. AC and DC drives not internally protected by high speed fuses shall be provided branch circuit protection by High Speed Class J (HSJ) fuses. Class J time delay AJT fuses are an acceptable alternative to the HSJ in by-pass applications.
5. Motor Control Centers
 - a. To minimize arc flash incident energy, MCC's shall have fusible mains and maximum fuse ratings shall be as follows:

- A4BQ1200 for bolted fault currents greater than 40,000A
- A4BQ800 for bolted fault currents greater than 16,000A
- AJT600 for bolted fault currents greater than 14,000A
- AJT400 for bolted fault currents greater than 5,000A

Unit inserts (buckets) shall be fusible and protected by current-limiting Class J time delay (AJT) or Class RK1 time delay (A2D, A6D) fuses selected for Type 2 protection of the motor controllers based upon the motor controller manufacturer's published recommendations.

D. Other Equipment

1. Lighting and control circuits rated 600VAC and less shall be protected by Class CC time delay ATDR or ATQR fuses, sized according to the Drawings.
2. Switchboards, panelboards, and load centers shall utilize fully rated and listed components. Series rated overcurrent protective devices are not acceptable.

E. Labeling

1. Industrial control panel labels shall include a SCCR (short circuit current rating) and shall specify the overcurrent protection device upon which this rating is based as per the National Electrical Code.
2. Switchboards, panelboards, industrial control panels, and motor control centers shall include a label warning qualified personnel of the potential arc flash hazard. The label shall be visible with equipment door closed.

F. Spares

1. Spare fuses amounting to 10% (minimum three) of each type and rating shall be supplied. These shall be turned over to the Owner upon project completion. Fuses shall be contained and cataloged within the appropriate number of spare fuse cabinets (no less than one), located per Drawings. Spare fuse cabinets shall be equipped with a key lock handle, be dedicated for storage of spare fuses and shall be ATFC.

G. Execution

1. To prevent mechanical damage to fuses; main, feeder, and branch circuit fuses are to be removed from equipment during transit and re-installed when equipment is to be energized.
2. As installed Drawings, showing actual fuses installed, shall be submitted to the Engineer after completion of the project.
3. Fuseholders capable of accepting Class H fuses are not acceptable.

H. Substitution

1. Fuse sizes indicated on Drawings are based on fuse performance and selectivity ratios. Alternative submittals to furnish materials other than those specified shall be submitted to the Engineer along with short circuit, selective coordination, and arc flash hazard studies.
2. Performance of any fuses submitted for substitution shall have:
 - a. Indication integral with the fuse so that it indicates the voltage transient when the fuse is opened. This is a relative measure of how severe the fault was and gives information to the maintenance people to make them more efficient. No holes are permitted in the fuse body for the installation of indicators.
 - b. Only the listed UL categories must be used, in order to reduce the possibility of arc flash injuries. Class RK5 and Class H are prohibited and could cause major liability should an arc flash occur.

- c. All end-caps of fuses must be electrically connected to the fuse blades to prevent misreading of electrical testers during the required OSHA LOTO (Lock-Out Tag-Out) procedures. Misreading on the LOTO final voltage check could cause hazardous shock.

2.7 LIGHTING FIXTURES

- A. Furnish all labor, materials and equipment required for a complete installation of lighting equipment specified on the lighting fixture schedule. This shall include plaster frames for all recessed fixtures whether or not itemized or specified on lighting fixture schedule which appears on Drawings.
- B. Electrical Subcontractor shall assume all responsibility for the safe handling of all lighting fixtures which are furnished under this Section and other accessories and lamps until the final inspection has been made by the Architect.
- C. Special fittings and materials that may be required to support fixtures shall be supplied as well as supports or grounds required to secure surface or pendant mounted fixtures on suspended ceilings unless otherwise noted. Fixtures shall be supported from the Building structure, and shall be independent of ducts, pipes, ceilings and their supporting members. This support shall be in addition to regular fixture support bars, and saddles. Fixtures mounted in association with suspended or integrated ceiling systems shall be supported above ceiling by threaded 1/4" diameter continuous galvanized steel hanger rods or #12 jack chain. Each such fixture shall have two supports per fixtures. Where duct work, pipes, type of Building construction materials and structural framing members provide obstructions or difficult support means, hanger rods shall be used in association with horizontal sections of steel support channels in an approved manner. Steel support channels shall be Unistrut, Kindorf, Huskey Products, or equal. Rigid steel conduit may be used instead of steel support channels for size and method of support. Exact mounting height of all stem supported lighting fixtures shall be determined on the job by Architect.
- D. Fixtures, part or parts thereof (including lamps) determined defective upon completion of electrical installation shall be replaced by Electrical Subcontractor, at no cost to Owner.
- E. Consult with General Contractor regarding arrangement of framing members to permit centering of recessed fixtures.
- F. Consult with Ceiling Subcontractor and coordinate fixture locations and supports with suspended ceiling system.
- G. Electrical Subcontractor shall be responsible for furnishing the specified recessed fixtures with proper mounting arrangement to be compatible with the type of ceiling construction in which fixture is to be mounted. If necessary, the type mounting arrangement shall be changed from that specified or indicated on fixtures schedule to conform to this requirement, at no additional cost to Owner. Submission of Shop Drawings of such recessed fixtures shall be interpreted to indicate that Electrical Subcontractor has verified ceiling construction, type and material with the Architect for the various areas of the project in which these fixtures shall be mounted. Shop Drawings of such fixtures shall be accompanied by a written statement indicating Electrical Subcontractor has verified such mounting arrangements with Architect and the date verified.
- H. All suspended lighting fixtures shall be hung in association with improved aligner type hangers, except where noted.
- I. In addition to fixture supports, surface mounted lighting fixtures shall be secured to surface

which they mount at a minimum of two points on fixture housing to prevent rotation or movement of fixture out of its normal position of alignment.

- J. After installation and lamping of permanent lighting fixtures and with approval of the Architect, these fixtures may be used for lighting, and will not require re-lamping prior to completion of project, except where lamps are faulty or burnt out.
- K. Lamping color temperature shall be as indicated on Drawings.
- L. Lighting fixtures with multi wattage ballasts and drivers shall be labeled from the factory for the wattage specified to ensure compliance with Energy Code calculations.
- M. All lighting fixtures that utilize LED (light emitting diodes) lamp sources shall be Energy Star rated or DLC (Designlights Consortium) qualified product listed, a kelvin temperature as scheduled having a color rendering index of 80 minimum and minimum L70 lifetime rating of 50,000 at 25°C ambient. LED array and driver packages shall have published IESNA LM-79 and LM-80 testing data as a standard manufactured offering. Individual component testing will not be accepted. LM-79 must be conducted at a laboratory listed in the U.S. Department of Energy's LED Lighting Facts approved testing laboratories list. Testing must be conducted within the accreditation effective and expiration dates detailed for a given laboratory. In-house LM-80 reporting of LED array from LED manufacturer will be accepted.
- N. Where lighting fixtures other than the specified products are provided, the Electrical Subcontractor shall provide light level calculations in accordance with IESNA standards to justify that substituted fixtures are of equal performance to the specified products (applies to all lighting fixtures in all spaces).

2.8 OUTLET BOXES AND ACCESSORIES

- A. Outlet boxes and accessories shall be as manufactured by Steel City, Appleton, Racor, or equal.
- B. Lighting outlets in concrete ceilings, walls and columns shall be 4" octagonal rings, 4" deep with round bottom plate. Where concrete slab is less than 5" thick, boxes shall be 2-1/2" deep.
- C. For wood framing and furred ceilings use 4" octagonal outlet boxes, bar hangers and covers. 4-11/16" boxes and covers shall be used where 1" conduit is involved.
- D. Where outlets occur in beams or ribs of pan type concrete construction, a 4" shallow pan outlet, 3/4" deep, shall be used with conduit entering the back of the box.
- E. All fixture outlet boxes shall have 3/8" solid make fixture studs and all auxiliary fixture stems shall be supported from 3/8" male fixture studs.
- F. All outlets in walls other than lighting outlets in concrete shall be Series 52171, 4" square boxes with single of 2- gang raised covers, Series 52C50, of the proper depth required for the particular wall construction and finish. Where the wall construction or finish will not permit a neat cut around the raised cover, Series GW235 boxes shall be used.
- G. Outlets in 2" partitions shall be 4" square, 1-1/4" deep, with raised cover.
- H. Outlet boxes for weatherproof concealed work and exposed rigid conduit work shall be suitable cast or malleable iron conduit fittings, Crouse-Hinds Company, Appleton, Killark,

or equal, and shall have threaded conduit hubs.

- I. Outlet boxes recessed in exterior walls will be required to be sealed internally at the openings and seams and sealed to air/vapor barrier.
- J. Provide 100% airtight plastic switch and outlet boxes at exterior walls, unit demising walls, and at ceiling lighting fixture locations between units, equal to Thomas and Betts Nutek Airtight F-WSW, 2-FWSW, 3-FWSW, F-WOCT, FWSWBX and F-WRD Series.

2.9 PULL BOXES, JUNCTION BOXES AND WIREWAYS

- A. Pull boxes shall be of code gauge galvanized steel with screw covers to match. Pull boxes and wireways shall be as shown on Drawings and/or comply with the National Electrical Code and/or job conditions, with steel barriers separating systems.
- B. Wireways shall be of code gauge steel, baked enamel manufactured standard sections and fittings, with combination hinged and screw covers, as manufactured by Square D "Square-Duct," Bee Line, Cope or equal.
- C. Conductors passing through pull boxes and wireways shall be identified to indicate their origin and termination. Provide nameplates for all pull boxes.
- D. Refer to Drawings for Handhole specifications.

2.10 STARTERS

- A. Motor starters shall be furnished and installed by the Electrical Subcontractor except as noted otherwise in other Sections of this Specification.
- B. All motor starters shall be of the maintained contact type and have individual running overload protection in each phase and shall be provided with two sets of auxiliary contacts (one normally open and one normally closed).
- C. Starters shall be of size and type required for the particular motor horsepower and voltage.
- D. Locate starters adjacent to panel feeding same unless otherwise indicated on the Drawings.
- E. Manual starters shall be of the toggle mechanism type for full voltage starting.
- F. Magnetic starters shall be across-the-line type, with means for remote control, except maintained contact type starters shall be used only where noted for specific items of equipment.
- G. All starters shall have overload reset button, pilot light to indicate on or off and hand-off-auto switch in cover unless otherwise indicated.
- H. Starters shall be furnished in the enclosures called for on the Drawings and shall be grouped whenever possible.
- I. Motor starters, where grouped, shall be mounted on a new 3/4" thick exterior grade plywood mounting board finished to match starter enclosures.
- J. All starters and remote control stations furnished under this Section shall have laminated plastic engraved nameplates designating the equipment controlled. Letters shall be 1/4"

high.

- K. Motor starters and controls shall be Square D, General Electric, Siemens, or equal.
- L. All magnetic starters furnished under this Section which are connected to circuits operating at more than 120V shall have built-in control transformers with 120V secondary control supply.
- M. Thermal trips for all motor starters supplied under this Section shall be ambient temperature compensated.

2.11 TELEPHONE, DATA, VIDEO OUTLET AND CONDUIT SYSTEM

- A. Furnish and install back boxes and conduits as called for on the Drawings.
- B. Refer to Drawings for back box requirements and locations.
- C. Where back boxes are located in environmental air plenum ceiling areas, the conduits shall be run to the nearest corridor located outside the environmental air plenum area.
- D. Actual back box locations and equipment shall be confirmed in the field with Architect and Owner before installation.
- E. Provide blank cover plate for each back box location.

2.12 THERMAL SWITCHES

- A. Thermal switches shall be NEMA Type 1 toggle switch for normal duty with thermal overload relay. Switch enclosures shall be of a type approved for the location and atmosphere in which it is mounted. Thermal switches shall be installed where called for or where required by Code. Thermal switches shall be provided with pilot where called for on the Drawings.
- B. Thermal switches shall be as manufactured by Square D, Eaton, Siemens, or equal.

2.13 WIRE AND CABLE

- A. Wiring shall be a minimum of #12 AWG solid, except motor control circuit wiring and fire alarm system wiring may be #14 AWG. Wiring for 120V branch circuits which exceed a distance of 100' from the panel to the last outlet shall be #10 AWG, 190 ft. from the panel to the last outlet shall be #8 AWG and 280 ft. from the panel to the last outlet shall be #6 AWG minimum, wiring for 277V branch circuits which exceed a distance of 200' from the panel to the last outlet or light fixture shall be #10 AWG, and 300 ft. from the panel to the last outlet or light fixture shall be #8 AWG minimum. The Electrical Subcontractor shall be required to perform voltage drop calculations on all branch circuits in which the actual proposed routing of the circuit exceeds 100 ft. to insure a maximum voltage drop of 3% is not exceeded. Wire sizes shall be increased to maintain the maximum 3% voltage drop.
- B. Wires and cables shall be single conductor, except as otherwise specified or indicated on Drawings. Wires of sizes #8 AWG and larger shall be stranded, while wires of sizes smaller than #8 AWG shall be solid. In general, conductors shall be of soft drawn copper and shall have a conductivity of not less than 98% of the ANSI Standard for annealed copper, except as otherwise specified or indicated on Drawings. Aluminum conductors shall only be used where specifically indicated on the Drawings. Pressure type connectors shall be used at all terminals.

- C. Wire shall be Type THWN-2, XHHW or approved equal, rated 90 degrees C. minimum and suitable for wet and dry locations.
- D. MC cable may be used for branch circuit wiring only, where run concealed, where allowed by Code and approved by the Authority Having Jurisdiction. Type MC cable shall be supported and secured at intervals not exceeding six feet.
- E. Wire and cable shall be by one of the following: Phelps Dodge Copper Products Corp., General Cable Co., AFC Cable Systems, Triangle Conduit and Cable Co., or equal.
- F. Terminal lugs and splice connectors shall be of an ampacity equal to the circuit on which they are utilized.
- G. All wiring where run in environmental air plenums shall conform to Article 300-22 of the National Electrical Code.
- H. Wiring shall be supported from the Building structure, and shall be independent of ducts, pipes, ceilings and their supporting members.

2.14 WIRING DEVICE PLATES

- A. All device plates shall be Specification Grade, .032" thick, Type 430, stainless steel, brushed finish. Plates shall be of appropriate type and size for all wiring and control devices.
- B. Plates shall be set so that all edges are in contact with the mounting surface. Plaster fillings will not be allowed. Multi-device locations shall have one common device plate.
- C. Device plates shall be by the same manufacturer as devices.
- D. All receptacle device plates shall be labeled with circuit origination and circuit number. Letters/numbers shall be 1/4" high in black.
- E. Plates for surface type boxes shall not overlap boxes and shall be designed for use with surface boxes.
- F. Device plates for weatherproof receptacles shall be clear Polycarbonate "In-Use" type, pad lockable.
- G. Labels shall be provided via Brother P-Touch, or equal.

2.15 WIRING DEVICES

- A. Light Switches
 1. All local wall switches shall be of the flush quiet toggle type, as follows, or as manufactured by Pass and Seymour, Inc., Leviton Manufacturing Co., or equal.
 2. All switches shall be suitable for the control of tungsten filament lamps, and shall carry the proper marking of the Underwriters' Laboratories.
 3. Local switches shall be installed in such a position that they shall bear evenly and truly, and be secured on the axis of the supporting members.
 4. Under no circumstances are wooden wedges, shims or blocks to be used in truing up local switches. Should the outlet box in any case come too far back of the finished surface, recess boxes and screws of the proper length to reach the box shall be used of such a size as to form a shoulder at exactly the proper point to

retain the switch in position.

5. Switches shall be rated 20 amperes, 120 - 277 volts, equal to the following:
Single Pole Switches - Hubbell HBL1221
Double Pole Switches - Hubbell HBL1222
Three-Way Switches - Hubbell HBL1223
Four-Way Switches - Hubbell HBL1224
Switch with Pilot Light - Hubbell HBL1221PL
Key switches shall be equal to corresponding switches above.
6. Refer to Drawings for Specification of Dimmer Switches.
7. Color of switches shall be white, unless otherwise noted.

B. Receptacles

1. Duplex receptacles shall be grounding type, rated 20 amperes, 125 volts. Receptacles shall be back and side wired with screw type terminals or pressure type, screwless terminals having suitable conductor release arrangement.
2. Special receptacles for single equipment, where required, shall have additional grounding leg and shall be of capacity for the equipment to be connected.
3. In general, convenience receptacle circuits shall be independent of lighting circuits and shall not be controlled by lighting circuit breaker switches or lighting switches, unless specifically indicated on the Drawings.
4. Receptacles shall be as follows, or as manufactured by Pass and Seymour, Inc., Leviton Manufacturing Co., or equal:
 - a. All 20 ampere, 125 and 250 volt non-locking type receptacles shall be tamper resistant type. Tamper resistant normal circuit receptacles duplex receptacles – Hubbell HBL5362TR.
 - b. Tamper resistant computer circuit duplex receptacles – Hubbell HBL5362TR – Color of receptacles shall be gray. All receptacles circuited to “C” panelboards shall be gray.
 - c. GFCI duplex receptacles installed on the exterior of the Building shall be “Weather Resistant” type.
5. USB Charger Devices shall be as follows, or as manufactured by Pass and Seymour, Inc., Leviton Manufacturing Co., or equal:
 - a. 20 amp, 2 USB chargers and duplex tamper resistant receptacle (5.0 amp) – Hubbell USB20A5W.
 - b. 20 amp, 4 USB charger receptacle (5.0 amp) – USB4W.
6. GFCI Receptacles
 - a. General Description: Straight blade, non-feed-through-type. Comply with NEMA WD 1, NEMA WD 6, UL 498, Federal Specification W-C-596, and UL943, Class A. Include indicator light that is lighted when device is tripped. Must have self-test feature (conducts an automatic test every three seconds, ensuring ground fault protection. If ground fault protection is compromised, power to the receptacle must be discontinued.
 - b. Tamper resistant duplex GFCI receptacles, rated 20 amperes, 125 volts. Receptacles shall be as follows, or as manufactured by Pass and Seymour, Inc., Leviton Manufacturing Co., or equal:
 - a) Hubbell – GFTRST20.
7. Color of receptacles shall be white, unless otherwise noted.

2.16 PANELBOARDS

- A. At each location indicated on the plans, furnish and install an appropriate panel of the ampacity and voltage rating shown on the Drawings.
- B. All panels shall be of the safety dead front circuit breaker type for service on three phase, four wire mains unless otherwise specified. All panels shall be of code gauge steel.

- C. Panels shall be surface or flush mounted, as indicated on the plans, and installed so that the top circuit breaker is no more than 6'-0" above the finished floor.
- D. The panelboards shall bear the Underwriters' Laboratories Label.
- E. All buses shall be copper. All panelboards shall have a circuit directory card mounted in a frame with plastic cover installed on the inside of the door. All directory cards shall be properly filled in, using a typewriter, and indicating areas and devices served by each circuit.
- F. All circuit breakers shall be of quick-make and quick-break type on manual operation, trip-free, and with inverse time characteristics and shall have bolted bus connections; plug-in circuit breakers will not be allowed.
- G. Panelboard trims shall have single doors. Trims and doors shall be made of code gauge, full finish sheet steel. The trim and doors shall be factory finished on both sides. All panelboards shall be keyed alike.
- H. Panelboards shall contain circuit breakers indicated on panelboard schedule on the Drawings. Two and three pole breakers shall be common trip type.
- I. All panelboards shall be equipped with a neutral bar having one solderless connector for each circuit as indicated and with all required knockouts.
- J. Panelboards requiring 200% neutrals and isolated ground shall be as indicated on the Drawings.
- K. Panelboards shall be Square D, Type NQOB for 120/208 volt, and I-Line for main distribution panelboards, Eaton/Cutler-Hammer, Siemens, or equal.
- L. Provide panelboards with Nema 4X enclosure in Kitchen, Served, and other wash down areas.
- M. Circuit breakers which are rated at 1200 amps or more shall have Arc Energy Reduction complying with National Electrical Code 240.87.
- N. Fully Rated equipment shall be provided; Series Rated equipment is not acceptable.

2.17 NAMEPLATES

- A. Nameplates shall be furnished and installed on the switchboard circuit breakers, panelboards, junction boxes, cabinets for all special purpose switches, disconnect switches, starters, and other controls furnished under this Contract, to designate the equipment controlled and function.
- B. Nameplates shall be laminated white bakelite with 1/4" high black recessed letters. Nameplates shall be securely attached to the equipment with galvanized screws or rivets. Adhesives or cements will not be permitted.
- C. Power branch circuit junction boxes shall be identified with circuit's panel(s) origin and circuit number(s) by means of black fibre pen.
- D. All pull boxes and junction boxes shall be identified as to system and function by means of black fiber pen.

- E. Disconnecting means (disconnect switches and enclosed circuit breakers) nameplates shall indicate purpose and identification of the circuit source that supplies the disconnecting means.

PART 3 - EXECUTION

3.1 CLEANING, ADJUSTING AND TESTING

- A. At the completion of the work, all parts of the installation shall be thoroughly cleaned. All devices, equipment, conduits, and fittings shall be completely cleaned of grease, metal cuttings, dirt which may have accumulated during construction, and protection covers. Any discoloration or damage to parts of the Building, its finish or furnishings due to failing to properly clean the electrical system shall be repaired by the Electrical Subcontractor without cost to the Owner.
- B. The Electrical Subcontractor shall test all work and equipment as directed by the Architect and by Authorities Having Jurisdiction, furnish all equipment, necessary personnel and the electrical power.
- C. The entire installation shall be tested for shorts, grounds and open circuits and all defects shall be corrected before acceptance of his work. All work shall be demonstrated to be in proper operating condition to the complete satisfaction of the Architect and Owner.
- D. Coordinate all start up, operation and testing activities with the Project Manager, General Contractor and the Commissioning Agent per Specification Section 01 91 00.
 - 1. Electrical Subcontractor tests shall be scheduled and documented in accordance with the commissioning requirements. Refer to Commissioning Specification, Section 01 91 00, for further details.
 - 2. System verification testing is part of the Commissioning Process. Verification testing shall be performed by the Electrical Subcontractor and witnessed and documented by the Commissioning Agent. Refer to Commissioning Specification, Section 01 91 00, for system verification tests and commissioning requirements.

3.2 CONDUIT WORK

- A. All wiring shall be installed in heavy wall rigid steel unless otherwise noted below and run concealed except as indicated on the Drawings. Branch circuit wiring in hung ceilings, furred spaces or exposed may be installed in electrical metallic tubing. Panelboard feeders may be run in electrical metallic tubing except panelboard feeders run underground or in concrete slabs shall be in heavy wall rigid steel conduit as specified above or PVC. All exposed conduit in spaces indicated as mechanical rooms and where installed exposed below the 8' level elsewhere on the project shall be rigid steel conduit. Conduit extensions in metal partitions may be made with flexible metal conduit, with grounding conductor.
- B. Connections to portable and permanently mounted motorized equipment and motors, as well as the equipment housing, shall be made with approved liquid tight flexible metal conduit. Flexible connections shall be a maximum of 18" long and with grounding conductor. Flexible connections shall be used prior to attachment to equipment housings.
- C. Conduit ends shall be cut square, threaded and reamed to remove burrs and sharp edges. Field threads shall be of the same type and have the same effective length as factory cut threads. Excessive exposed threads will not be allowed. Turns, wherever required in exposed conduit runs shall be made by the use of factory-made bends, or field made bends. Condulets, or in the event of a multiplicity of conduits making the same turn, a steel

junction box with a removable steel cover may be used. Offsets and bends for changes in elevation of exposed conduit runs shall be made at walls or beams and not in open spaces between walls or beams. Conduits shall be routed so as not to interfere with the operation of maintenance of any equipment. The entire job shall be done in a neat and workmanlike manner. Steel supports or racks shall be galvanized steel channel and fittings, Unistrut, Kindorf, Husky Products Company, or equal.

- D. All conduit work shall be carefully cleaned and dried inside before the installation of conductors. Wire shall not be pulled into conduit system until Building is completed. Plug conduit ends to exclude dust, moisture, plaster or mortar while Building is under construction. No lubricants or cleaning agents which might have a deleterious effects on conductor coverings shall be used for Drawing conductors into raceways.
- E. Drawings, in relation to routing of conduits, are diagrammatic. The number and size of conduits and wire shall be furnished and installed as indicated by the Drawings. Conduits shall be routed in the field so as to be coordinated with the Building structure. Concealed conduit shall be as short and direct as possible. Exposed conduit shall be run in straight lines parallel to walls, beams and columns and with right angle bends and threaded conduit fittings. All conduit in concrete slabs shall be run above bottom steel reinforcing, below top reinforcing and column ties. Conduits passing through floors, walls and beams shall be of such size, number and in such locations so as not to impair the strength of the construction. At time of roughing conduits in concrete slab area, prior to pouring of slab, the Electrical Subcontractor shall consult the Structural Engineer for coordination and approval of size, spacing and method of conduit installation in slabs and walls, as well as penetration of such. Particular attention shall be given to the installation of conduits at grouped areas, such as panelboard, cabinet and pull box entrances.
- F. All metal conduit buried in the earth or fill shall be coated with two coats of heavy asphalt paint over its entire length, including couplings.
- G. Raceways in ceiling spaces shall be routed in such an approved manner as to eliminate or minimize the number of junction boxes required, but also shall be routed in an orderly and organized manner. Support rods and clamps shall be furnished and installed as directed by the Architect. Support of conduits by use of wire is strictly prohibited. Conduits shall be supported and secured by conduit support devices.
- H. Where rigid metal conduit is threaded in the field, a standard conduit cutting die providing 3/4" taper per foot shall be employed. Threadless coupling shall not be used on rigid metal conduit except where specifically allowed by the Architect. Running threads shall not be used on rigid metal conduit.
- I. Conduit work shall be installed in such a manner to keep exposed threads to an absolute minimum, and in no case shall more than three threads be left exposed after the conduit work is made up tight. This requirement applies to all conduit work, including conduit buried in earth or fill or in concrete.
- J. Minimum size conduit shall be 1/2" nominal trade size.
- K. A minimum 3/16" diameter twisted nylon plastic type fish cord shall be furnished and installed in all empty raceways. Provide a tag on each end of fish cord indicating the location of the other end.

3.3 EQUIPMENT CONNECTIONS

- A. The Electrical Subcontractor shall provide all connections to all equipment requiring

electrical service, including power cables, branch circuit extensions, fire alarm cables, motors, controllers, lighting fixtures and all other equipment and systems specified or shown on the Drawings.

3.4 FIRE STOPPING

- A. Electrical installations in hollow spaces, vertical shafts and ventilation or air handling ducts shall be so made that the possible spread of fire or products of combustion will not be substantially increased. Openings around electrical penetrations through fire-resistance rated walls, partitions, floors or ceilings shall be firestopped using approved methods to maintain the fire-resistance rating. Refer to Section 07 84 00 for Firestopping. All fire stopping material and installation will be by the Electrical Subcontractor.

3.5 GROUNDING

- A. Grounding methods shall be in accordance with the National Electrical Code Article 250 and Local Utility Company Regulations.
- D. The required equipment grounding conductors and straps shall be sized in compliance with National Electrical Code and shall be provided with green insulation equivalent to the insulation on the associated phase conductors.
- E. Flexible metallic conduit equipment connections utilized in conjunction with branch circuits shall be provided with suitable green insulated grounding conductors connected to approved grounding terminals at each end of the flexible conduit.
- F. The neutral conductor of all circuits shall have an identifying marking preferable a covering of white, readily distinguishable from the other conductors. This wire shall be unbroken from the distribution switch to the outlet.
- G. Each Electrical expansion fitting shall be provided with a bonding jumper.

3.6 HVAC WIRING

- A. Wiring for low voltage temperature control equipment is included under Section 23 00 00.

3.7 INSTALLATION OF OUTLETS

- A. If any discrepancy is found to exist between the electrical plans and any other Drawings associated with the project, notify the Architect at once and have location verified before outlets are installed. Any reasonable change in location of outlets and equipment prior to roughing shall not involve additional expense to the Owner.
- B. Consult with the Ceiling Subcontractor regarding the centering of outlets in ceiling tile.
- C. Whenever outlets of any system are installed in brick, masonry or concrete construction, furnish and install the necessary boxes and conduit in connection therewith so that the General Contractor may build them in as the work progresses. Box offsets shall be made at all outlets to provide for proper adjustment to finished surfaces.
- D. Through-wall boxes will not be permitted. Outlet boxes shall not be mounted back to back, but shall be staggered a minimum of 12" on center.
- E. Knockouts in any boxes shall not be left open and all boxes not having equipment mounted on them shall be provided with blank covers.

- F. Bar hanger type outlets shall be used in hollow framed partitions other than those of the masonry or construction block type, with bar hanger supported from two partition studs. Bar hangers shall be secured to metal type partition studs with self- threading metal screws, or drill through hangers with caddy (or equal) clips shall be used.

3.8 INSTALLATION REQUIREMENTS

- A. All equipment mentioned in these Specifications or those on the Drawings shall be furnished new except where noted and completely installed and adjusted and left in a clean, safe and satisfactory condition, ready for operation and all supplies, appliances, and connections of every sort and description necessary to the operation of the equipment shall be furnished and installed to the satisfaction of the Architect and Owner.
- B. The Owner will not be responsible for materials and equipment until they have been tested and accepted.

3.9 MOTOR AND CONTROL WIRING

- A. The Electrical Subcontractor shall provide all wiring, including conduit, wire, junction boxes, disconnecting switches, and overcurrent protection, to and between all motors, starters, control devices and related electrical equipment whether specified or shown under Section 26 00 00 or other Sections, except where such items are factory wired as well as factory mounted on the driven equipment.
- B. Unless otherwise specified, the Electrical Subcontractor shall mount and align all starters, control devices, safety switches, power factor correction capacitors and other related electrical equipment whether specified in this or other Divisions of this Specification, except where such items are factory mounted on the driven equipment. The Electrical Subcontractor shall determine the correct rotation of any equipment connected to a polyphase motor and connect motor for this rotation before equipment is started.
- C. Unless otherwise specified, all wiring to motors, control equipment and related electrical equipment shall run in rigid conduit or EMT, with flexible metal conduit connections or liquid- tight flexible connections where specified elsewhere. Conduits shall be large enough to accommodate motor branch circuits and grounding conductors whether or not so indicated on Drawings. Wire sizes shall be as shown or to comply with the National Electrical Code.

3.10 PROJECT CLOSEOUT

- A. A certificate of completion shall be issued by the Electrical Subcontractor indicating that the installation is in conformance with the Construction Documents and all applicable Local, State and Federal Statutes and Codes. Final inspection by the Engineer shall be conducted after receipt of the Certificate of Completion. At minimum, life safety items shall be 100% complete including emergency lighting systems, the fire alarm system, and the emergency standby system before the Electrical Subcontractor request for final inspection. If final inspection by the Engineer proves that the emergency lighting systems, the fire alarm system, and the emergency standby system are not 100% complete, the Engineer will backcharge the Electrical Subcontractor at his hourly rate for re-inspection.

3.11 SLEEVES, INSERTS AND SUPPORTS

- A. The Electrical Subcontractor shall lay out and install his work in advance of the pouring of concrete floors and walls.

- B. Furnish and install all inserts, conduit hangers, anchors and steel supports necessary for the support and installation of all electrical equipment.
- C. Where openings are required in walls and floors for the passing of raceways, ducts or busways, the Electrical Subcontractor shall furnish the General Contractor with the necessary information regarding dimensions and locations so that he may install suitable concrete stops to provide these openings. Such openings shall be by the General Contractor in such a manner so as not to interfere with the fireproof integrity of the Building.
- D. The Electrical Subcontractor will be held responsible for the location of and maintaining in proper position, sleeves, inserts and anchor bolts supplied and/or set in place by him. In the event that failure to do so requires cutting and patching of finished work, such work shall be done at the Electrical Subcontractor's expense by the General Contractor.

3.12 SPECIAL COORDINATION INSTRUCTIONS

- A. Coordination with the work of other trades is referred to within various parts of this Section. The following special instructions shall also be carefully noted:
 - 1. The Electrical Subcontractor shall obtain from the HVAC Engineer copies of all Shop Drawing prints showing the ductwork installation as it will be put in place on the project. These Drawings shall be thoroughly checked by the Electrical Subcontractor and the routing of all conduits and installation of all outlets and electrical equipment shall be coordinated with the ductwork so as to prevent any installation conflict. Such coordination shall be done prior to roughing-in conduits, outlets and electrical equipment.
 - 2. Locations of all wall outlets shall be verified with the Architect prior to roughing in conduits. Refer to details and wall elevations on the Architectural Drawings; mounting heights indicated on these Architectural Drawings and/or specific dimensional information given to the Electrical Subcontractor by the Architect shall take precedence over such information indicated on the Electrical Drawings.
 - 3. Refer to all other Drawings associated with this project. Any equipment which requires an electrical supply circuit, switch, controls and connections, even though not indicated on the Electrical Drawings, shall be furnished and installed as directed by the Architect. Locations of lighting fixtures shall conform to the architectural reflected ceiling plans.
 - 4. Refer to Architectural Drawings for areas in which the concrete slab is poured on grade. In these areas a moisture proofing membrane will be installed on the grade fill or earth prior to pouring of slab. Electrical conduits shall be so installed, where possible, to avoid the necessity of penetrating this moisture proofing membrane. Such penetration of the membrane shall only be made when specifically allowed by the Architect, and shall be made only at locations directed by the Architect.

3.13 WIRE AND CABLE

- A. Wiring for all branch circuits and feeder circuits shall be color coded as follows:
 - 1. 3-phase, 4-wire, 208Y/120 volts:

| <u>Phase</u> | <u>Color</u> |
|---------------|--------------|
| A | Black |
| B | Red |
| C | Blue |
| Neutral | White |
| Equip. Ground | Green |
 - 2. Connections to terminal shall be arranged Phase A, B, C from left to right.
 - 3. Signal system shall be color coded differently from electrical systems described

above.

4. For large size conductors available only in black, use colored plastic tape at all ends and where connections and splices are made for the specified color code identification. Tape shall be wrapped around the conductor three complete turns.
- B. In each case, the phase wires shall be connected to the phase supply mains in proper rotation to assure a balanced condition on the panel. The circuit numbers assigned on the Drawings are used for convenience only and need not designate the circuit on the panel to which that circuit may be connected. However, the circuit numbers and circuit description are required to be typewritten on the panelboard directory at the conclusion of the work, and shall represent the circuits as actually connected to the panelboard.
 - C. Joints and splices shall be made in an approved manner and shall be equivalent, electrically and mechanically, to the conductor insulation. Solid conductors shall be spliced with approved wiring connectors. Conductors of Size No. 8 AWG and larger shall be connected by use of solderless pressure connectors; these joints and splices shall be taped with one wrap of varnish cambric tape and then a minimum of three wraps of No. 88 Scotchbranch (3M Company) all-weather vinyl plastic electrical tape, or equal Permacel or Plymouth Company. Each wrap of tape shall be half-lapped. Conductors of Size No. 4 AWG or larger shall have two coats of insulating varnish applied over the tape.
 - D. Switch leg wiring shall be the same color as the phase conductor from which it is supplied.

3.14 ALTERNATES

- A. Refer to Alternates, Section 01 23 00, for alternates affecting the scope of work under this Section.
- B. The work of this Section, which is required by the scope of work as stated in the Alternates, Section 01 23 00, shall comply with the applicable quality and performance requirements for similar work under this Section.
- C. The alternates which effect the Electrical Sections are:
 1. Alternate No.1 – Refer to Drawings.

3.15 EXISTING WORK AND DEMOLITION

- A. The Electrical Subcontractor shall survey the existing electrical system and notify the Owner of any possible problems or issues pertaining to disconnection or removal of any existing electrical equipment, etc. Particular care shall be taken to avoid creating hazard or causing unnecessary disruption of services in adjoining areas.
- B. All electrical equipment, devices, lighting fixtures, etc., shall be disconnected and removed in any area scheduled for renovation by the Architect. All wiring associated with removed or disconnected equipment shall be removed back to next active outlet of panelboard. Raceways shall be capped at nearest coupling immediately outside of area to be renovated.
- C. The Electrical Subcontractor shall reroute and reconnect all existing circuiting which originates or passes through the renovated areas but serves other areas not being renovated. These circuits shall be extended as required to the existing panelboards.
- D. All equipment removed shall be turned over to the Owner unless indicated to be re-used or scrapped. All existing electrical equipment as designated by the Owner shall be stored at a location as directed by the Owner. All other equipment not to be retained by the Owner

shall be removed from the premises in a legal and proper manner by the Electrical Subcontractor.

- E. Provide blank coverplates for all obsolete boxes that are to remain.
- F. Refer to Section 02 41 19 for Selective Demolition requirements.

END OF SECTION

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