Project Manual

CEILING/LIGHTING/FIRE ALARM REPLACEMENT

NATHANIEL H. WIXON INNOVATION SCHOOL

901 ROUTE 134
SOUTH DENNIS, MASSACHUSETTS 02660

March 1, 2018

OWNER:
Dennis – Yarmouth Regional School District
296 Station Avenue
South Yarmouth, Massachusetts 02664

ARCHITECT:
Edward Rowse Architects, Inc.
2 Hampshire Street
Foxborough, Massachusetts 02035
774.215.0290

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SECTION 00 01 15 – LIST OF DRAWINGS

PART 1 - GENERAL

1.01 REFERENCE

A. The drawings hereinafter listed represent an integral part of the contract documents. They should not be considered as a separate entity, as along with the technical specifications, form a process of disseminating information required to perform the work of the project.

1.02 SCHEDULE

A. The following schedule indicates the drawings of this contract. The manner of listing and respective order are for convenience only and do not obligate the Contractor to perform the work in any specific sequence. The work indicated on each drawing should not be construed as specific work for a specific trade, subcontractor or supplier.

B. Schedule of Drawings:

T1	Title Sheet
ARCHITECTURAL	
A1.0	Overall Floor Plans
A1.1	Overall Reflected Ceiling Plans
A2.0	Reflected Ceiling Plan - Ground Floor
A2.1	Reflected Ceiling Plan – Partial First Floor - A
A2.2	Reflected Ceiling Plan – Partial First Floor - B
A2.3	Reflected Ceiling Plan – Partial First Floor - C
ELECTRICAL	
E1.0	Electrical Legend, Notes & Light Fixture Schedule
ED2.0	Ground Floor Electrical Demolition Plan
ED2.1	Partial First Floor Electrical Demolition Plan - A
ED2.2	Partial First Floor Electrical Demolition Plan - B
ED2.3	Partial First Floor & Upper Electrical Demolition Plan - C
E2.0	Ground Floor Electrical Lighting Plan
E2.1	Partial First Floor Electrical Lighting Plan - A
E2.2	Partial First Floor Electrical Lighting Plan - B
E2.3	Partial First Floor & Upper Level Electrical Lighting Plan - C
FA2.0	Partial Ground Floor Fire Alarm Plan - A
FA2.1	Partial First Floor Fire Alarm Plan - A
FA2.2	Partial First Floor Fire Alarm Plan - B
FA2.3	Partial First Floor & Upper Level Fire Alarm Plan - C

END OF SECTION 00 01 15

SECTION 00 11 13 – ADVERTISEMENT FOR BIDS

The Dennis-Yarmouth Regional School Districts School Committee, hereinafter called the "AWARDING AUTHORITY" invites sealed bids from DCAM certified General Contractors for the **"Nathanial H. Wixon Innovation School Ceiling Replacement**", located at 901 Rt 134, Dennis, Massachusetts 02660.

The project consists of in general the removal and replacement of existing suspended acoustical ceiling system including tiles, grid, light fixtures, fire alarm devices in identified areas along with the installation of a new code compliant fire alarm system for the entire school.

The CONTRACT DOCUMENTS may be examined, during normal business hours, at the office of Edward Rowse Architects, Inc., 2 Hampshire Street, Foxborough, MA 02035 on or after March 1, 2018, Contractors may request a CD containing the Contract Documents (drawings and specifications in "pdf" format) for their use. Printing of the Contract Documents shall be at the contractor's expense.

CD(s) may be obtained by providing your Federal Express account number for shipping by email to Janet Lever, Office Manager at (jlever@rowsearch.com).

Bidders may obtain a CD of the documents in person or schedule for delivery via Federal Express from:

Edward Rowse Architects, Inc.
2 Hampshire Street
Suite 106
Foxborough, MA 02035
Phone: (774) 215-0290
Attn: jlever@rowsearch.com

Bids must be submitted in a sealed envelope, plainly marked on the outside;

"Nathanial H. Wixon Innovation School Ceiling Replacement"
ATTN: Mr. Kenneth T. Jenks, Assistant Superintendent for Administration & Business Services
Dennis-Yarmouth Regional School District
Administrative Center
296 Station Avenue
South Yarmouth, MA 02664-1898

GENERAL BIDS will be received on behalf of the School Committee on March 30, 2018 at 12:00 pm at which time they will be opened publicly and read aloud.

FILE SUB-BID ????

There will be a Non-Mandatory, but strongly recommended Pre-Bid meeting at the School Building on March 14th, 2018 at 3:00 pm.

The School Committee reserves the right to reject any and all bids, in part or in total and to waive informalities, when at its sole discretion said action is deemed to be in the best interest of the District.

This contract is subject to the Uniform Procurement Act, Massachusetts General Laws, Chapter 149, which is hereby incorporated into this bid. Prevailing wages will apply.

Brian Carey, Chairperson
Dennis–Yarmouth Regional School District
School Committee

SECTION 00 11 16 – INVITATION TO BID

In accordance with Chapter 193 of the Acts and Resolves of 2004, an Act Further Regulating Public Construction in the Commonwealth, and M.G.L. Chapter 149, notice is hereby given that the Dennis-Yarmouth Regional School Districts School Committee, hereinafter called the "AWARDING AUTHORITY" invites sealed bids from **DCAM certified General Contractors** for the "Nathanial H. Wixon Innovation School Ceiling Replacement" 901 RT 134, Dennis, Massachusetts, 02660, in accordance with the Contract Documents prepared by Edward Rowse Architects, Inc., 2 Hampshire Street, Suite 106, Foxboro, Massachusetts 02035.

The project consists of in general the removal of contaminated suspended acoustical tiles and metal grid, light fixtures and fire alarm devices in identified areas and replacement with new suspended acoustical ceiling system including tiles, grid, light fixtures, fire alarm devices along with the installation of a new code compliant fire alarm system for the entire school.

Bids will be received and publicly opened and read aloud at:

Dennis-Yarmouth Regional School District
Administrative Center
296 Station Avenue
South Yarmouth, MA 02664-1898
(508) 398-7616

Immediately following the times specified below. Bids must be received before these times to be considered.

GENERAL BIDS will be received until Tuesday, March 30, 2018 at 12:00 PM.

FILE SUB-BIDS??

General Bids shall be accompanied by a bid deposit in an amount that is not less than five percent of the bid amount.

If mailed, Bids should be sent to:

Dennis-Yarmouth Regional School District
Administrative Center
296 Station Avenue
South Yarmouth, MA 02664-1898
ATTN: Mr. Kenneth T. Jenks, Assistant Superintendent for Administration & Business Services
(508) 398-7610

Bid deposits, payable to the **Dennis-Yarmouth Regional School District** shall be certified check, bid bond, treasurer's or cashier's check issued by a responsible bank or trust company.

Bids are subject to the provisions of M.G.L., Chapter 30, Section 39M and Chapter 149, Section 44A through H inclusive.

Wages are subject to minimum wage rates as per M.G.L., Chapter 149, Section 26 through 27D as amended.

BID DOCUMENTS will be available after Thursday, March 1, 2018 at the following **only:**

OBTAINING BIDDING DOCUMENTS

1. The CONTRACT DOCUMENTS may be examined, during normal business hours, at the office of

Edward Rowse Architects, Inc., 2 Hampshire Street, Foxborough, MA 02035 on or after March 1, 2018. Contractors may request a CD containing the Contract Documents (drawings and specifications in "pdf" format) for their use. Printing of the Contract Documents shall be at the contractor's expense.

CD(s) may be obtained by providing your Federal Express account number for shipping by email to Janet Lever, Office Manager at (jlever@rowsearch.com).

2. It is the sole reasonability of the Contractor, Subcontractor, vendor and/or any individual and/or corporation to review all ADDENDUMS twenty four (24) hours prior to bid opening by contacting Edward Rowse Architects at (774) 215-0290 or email at (jlever@rowsearch.com).

A Non Mandatory, Pre-Bid conference shall take place on **Friday, March 15, 2018 at 3:00 PM** at the Nathanial H. Wixon Innovation School.

The Awarding Authority reserves the right to waive any informalities in or to reject any or all general bids, if it be in the public interest to do so.

END OF DOCUMENT 00 11 16

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

1.01 BIDDER'S REPRESENTATIONS

A. By the act of submitting a bid, the Bidder warrants that he has inspected the site, has familiarized himself with the actual conditions under which the Work is to be performed, has correlated the Bidder's personal observations with the requirements of the Contract Documents and has full knowledge of the work required.

B. The Bidder and all subcontractors he intends to use have carefully and thoroughly reviewed the Drawings, Specifications and other Construction Contract Documents and have found them complete and free from ambiguities and sufficient for the purpose intended.

C. The Bidder and all workmen, employees and subcontractors he intends to use are skilled and experienced in the type of construction represented by the Construction Contract Documents bid upon.

D. Neither the Bidder nor any of his employees, agents, intended suppliers or subcontractors have relied upon any verbal representations, allegedly authorized or unauthorized from the Owner, its employees or agents including architects, engineers or consultants, in assembling the bid figure.

E. The bid figure is based solely upon the Construction Contract Documents and properly issued written Addenda and not upon any other written representation.

F. After award of Contract, no claim for additional compensation resulting from misunderstanding of the Contract Documents or resulting from errors in or conflicts within the Contract Documents will be entertained unless interpretations of the Contract Documents specifically relating to the portions thereof which appear to the bidder to be in question, error or conflict, are brought to the Owner's attention during the Bidding Period.

1.02 CONTRACTOR'S QUALIFICATIONS

A. General Bids must be accompanied by (1) a Certificate of Eligibility issued by the Division of Capital Asset Management (DCAM), showing that the Bidder has been approved to bid on Projects of the size and nature of this project, and (2) a Contractor Update Statement, DCAM Form CQ3.

B. The Division of Capital Asset Management and Maintenance (DCAM) have recently revised the Prime/General and Sub-Bidder Update Statements effective January 1, 2010. Please note that due to a typographical error, there is a revised Sub-bidder Update Statement form which was issued February 5, 2010. Both forms are also available from DCAM's web site www.mass.gov/dcam under "Contractor Certification".

C. The main revisions were to ensure that bidders include information that was not disclosed on their most recent Application for Certification of Eligibility filed with the Division of Capital Asset Management and Maintenance (DCAM). Please be careful to read all instructions on these forms if you are a bidder on a project being bid pursuant to M.G.L., Chapter 149. If you have any questions regarding this matter, please contact the DCAM Contractor Certification Office at (617) 727-9320.

D. It is the Bidder's responsibility to obtain the necessary forms from DCAM and make applications to DCAM in sufficient time for DCAM to evaluate the application and issue a Certificate of Eligibility.

E. The Contractor Update Statement is not a public record as defined in M.G.L., Chapter 4, Section 7 and will not be open to public inspection.

1.03 EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

A. Attention is given to Article 16 of the General Conditions and the certifications that will be required from the Contractor and the Subcontractors in this regard prior to the award of the Contracts.

1.04 MBE AND WBE PARTICIPATION

A. Minority Business Enterprise (MBE) and Women Business Enterprise (WBE). The construction **goal** for this project shall be total 10% (MBE) / (WBE) participation by state certified firms. Within ten business days of the Bid Opening, the Bidder shall submit a "Schedule for Participation by Minority Business Enterprises" with an accompanying "Letters of Intent" by each minority sub-contractor proposed to be used by the contractor.

1.05 REQUESTS FOR INTERPRETATION

A. Bidders shall promptly notify the Owner's Project Manager of any ambiguity, inconsistency, or error which they may discover up examination of the Contract Documents, the site, and existing building conditions.

B. Bidders requiring clarification or interpretations of the Contract Documents shall make a written request to, Ted Rowse, Project Manager either faxed to (774-215-0492), or emailed (trowse@rowsearch.com). The Project Manager will answer such request if received five calendar days before the date for receipt of the bids.

C. Interpretation, correction, or change in the Contract Documents will be made by Addendum which will become part of the Contract Documents. Neither the Awarding Authority, Owner's Project Manager, nor the Architect will be held accountable for any oral instructions.

D. Addenda will be distributed by the Architect by delivery service, US mail, via facsimile mail or email to every individual or firm on record as having taken a set of Contract Documents.

E. Copies of Addenda will be made available for inspection at the locations listed in the Advertisement where Contract Documents are on file.

F. Any information given by means other than written addenda shall be considered informal and shall not be considered as basis for additional compensation or claim against the Owner or Architect.

G. Bidders shall acknowledge Addenda in the spaces provided on bid forms. Failure of a bidder to acknowledge Addenda in the spaces provided on bid form will be deemed cause rejection of the bid.

1.06 PREPARATION AND SUBMISSION OF BIDS

A. Bids shall be submitted on the "Form for General Bid" furnished at no cost by the Awarding Authority. There shall be no mailing of additional forms by the Architect.

B. Blanks: Complete all spaces provided. Do not leave any blanks. Print "N/C", "No change", or "0" in any space not needed or used.

C. Amounts: Express amounts in both words and numbers where space for both is provided. In cases of discrepancy between the two, the amount written in words shall govern over the numbers.

D. No interlineations, alterations, or erasures shall be made on the bid forms.

E. If a bid bond is used for deposit, it shall be in a form similar to A.I.A. Document A310, "Bid Bond", shall be with a surety company satisfactory to the Awarding Authority and qualified to do business in Massachusetts, and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid.

1.07 TAX EXEMPTION

A. The Awarding Authority is exempt from payment of Massachusetts Sales Tax.

B. Awarding Authority's Sales Tax Exemption Number will be provided to the successful bidder.

1.08 ALTERNATES

A. Each Bidder shall bid on all alternates listed.

B. In the event an alternate does not involve a change in the amount of the base bid, the Bidder shall indicate by using the words "**No Change**", "**Zero**", "**N.C.**", or otherwise clearly indicating that there is no change in the **Base Bid** in the space provided for that alternate.

C. General Bidders shall enter on the Form for General Bid, a single amount for each alternate which shall consist of the Sub-Bidder's amounts and the amount for work performed by the General Contractor.

D. The Low Bidder will be determined on the basis of the sum of the base bid and the alternates accepted. Alternates will be accepted in the order that they are listed (e.g. Alternate No. 2 cannot be accepted before Alternate No.1 is accepted).

1.09 SUBMISSION OF BIDS (FILE SUB-BIDS)

A. The General Bid, including the bid deposit, shall be enclosed in a sealed envelope with the following plainly marked on the outside:

GENERAL BID FOR THE NATHANIAL H. WIXON MIDDLE SCHOOL– CEILING REPLACEMENT

_____(Bidder's Name and Business Address)_____

B. The sealed envelope shall be enclosed in an outer sealed envelope and delivered as set forth in the ADVERTISEMENT.

C. Bid deposits, payable to the Awarding Authority, shall be either certified check, bid bond, or treasurers or cashier's check issued by a responsible bank or trust company.

D. Date and time for receipt of bids is set forth in the ADVERTISEMENT FOR BIDS.

E. Timely delivery of a bid at the location designated shall be the full responsibility of the Bidders.

1.10 WITHDRAWAL OF BIDS

A. Any bid may be withdrawn prior to the time designated for receipt of bids only on written or telegraphic request. Telegraphic withdrawal of bids must be confirmed over the signature of the Bidders by written notice post-marked on or before the date and time set for receipt of bids.

B. Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.

C. No bid of the three lowest General Bidders and the Sub-bidders they name on their general bids, and of the three lowest Sub-Bidders for each sub-trade shall be withdrawn within thirty (30) days, Saturdays, Sundays, and legal holidays excluded, after the opening of the general bids.

1.11 AWARD OF CONTRACT

A. Bid Opening: Bids will be opened in public and bidders may be present. Bid amounts will be read aloud, recorded, and referred to the Awarding Authority for consideration.

B. As used herein, the term “lowest responsible and eligible bidder” shall mean the General Bidder whose bid is the lowest of those Bidders demonstrably possessing the skill, ability, and integrity necessary for the faithful performance of the Work and who shall certify that he is able to furnish labor that can work in harmony with all other labor employed on the Work.

C. At its sole discretion, the Awarding Authority reserves the right to waive any informalities in or to reject any or all general and/or subcontractor bids if it be in the public interest to do so.

D. At its sole discretion, the Awarding Authority also reserves the right to reject any sub-bid if it determines that such sub-bid does not represent the bid of a person competent to perform the work as specified or if less than three sub-bids are received for sub-trade or if bid prices are not acceptable without further competition.

E. The Contract will be awarded to the lowest responsible and eligible bidder except in the event of substitution as provided under M.G.L., Chapter 149, Section 44E and 44F, in which case the procedure as required by said Section shall govern the award of the Contract.

F. Time is of the essence in the Contract. Work shall begin within 5 calendar days after issuance of Notice to Proceed and shall be completed within 120 days or within the time periods indicated in the Owner/Contractor Agreement.

1.12 BIDDING REQUIREMENTS

A. Site Visit Required: Each bidder shall visit the site of proposed work and become fully and completely aware of all existing conditions, existing facilities, and the character of the operations to be carried on under the proposed Contract. Each bidder shall make itself fully understand the facilities, physical conditions, and restrictions attending the work under this Contract. Failure to make such examinations will not relieve the bidder from any obligation under the bidder’s bid or sub-bid as submitted. Site visits other than the Pre-Bid meeting may be gained by contacting Sandra Cashen, Facilities Manager, at 508-398-7677. Email address;cashens@dy-regional.k12.ma.us

B. Form of Agreement: An example Form of Owner/Contractor Agreement is included in the bidding documents.

C. Pre-Bid Conference at Site: An open, public pre-bid conference will be convened at the site to permit bidders to examine the site, examine existing conditions, and ask questions. Time and place of the Pre-Bid Conference is as indicated in the ADVERTISEMENT FOR BIDS.

1.13 WORK UNDER THIS CONTRACT

A. The work shall be done in accordance with the Contract Documents (Drawings and Specifications) prepared by Edward Rowse Architects, Inc. The Construction Documents are entitled “Nathanial H. Wixon Innovation School – Ceiling / Lighting / Fire Alarm Replacement” prepared by Edward Rowse Architects, Inc., dated: March 1, 2018; consisting of drawings included and specifications.

B. At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the Drawings and Specifications (including all addenda). The failure or omission of any bidder to receive or examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect to his bid.

C. Information on any statements in the contract documents referring to the conditions under which the work is to be performed or the existence of utilities or other underground structures are not guaranteed to be correct or to be a complete representation of all existing data with reference to conditions affecting the work. Every effort has been made, however, to make this information complete and accurate on the basis of all data and information, which could be procured by the Engineer. The Contractor shall make his own examination and shall draw his own conclusions as to the actual conditions which will be encountered, and he shall have no claim for damages on account of any errors, inaccuracies or omissions that may be found.

1.14 BONDS

A. Simultaneously with the delivery of the executed Contract, the successful bidder for General Contract shall deliver the Owner a Performance and Payment Bond in the sum of one hundred percent of the contract Price, the premiums for which shall be paid for by the General Contractor and shall be included in the contract price.

B. Each bond shall be with a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Awarding Authority.

C. A bid bond, cash or certified check payable to the Awarding Authority must accompany each bid. The bid security shall be in the amount of 5% of the total bid price. All securities, except those of the three lowest responsible and eligible bidders will be returned within five days, Saturday, Sunday and holidays excluded, after the opening of bids. All bid securities will be returned on the execution of the contract or if no award is made within thirty days after the opening of bids, unless forfeited under the conditions herein stipulated.

D. In case a party to whom a contract is awarded shall fail or neglect to execute the contract and furnish the satisfactory bond within the time specified, the Awarding Authority may determine the bidder has abandoned the contract, and thereupon the proposal and acceptance shall be null and void, and the bid security accompanying the proposal shall be forfeited to the Awarding Authority as liability damages for such failure or neglect and to indemnify said Awarding Authority for any loss which may be sustained by failure of the bidder to execute the contract and furnish the bond as aforesaid. After execution of the Contract and acceptance of the bond by the Awarding Authority, the bid security accompanying the proposal of the successful bidder will be returned. By submitting a bid, each bidder acknowledges that the amount of the bid bond is a reasonable estimate of the Awarding Authorities actual damages likely to be incurred as a result of the bidder’s failure to execute a contract.

E. A bond in the sum of the total amount of the Contractor’s proposal with a surety company authorized to do business in the Commonwealth of Massachusetts and satisfactory to the

Awarding Authority and in the form shown attached at the end of these documents, as surety, will be required of the successful bidder for the faithful performance of the Contract and the payment for all labor and materials used in the work.

1.15 LOCAL FEES

A. Fees: The Contractors must obtain all Building Permits, including, Fire Alarm, and Electrical, and others that may be incidental to the project. The Awarding Authority waives the payment of Town Building Permit fees for inspections performed by the Town of Dennis for this project. Contractor shall be responsible to pay for any and all state or federal permit fees.

1.16 WAGE RATES

A. The minimum wage rates as determined by the Commissioner of Labor and Workforce Development, Division of Occupational Safety of the Commonwealth of Massachusetts under the provisions of Chapter 149, sections 26 through 27G of the General Laws, as amended, shall be paid to Mechanics, Apprentices, Teamsters, Chauffeurs and Laborers employed on the project.

B. The successful bidder will be required to execute and submit to the Commissioner a statement of compliance as set forth in Chapter 149, Section 27B.

C. Federal Minimum Wage rates included with the specifications are also applicable to minimum wage rates for workers employed on the project. In the event of conflict with the State Wage Rates, the higher rate shall be paid.

1.17 FIELD OBSERVATIONS AND MEASUREMENTS

A. Making field observations and taking all field measurements of all conditions affecting work of this contract.

1. Each Bidder shall survey all existing conditions and shall thoroughly familiarize himself with the work of the contract and the existing site conditions prior to submitting his bid. Contractor will be responsible for providing all materials and labor for installation when existing conditions or systems require modifications in locations which were available for inspection prior to bid or in locations which could reasonably have been inspected.

B. Bidders shall be responsible for field measurement of existing building elements such as but not limited to overall building footprint dimensions and floor to floor heights.

1.18 DUPLICATION OF ITEMS OF WORK

A. Where items of work have been duplicated in portions of the Drawings and Specifications, it will be assumed that the Bidders included the duplicated items in its bid, unless the Owner has been notified, in writing, prior to submittal of bids that duplication exists and the Owner issued instructions to establish limits of work and allocation of responsibility.

B. In the event that the Owner does not receive notification pertaining to duplication of items prior to bidding and such duplications do occur after submittal of bid, the Owner shall then assign the duplicated items of Work to one of the parties and the Owner shall then be entitled to full credit for the items of work from the other party.

C. In the event that materials or equipment have been specified with more than one standard of quality, it will be assumed that the Bidders included the higher of quality standards in its bid,

unless the Owner has been notified, in writing, prior to submittal of bids of quality duplication and Owner has issued instruction to establish quality of material.

1.19 ACCEPTANCE OF CONDITIONS

A. The submission of a Bid Proposal will be considered by the Owner as acceptance by the Bidder of all requirements and stipulations contained in the Drawings and Specifications, and the conditions at the jobsite.

1.20 TIME OF COMPLETION

A. Bidder must agree to commence work within 5 days after issuance of a written "Notice to Proceed" from the Owner and to complete the project on or before August _____2018 as indicated in the Owner/Contractor Agreement including all approvals from local AHJ..

1.21 CONDITIONS OF WORK

A. Each bidder must inform himself of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible, the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption with the work of the occupants of the building.

1.22 GOOD FAITH BID

A. By submitting a bid in response to this IFB, the bidder shall be deemed to have certified that no officer, agent, or employee of the Dennis-Yarmouth Regional School District has a direct or substantial financial interest in the procurement, that the bid is submitted in good faith and exclusively a on the bidder's own behalf, without fraud, collusion or connection of any kind with any other bidder for the same work or with any undisclosed party. Bidder will be required to execute the "TAX CERTIFICATE AND NON-COLLUSION STATEMENT" contained in or attached to the contract.

1.23 QUALIFING BID

A. Bidders may add additional stipulations or otherwise qualify their bids; but the Dennis-Yarmouth Regional School District shall retain the sole right to judge the importance of any such stipulation or qualification. If the Dennis-Yarmouth Regional School District determines that the stipulation or qualification is not in its best interest and/or is materially unacceptable, and if the bidder does not clearly indicate this to be an alternative for consideration, then the Dennis-Yarmouth Regional School District reserves the right to reject the bid.

END OF SECTION 00 21 13

SECTION 00 31 26 – EXISTING HAZARDOUS MATERIAL INFORMATION-FLUORECENT TUBES AND BALLASTS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

A. Drawings and the general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.

B. Examine all Drawings and all other Sections of the Specification for requirements affecting the Work of this Section whether or not such work is specifically mentioned in the section.

C. This section contains information that applies to all work performed under the contract and is hereby made a part of each specification section.

1.02 DESCRIPTION OF WORK

A. The work to be done under this Contract includes all the work hereinafter specified for Light Fixtures, Fluorescent Light Tubes, and Ballast Removal(PCB/Non-PCB) located at the Nathaniel H. Wixon Middle School in Dennis, MA and includes the work of all trades.

D. The Contractor will coordinate his operations with the Owner/Architect/Owner's Consultant (The Vertex Companies, Inc.) and shall perform all construction operations with a minimum of interference. The premises shall be kept clear of materials and equipment at all times. Adequate means of protecting the public shall be provided by the Contractor, including signs, barricades or other warning devices as may be required.

B. This section covers the furnishing of all labor, materials, facilities, equipment, services, employee training and testing, permits and agreements necessary to perform the work required for the removal of Light Fixtures, Fluorescent Light Tubes, and Ballast Removal(PCB/Non-PCB) in accordance with these specifications, the DEP, EPA and OSHA regulations, NIOSH recommendations and any other applicable Federal, State and local government regulations and guidelines.

Whenever there is a conflict or overlap of the above references, the strongest provisions are applicable. The Contractor, on the basis of field inspections must determine actual quantities required within the facility for work, as specified herein.

1.03 RELATED WORK UNDER OTHER SECTIONS

A. The Contractor shall be responsible for coordinating the work of his section with all other Sections.

1.04 PERIOD OF PERFORMANCE

A. The Contractor is required to submit a plan and schedule to the Owner's Consultant for approval prior to work in the building. The work must be completed within the time frame applied as outlined in the bidding documents.

1.05 ESTIMATES

A. Contractor is required to verify actual quantity of ballasts, tubes and other materials in the building.

1.06 AUTHORITY TO STOP WORK

A. The Owner's Consultant has the authority to stop the work, at any time the Owner determines either personally or through the services of the Owner's Consultant that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the Owner's Consultant.

1.07 DISPOSAL ACTIVITIES FOR HAZARDOUS WASTE

A. All light ballasts not labeled, as non-PCB containing shall be treated as PCB ballasts.

B. All hazardous wastes shall be stored in fifty-five gallon containers in compliance with DOT regulations 49 CFR Parts 173, 178, 179. Each container shall be labeled with the following:

1. The words "Hazardous Waste - Federal Law Prohibits Improper Disposal." If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

2. Generator's Name and Address _____

3. State Manifest Document Number _____

4. EPA ID Number _____

5. Date _____

6. EPA Waste Number _____

7. The hazardous waste identified by description (e.g., PCBs, Mercury).

8. The type of hazard associated with the waste (e.g., toxic, flammable).

9. The date upon which storage accumulation began. Note: Maximum storage time for small quantity generators is 180 days.

C. The containers shall be arranged so there is sufficient aisle space to allow emergency response crews to operate. The containers must be stored on an impervious surface separate from other wastes and secured form unauthorized entry.

D. Temporary waste storage areas should have the following characteristics:

1. Adequate roof and walls to prevent infiltration by the elements.

2. The floor area must be adequately sized and have associated with it a curb to contain twice the volume of hazardous waste stored. The construction of the curb and floor must be continuous, smooth, and impervious to prevent any hazardous waste penetration.

3. There can be no drains, expansion joints, sewer lines or other openings, which would allow release.

4. The storage area must be secured and marked as described in 40 CFR 761.45a.

5. If the area does not meet the above requirements, then temporary storage of non-leaking ballasts is not allowed for more than 30 days. The ballast containers must also be labeled with the date on which the ballasts were taken out of service.

6. Additionally, all containers must be checked for leaks at least every 30 days. Any leaking containers must be placed in non-leaking containers and any spillage cleaned up appropriately.

E. A hazardous waste manifest shall be completed by the Contractor and approved by the Owner's Consultant before transporting the waste off-site. The manifest form shall document the following:

1. Designate the waste transporter and provide EPA Identification Number.

2. Designate the facility to receive the waste and provide EPA Identification Number. An alternate facility may also be designated in the event an emergency prevents delivery of the waste to the primary facility.

3. The Contractor shall sign the manifest and make certain that the transporter signs and dates the manifest.

4. The manifest shall consist of eight copies submitted as follows:

a. Copy 1 - Hazardous waste facility owner to appropriate state agency equivalent to DEP (within 14 days after shipment received).

b. Copy 2 - Same as Copy 1.

c. Copy 3 - Hazardous waste facility owner to the generator/owner (within 14 days).

d. Copy 4 - Retained by the hazardous waste facility owner.

e. Copy 5 - Retained by the transporter.

f. Copy 6 - Generator to the appropriate agency of the state in which facility is located (within 10 days).

g. Copy 7 - Generator to the Massachusetts DEP (within 10 days).

h. Copy 8 - Retained by the generator/owner.

i. Note: Manifest forms can be obtained from the transporter or from Certified Business Forms (617) 969-0550.

j. Copies of the manifest shall be retained by the generator/owner for a period of three years.

k. Persons accepting the hazardous waste for transportation must comply with the following (owner is responsible for transportation and disposal of waste):

l. The transport company must have a valid EPA identification number and a valid license from the Massachusetts DEP to transport the waste.

m. All vehicles used to transport hazardous wastes shall have a valid vehicle identification device issued by the DEP and have the proper placards in compliance with DOT, 49 CFR Part 172, Subpart F. Identification device shall be prominent markings on at least two sides of the vehicles that identify the name of the hazardous waste transport licensee.

1.08 SUBMITTALS

A. **Each submittal (2) shall be bound in a three-ring binder with tabbed dividers indicating the Submittal Number, or VIA Email accepted**

1. A work schedule for each area, including shift times and number of workers per shift.

2. Submit a detailed job specific plan of work procedures to be used in the removal Light Fixtures, Fluorescent Light Tubes and PCB ballasts, non-PCB ballasts.

3. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.

4. Health & Safety Plan and emergency evacuation plan with route to hospital and emergency numbers.

5. Hazard Communication Plan.

6. Original Certificates of Insurance (including workman's compensation, general liability, and professional liability insurance) naming the **Dennis Yarmouth Regional School District** or any other parties required by the contract as an additional insured. Any bonding and other insurance requirements as specified in the Contract.

7. Proposed recycling facility for recycling of Fluorescent Light Tubes and non-PCB containing ballasts, PCB ballasts. Provide the name, address, telephone number, operating agent or corporation, as well as copies of the State approval certification. In addition, provide site-specific certificate of insurance from the recycling facility to the hauler.

8. Proposed hazardous waste hauler, including; name, address, and all state required certificates, permits, and vehicle registration/documentation; site specific certificate of insurance (hauler to contractor); documentation that transporter has required permits for interstate transport; name, address, telephone number, operating agent or corporation of temporary storage facility.

B. Project Closeout Documentation: The Contractor will provide the following documentation to the Owner's Consultant at the end of the project.

1. All original hazardous waste manifests and other related documentation for the disposal of the ballasts and florescent light tubes for the project.

1.09 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent Referenced. The publications are referenced in text by basis designation only.

B. ENVIRONMENTAL PROTECTION AGENCY (EPA):

Hazardous Materials Regulation, Title 40 Code of Federal Regulations (CFR), Part 180.

Polychlorinated Biphenyls (PCB's) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, Title 40 Code of Federal Regulations (CFR), Part 761.

EPA's Green Lights Program, Lighting Waste Disposal, July 1994

C. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA):

General Construction Standard Title 29 Code of Federal Regulations (CFR), Part 1910

Access to Employee Exposure and Medical Records, 29 CFR 1910.20.

Specifications for Accident Prevention Signs and Tags, 29 CFR 1910.145.

Hazard Communication Program, 29 CFR 1910.1200.

C. MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP):

Hazardous Waste Regulation 310 CMR 30.00

Disposal of Solid Waste by Sanitary Landfill, 310 CMR 19.00.

E. U.S. DEPARTMENT OF TRANSPORTATION:
49 CFR 171-177.
51 CFR 42176.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

A. The Contractor shall deliver all materials and equipment to the site in the original containers bearing the name of the manufacturer, and details for proper storage and usage.

B. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner, which shall not interfere with Building operations or occupants.

C. The Owner must approve of all unloading and temporary storage sites and transfer routes.

D. Damaged or deteriorated materials may not be used and must be promptly removed from the premises. Materials which become contaminated shall be packaged and legally disposed of in an approved, secure landfill.

2.02 MATERIALS

A. Provide all drums, over pack drums, storage containers, packing materials, and related products and materials required for collection, storage, and transportation of hazardous materials in compliance with the DEP, EPA and DOT requirements. All drums shall meet the requirements of DOT 49 Code of Federal Regulations (CFR) 173.

B. Provide Proper Container for the packaging, transportation and disposal of fluorescent tubes.

C. Portable Scale: The Contractor a portable certified scale for all measurement of ballasts which include the weight of the containing drum complete with cover and locking band.

PART 3 - EXECUTION

3.01 SCHEDULING

A. The Contractor shall coordinate all scheduling with the Owner's Consultant and as specified herein. A schedule of work including sequencing PCB and florescent tubes removal shall be submitted to the Owner's Consultant, as outlined in Section 1.08.

3.02 REMOVAL METHODS FOR THE LIGHT FIXTURES, FLUORESCENT LIGHT TUBES AND PCB / NON-PCB BALLASTS.

A. Light Fixtures, Fluorescent Light Tubes, and Ballast Removal(PCB/Non-PCB) located at the Nathaniel H. Wixon Middle School located in Dennis, MA scheduled for renovation. It is the Contractor's responsibility to de-energize all lights, dismantle all light fixtures and remove and dispose of all ballasts and florescent light tubes within the building. Any light ballast that is not marked "Non-PCB's" shall be considered to be PCB-containing ballasts. This includes those ballasts with no markings at all. Before recycling all materials will be decontaminated.

B. Contractor Responsibilities:

1. The Contractor shall obtain a Hazardous Waste Generator Identification (ID) Number from the U.S. Environmental Protection Agency (EPA), on the Owner's behalf.

2. The Contractor shall arrange for the appropriate disposal of drummed ballasts and fluids.

3. The Contractor will provide the name and EPA ID number for the waste transporter.

4. The Contractor will provide the name, location, and EPA ID number for the facility scheduled to receive the waste.

5. The Contractor will properly dispose of all florescent light tubes.

C. FLORECENT LIGHT BALLAST REMOVAL

1. Decontaminate all materials before recycling (if Necessary)

2. Ensure all electrical power is disconnected.

3. Remove all covers from light fixtures.

4. Disconnect all ballasts and remove from lights.

5. Gently pile ballasts in a 55-gallon steel drum as recommended.

6. Ensure that drum is not overloaded with weight that it cannot be moved.

7. Seal drum and put locking ring on.

8. Properly label drum in accordance with all applicable regulations.

9. Transport drums to an approved facility for incineration.

D. FLORESCENT TUBES REMOVAL

1. Ensure all electrical power is disconnected.

2. Decontaminate all materials before recycling.

3. Remove all covers from light fixtures.

4. Remove all florescent tubes.

5. Package all florescent tubes for proper disposal.

3.03 EXTENT OF REMOVAL

A. A general estimate of fluorescent light tubes and ballasts quantities and locations are listed herein. The Contractor is required to verify actual estimates for bidding purposes.

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**Description**	**Estimated Quantity**
Upper Level		
Front Entrance (270)	4' Fluorescent Tubes	16
	Light Ballasts	8
Cloak Room (Room F) (269)	4' Fluorescent Tubes	8
	Light Ballasts	4
Room E (Police and Supply Room) (272/271)	4' Fluorescent Tubes	16
	Light Ballasts	8
266/267/268 Corridor (226)	4' Fluorescent Tubes	32
	Light Ballasts	16
Room 268/265 (Social Worker Office)	4' Fluorescent Tubes	12
	Light Ballasts	8
Room 267	4' Fluorescent Tubes	36
	Light Ballasts	18
Room 266	4' Fluorescent Tubes	36
	Light Ballasts	18
Room 224/Server Room	4' Fluorescent Tubes	8
	Light Ballasts	4
Room H (Reception) (282)	4' Fluorescent Tubes	20
	Light Ballasts	10
Main Office Closet (283)	4' Fluorescent Tubes	8
	Light Ballasts	4
Room G (281)	4' Fluorescent Tubes	8
	Light Ballasts	4
Room I (Principal) (280)	4' Fluorescent Tubes	12
	Light Ballasts	6
Principal Bath	4' Fluorescent Tubes	2
	Light Ballasts	1
Room I-J Hall and Closet	4' Fluorescent Tubes	2
	Light Ballasts	1
Room J (Dean Office) and Closet (284)	4' Fluorescent Tubes	12
	Light Ballasts	6
Room M/K (Guidance Office) (287-291)	4' Fluorescent Tubes	28
	Light Ballasts	14
Clinic (Nurse Office) (292-295)	4' Fluorescent Tubes	36
	Light Ballasts	18
Copy Room (in Room 273) (263)	4' Fluorescent Tubes	8
	Light Ballasts	4
Room 273	4' Fluorescent Tubes	24
	Light Ballasts	12
Room 274	4' Fluorescent Tubes	24
	Light Ballasts	12

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**Description**	**Estimated Quantity**
Upper Level		
Room 275	4' Fluorescent Tubes	24
	Light Ballasts	12
Room 276	4' Fluorescent Tubes	16
	Light Ballasts	8
Main Office Corridor (Reception-Nurse)	4' Fluorescent Tubes	20
	Light Ballasts	10
277-279 Corridor (304 and 305)	4' Fluorescent Tubes	40
	Light Ballasts	20
Room 277	4' Fluorescent Tubes	56
	Light Ballasts	28
Room 277 Bathroom (297)	4' Fluorescent Tubes	2
	Light Ballasts	1
Room 277 Hall	4' Fluorescent Tubes	2
	Light Ballasts	1
Room O (Time Out Room by 277) (298)	4' Fluorescent Tubes	4
	Light Ballasts	2
Room 278 (Music Room)	4' Fluorescent Tubes	50
	Light Ballasts	25
Room 278 Bathroom (302)	4' Fluorescent Tubes	2
	Light Ballasts	1
278-279 Connector Room (301)	2' Fluorescent Tubes	8
	Light Ballasts	4
Music Storage Room (300)	4' Fluorescent Tubes	4
	Light Ballasts	2
Room 279 (Music Room)	4' Fluorescent Tubes	48
	Light Ballasts	24
Room 217 (Art)	4' Fluorescent Tubes	62
	Light Ballasts	31
Room 215 (Storage)	4' Fluorescent Tubes	8
	Light Ballasts	4
Room 218 (Art)	4' Fluorescent Tubes	62
	Light Ballasts	31
Teacher's Lounge (219)	4' Fluorescent Tubes	24
	Light Ballasts	12
Teacher's-Men's Room (216)	4' Fluorescent Tubes	4
	Light Ballasts	2
Teacher's-Women's Room (220)	4' Fluorescent Tubes	4
	Light Ballasts	2
Boys Room by 208 (221)	2' Fluorescent Tubes	8
	Light Ballasts	4
Janitor Closet by Boys and Girls Room (222)	4' Fluorescent Tubes	4
	Light Ballasts	2
Girl's Room by 208 (223)	2' Fluorescent Tubes	8
	Light Ballasts	4
Room 212	4' Fluorescent Tubes	12
	Light Ballasts	6

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**Description**	**Estimated Quantity**
Upper Level		
Room 210	4' Fluorescent Tubes	36
	Light Ballasts	18
Room 209	4' Fluorescent Tubes	36
	Light Ballasts	18
Room 208	4' Fluorescent Tubes	36
	Light Ballasts	18
Room 206	4' Fluorescent Tubes	36
	Light Ballasts	18
Room 205	4' Fluorescent Tubes	36
	Light Ballasts	18
Room 204 (Science)	4' Fluorescent Tubes	48
	Light Ballasts	24
Room 203 (Science)	4' Fluorescent Tubes	60
	Light Ballasts	30
Room 202/201	4' Fluorescent Tubes	48
	Light Ballasts	24
201-212 Corridor (201/213/214)	4' Fluorescent Tubes	68
	Light Ballasts	34
Boys Locker Room (229)	4' Fluorescent Tubes	28
	Light Ballasts	14
Boys Locker Room Office and Closet (230)	4' Fluorescent Tubes	8
	Light Ballasts	4
Boys Locker Room Office Bathroom (231)	4' Fluorescent Tubes	2
	Light Ballasts	1
Boys Locker Room Bathroom (233)	4' Fluorescent Tubes	8
	Light Ballasts	4
Stair # 1 to Archive (Former Girls Locker Room) (227)	4' Fluorescent Tubes	4
	Light Ballasts	4
Archive (Former Girls Locker Room) Storage (400)	4' Fluorescent Tubes	22
	Light Ballasts	22
Archive Storage A Storage (400)	4' Fluorescent Tubes	4
	Light Ballasts	2
Archive Storage B Storage (400)	4' Fluorescent Tubes	4
	Light Ballasts	2
Archive Storage C, Bathroom and Closet Storage (400)	4' Fluorescent Tubes	5
	Light Ballasts	3
Archive Bathroom Storage (400)	4' Fluorescent Tubes	2
	Light Ballasts	2
Janitor Closet in Stair Adjacent to Archive	4' Fluorescent Tubes	1
	Light Ballasts	1
Storage Closet in Stair Adjacent to Archive	4' Fluorescent Tubes	4
	Light Ballasts	2

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**Description**	**Estimated Quantity**
Upper Level		
Stair # 2 to Archive (Former Girls Locker Room) (232)	4' Fluorescent Tubes	4
	Light Ballasts	4
Gym Storage (228)	4' Fluorescent Tubes	16
	Light Ballasts	8
Janitor Closet by Auditorium Lobby (250)	4' Fluorescent Tubes	2
	Light Ballasts	1
Auditorium Lobby (259)	4' Fluorescent Tubes	8
	Light Ballasts	4
Auditorium/Cafeteria/Gym Corridor (237)	4' Fluorescent Tubes	28
	Light Ballasts	16
Kitchen Locker Area and Bathroom (242/241)	4' Fluorescent Tubes	4
	Light Ballasts	2
Kitchen Pantry (244)	4' Fluorescent Tubes	4
	Light Ballasts	2
Cafeteria/Gym Storage Closet (243)	4' Fluorescent Tubes	4
	Light Ballasts	2
Girls Locker Room Storage Closet (240)	2' Fluorescent Tubes	4
	Light Ballasts	2
Teacher's (334)	4' Fluorescent Tubes	8
	Light Ballasts	4
201-101 Stair (200)	4' Fluorescent Tubes	10
	Light Ballasts	5
206-107 Stair (207)	4' Fluorescent Tubes	10
	Light Ballasts	5
210-111 Stair (211)	4' Fluorescent Tubes	10
	Light Ballasts	5

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**Description**	**Estimated Quantity**
Lower Level		
Teacher's Restroom by 113 (123/124)	4' Fluorescent Tubes	8
	Light Ballasts	4
Room 115	4' Fluorescent Tubes	48
	Light Ballasts	24
Electrical Room adjacent to Room 115 (114)	4' Fluorescent Tubes	4
	Light Ballasts	2
Room 116/115 Connector Room and Closets (126/127)	4' Fluorescent Tubes	6
	Light Ballasts	3
Library Storage (130/131)	4' Fluorescent Tubes	24
	Light Ballasts	12

END OF SECTION

SECTION 00 31 27 – EXISTING HAZARDOUS MATERIAL INFORMATION-ASBESTOS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Examine all parts of the Specifications for requirements and responsibilities.

B. Coordinate all work through Owner and or Owner's Consultant (The Vertex Companies, Inc.).

C. Verify all quantities in contract; Contract amounts are only estimates and contractor owns all identified materials in the identified areas (Add Alternates) of the Nathaniel H. Wixon Middle School.

1.02 DESCRIPTION OF WORK

A. The work to be done under this Contract includes all the work hereinafter specified as Asbestos and Regulated Materials Removal at the Nathaniel H. Wixon Middle School includes the work of all trades.

B. Coordinate his/her operations with the OWNER and shall perform all construction operations with a minimum of interference. The premises shall be kept clear of materials and equipment at all times. Adequate means of protecting the public shall be provided, including signs, barricades or other warning devices as may be required.

C. This section covers the furnishing of all labor, materials, facilities, equipment, services, employee training and testing, permits and agreements necessary to perform the work required for the removal of asbestos-containing materials in accordance with these specifications, the EPA and OSHA regulations, NIOSH recommendations, Massachusetts Department of Environmental Protection (DEP) requirements, Massachusetts Department of Labor and Workforce Development (DLWD) regulations, and any other applicable Federal, State and local government regulations and guidelines. Whenever there is a conflict or overlap of the above references, the strongest provisions are applicable. The Contractor, on the basis of field inspections and review, must determine actual quantities required within the Nathaniel H. Wixon Middle School for removal of asbestos-containing and contaminated materials, as specified herein.

D. Description of Work: Perform the work that shall consist, in general, of the removal and disposal of asbestos-containing materials as expressed in Section 3.06 for the Nathaniel H. Wixon Middle School and provide the services as follows:

1. Pre-abatement inspection. The potential Contractors are required to visit the contract area prior to bidding in order to determine the exact amount of asbestos material and regulated materials to be removed and implement applicable abatement strategies.

2. The Contractor shall provide as many shifts of laborers as will be necessary to complete the job in the amount of time as specified.

3. Worker training, respiratory protection and medical examination.

4. Provide access, support and protection to all authorized visitors and inspectors.

5. Work area preparation:

   a. Protection against damage to all surfaces.

b. Non-contaminated items located in area to be abated will be removed from the work area prior to the commencing of abatement work.

c. Decontaminate, protect and prevent damage to all identified wiring & ductwork as identified by the Owner to remain.

d. Provide protection to all fire protection systems that will remain active in area and if disconnected during work provide appropriate fire watch of area when not on-site.

e. The Contractor shall supply Ground Fault Circuit Interrupters (GFCI) for electric service within the abatement area. The Contractors retained electrician shall be responsible for hooking up GFCI panels with connection and tie-ins supplied by the contractor. Coordinate all electrical and mechanical disconnects with Owner's on-site management company. The Contractor shall be responsible for lighting the areas.

f. The Contractor shall construct barriers, in accordance with applicable regulations, to prevent access to the work area.

6. Decontamination of work area for final inspection and testing.

7. Packing, labeling, transporting, and disposal of contaminated material to an Owner approved landfill (*the Certificate from the Landfill must be given to the Owner)*.

1.03 AUTHORITY TO STOP WORK

A. The OWNER/Owner's Consultant has the authority to stop the abatement work, at any time the OWNER/ Owner's Consultant determines either personally or through the services of the Engineer that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the OWNER/ Owner's Consultant.

B. Action Levels Inside Work Area (Removal) - 0.05 f/cc (with wet methods). Notify the OWNER when any one air sample result collected inside the work area exceeds 0.05 f/cc, at which time, wet down the work area and initiate clean-up procedures to reduce the fiber levels inside the work area.

C. Stop work orders may be issued for, but not limited to the following:

1. Breaks in barriers.
2. Loss of negative air (-0.02 inches of water - minimum negative pressure)
3. Leaks to other areas.
4. Fiber concentrations outside the work area, which exceed 0.010 f/cc, for any one sample.

1.04 QUALIFICATIONS

A. Employ a sub-contractor who is certified and licensed by the Commonwealth of Massachusetts as an Asbestos Abatement Contractor and provide supporting documentation.

B. Insurance and bonding as stated in the Contract Documents.

C. For all abatement personnel:

1. Training and knowledge of applicable regulations and expertise in safety and environmental protection as evidenced by the participation and successful completion of a training course offered by an EPA and Commonwealth of Massachusetts certified training provider.

2. Medical records: Certify in writing, compliance with OSHA 29 CFR 1926.1101. All personnel shall be trained in the use and care of respirators and shall pass the respirator fit test.

3. All abatement personnel shall be licensed in the Commonwealth of Massachusetts as Asbestos Supervisors, Forepersons and/or Asbestos Workers, as appropriate, and provide supporting documentation.

D. There shall be a sufficient number of trained and qualified workers, foremen and superintendents to accomplish the work within the required schedule. No untrained nor fully qualified and pre-approved person shall be employed to speed up completion of the abatement work.

E. Laboratory shall by a Commonwealth of Massachusetts Licensed Laboratory as well as proficient in the AIHA Proficiency Analytical Testing (PAT) Program.

F. Provide Public Liability Insurance in the sum not less than $2,000,000.00 for injury to one (1) person, $2,000,000.00 for injuries to two (2) persons, and Property Damage Insurance not less than a $5,000,000.00 limit. Insurance shall be True Occurrence Based and not Claims Made for Asbestos Work.

1.05 ESTIMATES

A. Estimates of asbestos-containing and asbestos-contaminated materials to be removed with general locations are provided in Section 3.10.

1.06 DEFINITIONS

A. All terms not defined herein shall have the meaning given in the applicable publications and regulations.

B. “Authorized Visitors” Any visitor authorized by the Owner or any representative of a regulatory agency or other agency having jurisdiction over the project.

C. “Accessible” means not behind a solid ceiling, wall or floor.

D. “Amended Water” is water containing a wetting agent or surfactant.

E. “Asbestos” is a class of Magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysotile, crocidolite, amosite, anthophylite asbestos, tremolite asbestos, and actinolite asbestos, and any of these minerals that has been chemically treated and/or altered.

F. “Asbestos Containing Materials (ACM)” is materials composed of asbestos of any type and in an amount greater than or equal to1 percent by weight, whether alone or mixed with other fibrous or non-fibrous materials.

G. “Asbestos Control Area” is an area where asbestos removal operations are performed which is isolated by physical boundaries to prevent the spread of asbestos dust, fibers, or debris.

H. “Asbestos Fibers” are fibers having an aspect ratio of at least 3:1 and 5 micrometers or longer.

I. “Asbestos Permissible Exposure Limit” is 0.1 fibers (longer than 5 micrometers) per cubic centimeter as an 8-hour time weighted average.

J. “Area Monitoring” is sampling of asbestos fiber concentrations within the asbestos control area and outside the asbestos control area, which is representative of the airborne concentrations of asbestos fibers, which may reach the breathing zone.

K. “Clean Room” is an uncontaminated room having facilities for storage of employees’ personal clothing and uncontaminated work cloths, materials, and equipment.

L. “Decontamination Area” is a contained area adjacent and connected to the asbestos control area and consisting of an equipment room, shower area, and clean room which is used for decontamination of workers, materials, and equipment.

M. “Encapsulate” is the process whereby an encapsulant is applied to ACM to control the release of asbestos fibers into the air.

N. “Encapsulant” is a liquid material which can be applied to ACM which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the materials and binding its components together (penetrating encapsulant).

O. “Equipment Room (Change Room)” is a room located within the decontamination area that is supplied with impermeable 6-mil polyethylene bags or containers for the disposal of contaminated protective clothing and equipment.

P. “Fibers” are all fibers regardless of composition as counted in the NIOSH P&CAM 239 or 7400 procedure, or asbestos fibers of any size as counted using either scanning or transmission electron microscopy.

Q. “Friable Asbestos Material” is material that contains more than 1 percent asbestos by weight, which can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

R. “Glove Bag Technique” is a method with limited applications for removing small amounts of friable asbestos-containing material from HVAC ducts, short piping runs, valves, joints, elbows and other non-planar surfaces in a contained (plasticized) work area. The glove bag assembly is a manufactured or fabricated device consisting of a glove bag (6-mil transparent polyethylene or polyvinyl chloride plastic), two inward projecting long sleeves, an internal tool pouch and an attached, labeled receptacle for asbestos waste. The glove bag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. All glove bag removal must be performed in a negative enclosure unless negative air glove bags (approved by OSHA) are utilized. All workers who are permitted to use the glove bag technique must be highly trained, experienced and skilled in the method as well as properly trained and licensed under applicable regulations.

S. “HEPA Filtered Equipment” is high efficiency particulate air (HEPA) filtered vacuuming equipment with a UL 586 filter system capable of retaining asbestos fibers. Filters shall be of 99.97 percent efficiency for retaining 0.3-micrometer diameter particles.

T. “Non-Friable Asbestos Material” is material that contains asbestos in which the fibers have been locked in by bonding agent, coating, binder, or other material so that the asbestos is well bound and may not release fibers during any appropriate use, handling, storage, transportation, or processing. Non-friable material is considered friable during removal unless specific provisions of the regulations are followed. Non-friable materials such as floor tile and mastic are considered asbestos if any amount of asbestos is found within the material and not the typical >1% by weight rule.

U. “Personal Monitoring” is sampling of asbestos fiber concentrations within the breathing zone of the employee.

V. "Prior Experience" is experience required of the Contractor's sub-contractor on asbestos projects or similar nature and scope to ensure capability of performing the asbestos removal in a satisfactory manner. Similarities shall be in areas related to material composition, project size, number of employees and the engineering work practice and personal protection controls required.

W. "Time Weighted Average (TWA)" is an 8-hour time weighted average of airborne concentrations of fibers (5 micrometers or longer) per cubic centimeter of air.

1.07 PRE-CONSTRUCTION CONFERENCE

A. After the contract has been executed, a Pre-Construction meeting to be attended by, but not limited to, the OWNER, the Owner's Consultant, the CONTRACTOR and sub-contractors' as the OWNER deems necessary.

1.08 STANDARD OPERATING PROCEDURES

A. Develop and implement standard operating procedures during abatement work to ensure maximum protection and safeguard from asbestos exposure of the workers, visitors, and the environment. No work shall proceed without prior approval of the Standard Operating Procedures. The standard operating procedure shall ensure:

B. Tight security from unauthorized entry into the workspace, a polyethylene barrier with a warning sign is not considered suitable security. Maintain a written log of all persons entering and exiting the work area, including personal protection used and the length of time in the area.

C. Proper protective clothing and respiratory protection prior to entering the workspace from the outside.

D. Safe work practices in the work place, including provisions for inter-room communications, exclusion of eating, drinking, smoking, or in any way breaking the respiratory protection.

E. Proper exit practices from the workspace to the outside through the showering and decontamination facilities.

F. Removing, encapsulating or enclosing asbestos in ways that minimizes release of fibers.

G. Packing, labeling, loading, transporting and disposing of contaminated material in a way that minimizes exposure and contamination.

H. Emergency evacuation for medical or safety (fire and smoke) so that exposure will be minimized.

I. Safety from accidents in the workspace, especially from electrical shocks, slippery surfaces, entanglements in loose hoses, heat stress and work in confined spaces.

J. Provisions for effective supervision, air monitoring and personnel monitoring for exposure during the work.

K. Engineering systems that minimize exposure to fibers in the workspace.

1.09 NOTIFICATIONS, PERMITS, WARNING SIGNS, LABELS AND POSTERS

A. Provide the required notification to DEP/DLWD (10 working days prior to the start of work), local board of health, and any other Federal, Commonwealth, and local authority having jurisdiction on the project. All regulatory notifications shall be made in the appropriate format as required by each agency. Secure all the permits required for the work, including but not limited to the disposal of asbestos-containing materials in an approved landfill and fire department permits.

B. Notify the local police and fire department of the asbestos abatement project. Coordinate with the police all security aspects of the project and with the fire department all emergency evacuation and safety aspects. Secure a certificate from both the police and fire department, if applicable, that they approve of the established security and safety procedures.

C. Erect warning signs around the workspace and at every point of potential entry from the outside. All signs must conform to OSHA regulations.

D. Provide the required labels for all plastic bags and all drums utilized to transport contaminated material to the landfill. Note: EPA requirement for labeling bag with generator of waste and waste location is required.

E. Provide any other signs, labels, warnings, and posted instructions that are necessary to protect, inform and warn people of the hazard from asbestos exposure. Post in an obvious and convenient place for the workers a copy of the latest applicable regulations from OSHA, DEP, DLWD and EPA. Identify all fire alarms, exits, etc.

1.10 EMERGENCY PRECAUTIONS

A. Establish emergency and fire exits from the work area. All emergency exits shall be equipped with two (2) full sets of protective clothing and respirators at all times.

B. Local medical emergency personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workmen, and shall be advised on safe decontamination. Submit copies of such notifications to the OWNER/ Owner's Consultant.

C. When an injury occurs, stop work and implement fiber reduction techniques until the injured person has been removed from the work area

D. Before actual removal of the asbestos material starts, the local police and fire departments shall be notified as to the danger of entering the work area. Provide, as requested, information regarding abatement activities, decontamination practices, etc. Make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

1.11 RESPIRATORY SYSTEMS

A. Minimum respiratory protection required shall conform to OSHA, including all amendments. NOTE: personnel who have passed a quantitative or qualitative fit test can only use half-masks and/or full-face masks. Provide copies of those fit test results to the OWNER. Single use, disposable respirators will not be permitted.

B. Provide all workers and authorized visitors with NIOSH approved respirators complying with OSHA regulations and a sufficient quantity of disposable filters, so that workers can change filters during the workday. Store the respirator filters at the job site in the change room, and protect them from exposure to asbestos prior to their use.

1. Workers shall always wear a respirator properly fitted on the face in the work area.
2. Instruct and train workers in proper respirator use.

1.12 ELECTRICAL SAFETY

A. All electrical work required by this Section shall be performed by a licensed electrician in compliance with the most recent edition of the National Electric Code, unless otherwise provided by OSHA regulations.

B. The non-current carrying metal parts of fixed, portable and plug-connected equipment shall be grounded. Portable tools and appliances protected by an approved system of double insulation need not be grounded. All light and power circuits in asbestos removal areas shall be ground fault protected.

C. Extension cords, shall be the 3-wire type, shall be protected from damage, and shall not be fastened with staples, hung from nails, or suspended from wires. Splices shall have soldered wire connections with insulation equal to the cable. Worn or frayed cords shall not be used.

D. Safe lighting equipment shall be provided with a preference for floodlights rather than indiscriminate use of unprotected lamps strung on temporary wiring. Exposed bulbs shall be guarded to prevent accidental contact. Temporary wiring shall be properly insulated and substantially supported. Circuits shall be properly designed and fused. All temporary lighting inside of asbestos removal areas shall be waterproofed.

1.13 PROTECTION CLOTHING

A. Provide to all workers, foreman, superintendents, authorized visitors and inspectors protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot types covers or reusable footwear.

B. Provide eye protection and hard hats as required by job conditions and safety regulations.

C. Reusable footwear, hard hats and eye protection devices shall be left in the “Equipment Room” until the end of the asbestos abatement work. Footwear is not allowed to leave the work area. **Bare feet are not allowed**.

D. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facilities.

1.14 ENCLOSURES, SHOWERS AND TOILETS FOR REMOVAL (As Required)

A. For each abatement area, provide a decontamination facility located as listed in the abatement plan approved by the Owner’s Consultant. The decontamination facility shall include a Decontamination Enclosure System for workers and visitors. **The decontamination facility shall be located within the work area.**

B. The Decontamination Enclosure System for workers and visitors shall consist of three rooms divided by three air locks as follows: Clean Room at entrance followed by Shower Room followed by an Equipment Room leading to the Work Area. The Decontamination Enclosure shall be of sufficient size to accommodate storage of materials, equipment, etc. While allowing for the passage of laborers and their equipment between clean and contaminated areas.

C. An airlock is a system permitting ingress and egress without permitting air movement between rooms/areas. It consists of two curtained doorways at least eight feet apart. Each curtained doorway shall be constructed by placing three overlapping sheets of plastic over a framed doorway, securing each along the top of the doorway. The first and third sheet shall be secured on one side of the doorway and the middle sheet shall be secured on the other side of the doorway. Airlock Size - Where size of work area permits, eight-foot distance between doorways is acceptable. Where size of work area is prohibitive, distance between doorways may be adjusted but must allow enough space for one doorway to be closed before the next doorway is opened.

D. Provide hoods or lockers for storage of street clothes of workers in the clean room. Provide in the same room uncontaminated disposable protective clothing and gear prior to entering into the contaminated area and to dress into street clothing after they have showered and dried in the shower room as they exit from the contaminated area.

E. Provide shower room facilities with hot and cold running water so arranged as to provide thorough showering of workers and visitors as they exit from the contaminated area.

F. The Contractor shall install an electrical hot water heater to supply the hot water to the shower. Connect the shower water drains to a leak-proof pump and a commercially manufactured filtering system consisting of filters in series, including a 5.0-micron final filter, and an adequately sized pump. Discharge from this system shall then be connected to conventional plumbing at a location, which has been pre-approved by the Owner's Consultant. Used water filters shall be packaged and disposed of as asbestos waste. Make provisions to prevent any contaminated run-off from the shower room. The shower room facilities and size shall be adequate to allow decontamination and thorough washing of all the workers and visitors within the 15-minute escape time.

G. Provide the Equipment Room with storage for contaminated clothing and equipment. In this room, workers and visitors dispose of their disposable protective clothing except the respirator as they prepare to enter the shower room. All contaminated footwear and clothing must remain inside the equipment room.

H. Provide adequate toilet facilities, as determined by the Owner's Consultant, within the regulated work area but outside containment so that the workers do not have to go through unregulated parts of the building every time they need to use the bathroom.

I. Provide heating and ventilation as required in the entire Decontamination System. Systems must maintain airflow from the outside towards the workspace.

J. Waste Decontamination Facilities may also be required to allow more efficient removal of waste from the abatement areas. These facilities shall consist of two adjacent rooms (the Clean Room and the Washroom). A solid, hinged door with a padlock shall be installed outside the entrance to the Clean Room. The Clean Room will be separated from the Washroom, and the Washroom separated from the Work Area, by airlocks. Construction requirements will be the same as those for the Worker's Decontamination Facility. A water hose equipped with a variable-spray nozzle and leak-proof tub shall be installed in the Washroom. The tub shall be drained by a pump system consisting of filters in series, including a 5.0-micron final filter. The Waste Decontamination Facility may not be used by the workers to enter or exit the abatement area during normal operations; it may, however, be considered an emergency or fire exit.

1.15 PERSONNEL PROTECTION AND DECONTAMINATION

A. Provide all personnel throughout the abatement process with the specified protective clothing and gear. Ensure that all personnel entering and leaving the workspace implement the following procedures:

1. Entering from the outside: Change from street clothes into protective clothing and wear clean protective gear. Go through shower room into Equipment Room, pick up equipment and tools and enter the work area.

2. Exiting from the work area: Dispose of all protective clothing into labeled plastic bags for asbestos waste. Do not take off the respirator, but still wearing the respirator, enter the shower and shower thoroughly. Remove respirator and wash and wipe thoroughly to decontaminate the respirator. After drying, enter the Clean Room; store the decontaminated respirator in the assigned space and dress into street clothes.

3. Post written procedures in the workplace and train all personnel on the procedures for the evacuation of the injured and handling of potential fires. Provide aid to a seriously injured worker without delay for decontamination. Make provisions to minimize exposure of rescue workers and to minimize spreading of contamination during evacuations and fire procedures. Exceptions to normal, routine, exiting procedures shall be made for emergencies such as, but not limited to, serious personal injury and fires.

4. The Contractor shall instruct all employees and workers in the proper care of their personally issued respiratory equipment, including daily maintenance, sanitizing procedures, etc.

5. Contractor's personnel shall inspect all respiratory equipment at the beginning of each work period, including breaks and lunch periods.

1.16 DISPOSAL ACTIVITIES FOR ASBESTOS-CONTAINING MATERIALS

A. Determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. Assure full compliance with these regulations and all U.S. Department of Transportation and EPA requirements, and Commonwealth and local regulations.

B. Document actual disposal of the waste at the designated landfill by completing a written Disposal Certificate, signed by the pre-approved landfill operator, and forwarding the original to the OWNER. The completed Disposal Certificate must be returned to the Consultant within 35 days of each waste load's shipment from the work site. All waste shall only be delivered to the landfill approved by the OWNER.

C. Waste Packaging: All waste material shall be thoroughly wetted then promptly placed in 6-mil polyethylene bags as it is generated. A sufficient number of waste bags shall be located in the immediate work area, and in the Equipment (Dirty) Room of the Decontamination Facility. Count or measure the volume of each filled container leaving the work area, and maintain a written record of such. (See also following paragraphs).

D. Waste Labeling: Warning labels, having waterproof print and permanent adhesive, in compliance with OSHA, EPA, and DOT requirements, shall be affixed to or printed on the sides of all waste bags or transfer containers. Warning labels shall be conspicuous and legible.

E. Wetting of Waste: A fine water spray shall be used to keep the top layers of waste in containers thoroughly wet at all times. When a waste bag is full, it shall be securely sealed with tape or other approved fastener.

F. Waste Container Decontamination and Removal Procedures: The following procedures shall be followed whenever containers or equipment are removed from the work area:

1. The clean room shall be considered a holding area only during the period of active waste transfer for the purpose of the loading of carts or drums. Storage of waste and carts (or drums) in the clean room is prohibited.

2. Waste removal shall not occur during worker shift changes or when workers are showering or changing. Care shall be taken to prevent short-circuiting and cycling of air outward through the shower and clean room when used for waste removal.

3. External surfaces of all contaminated containers (i.e. waste bags) and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the work area before moving such items into the Decontamination Facility airlock.

4. Workers stationed in the washroom during waste removal operations shall remove the containers of waste and the equipment from the airlock.

5. Once in the washroom, wet cleaning shall clean external surfaces of contaminated containers and equipment a second time.

6. The cleaned containers of waste and equipment shall be placed in uncontaminated leak-tight plastic bags between washroom and clean room. Air volumes inside bags shall be minimized, and the bags or sheeting shall be sealed. Items that may puncture or tear the plastic bags or sheeting shall be placed in a hard wall container such as a drum, and then be sealed.

7. The clean re-containerized items shall be moved into the holding area. The washroom workers must wear respiratory protection and shall not enter the work area until waste removal is completed.

8. Workers who have entered from uncontaminated area with appropriate personal protective equipment shall remove re-containerized items and cleaned equipment from the airlock to the holding area.

9. The re-containerized items of waste and cleaned, bagged equipment shall be placed in open top, watertight plastic carts or drums. These carts or drums shall be held in the holding area pending removal. The carts or drums shall be HEPA-vacuumed or wet-cleaned following the removal of the containers of waste from them.

10. The carts or drums may be temporarily stored in a holding area at the work site outside the workplace until a transport vehicle arrives, but such storage areas must be pre-approved by the OWNER.

I. Waste Container Storage: Sealed waste bags may be temporarily stored in the work area, or in an area pre-designated by the OWNER until a truckload quantity is obtained. The temporary storage area shall be prominently identified and posted with signs, and waste containers shall be covered with polyethylene sheeting or otherwise protected from further contamination. Waste may be transported to and temporarily stored at a pre-approved off-site storage area, but it must ultimately be disposed of at the specified landfill before any payments are made.

J. Waste Removal Scheduling: All waste containers shall be decontaminated and removed from the site before final cleanup is started and isolation barriers are taken down.

1.17 EXPOSURE CONTROLS

A. Provide an air filtration system in the work area to maintain a negative pressure of - 0.02 inches of water. If negative air pressure of -0.02 inches is lost, work shall be halted until negative air pressure is restored.

B. Provide local exhaust ventilation in the work area to maintain a negative pressure in the work area relative to the adjacent non-work areas. The exhaust units must be equipped with a High Efficiency Particulate Air (HEPA) filter capable of retaining 99.97% of 0.3-micrometer diameter of mono-disperse particles. This filter must comply with ANSI Z9.2 standards. The fan for each unit should be sized to draw a desired airflow through the filters in the unit at a specified pressure drop. The unit should have an air-handling capacity of 1,000 to 2,000 ft^3/min. (under "Clean" filter conditions). The system should be capable of delivering a minimum of one air change every 15 minutes. Fifteen (15) minute air changes are mandatory for removal. All exhaust units shall be vented outside the building.

C. The air filtration system should be tested before any asbestos-containing material is wetted or removed. After the work area has been prepared, the decontamination facility set up, and the exhaust units installed, the units should be started (one at a time). Observe the barriers and plastic sheeting. The plastic curtains of the decontamination facility should move slightly in toward the work area.

D. The exhaust units should be started just before beginning removal (i.e., before any asbestos-containing material is disturbed). After removal has begun, the units should run continuously to maintain a constant negative pressure until decontamination of the work area is complete. The units shall not be turned off at the end of the work shift or when removal operations temporarily stop.

E. Employees should start removing asbestos material at locations farthest from the exhaust units and work towards them. If an electric power failure occurs, removal must stop and should not resume until power is restored and exhaust units are operating again.

F. The HEPA ventilation system shall operate on a 24-hour basis throughout the abatement process, including work area preparation through clearance testing. The ventilation system shall be in accordance with EPA recommendations included in the "Guidance for Controlling Friable Asbestos - Containing Materials in Buildings." For wet removal, negative air filtration units must be able to provide a minimum of four- (4) air changes/hour.

G. In a multi-room abatement project, provide a sufficient number of negative air filtration units to create a stream of air away from the faces of the workers in each room and in such a way as to not damage or compromise the integrity of the plastic isolation barriers.

H. Provide an automatic recording instrument to monitor the negative pressure differential in a representative location. The instrument shall continuously generate a permanent record, which shall be submitted to the Owner's Consultant prior to final acceptance.

1.18 SUBMITTALS

A. **Two submittals will be submitted and shall be bound in a three-ring binder with tabbed dividers indicating the Submittal Number.**

1. An Abatement Plan and Time Schedule are to be submitted to the Owner/ Owner's Consultant as required and shall be specific for each work area. The plan shall include: description of the facility and location; work area plan with layout of engineering controls (e.g., HEPA filters, decontamination facilities, etc.); security program; routing plan for removal of contaminated material from the building; scheduling; fire protection plan; and a listing of all tools, equipment and supplies proposed for use in the abatement program. **No work shall start without approval from the Owner's Consultant.**

2. Proposed work plan for the area with methods for controlling HVAC systems, providing temporary electrical power and water as required.

3. Copies of notifications DEP/DLWD, local board of health, police department, fire department and local ambulance & hospital.

4. Commonwealth of Massachusetts Asbestos Removal License.

5. Training and licensure documentation of employees to be employed for work in the building. Medical Certification records for all of personnel including fit test records as required for OSHA 1926.1101. Documentation of certification in accordance with 453 CMR 6.0 for each employee.

6. Standard Operating Procedure (as outlined in Section 1.10) showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.

7. Copy of written OSHA respirator plan, including a fit testing procedure for passive air filtering type respirators (where allowed by OSHA). In addition, must supply notarized certification for "Negative Assessment Evaluation" that states previous projects (with 12 months) meets criteria to be used as historical data on this project for downgrading from Type C requirements in compliance with OSHA regulations.

8. Health & Safety Plan and emergency evacuation plan with route to hospital and emergency numbers.

9. Hazard Communication Plan.

10. Original Certificates of Insurance for two million dollars true occurrence (including general liability and asbestos insurance) naming **Dennis Yarmouth Regional School District** as an additional insured.

11. Proposed landfill for disposal of asbestos waste material. Provide the name, address, telephone number, operating agent or corporation, as well as copies of the Commonwealth approval certification. In addition, provide site-specific certificate of insurance from the landfill to the hauler.

12. Proposed waste hauler, including; name, address, and all state required certificates, permits, and vehicle registration/documentation; site specific certificate of insurance (hauler to contractor); documentation that transporter has required permits for interstate transport; name, address, telephone number, operating agent or corporation of temporary storage facility.

B. Project Closeout Documentation: Provide the following documentation to the Owner/ Owner's Consultant at the end of the project. The documents shall be securely bound together and include tabbed dividers indicating the Closeout Number.

1. Security and safety logs showing names of persons entering the workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Original waste manifests for asbestos.

3. OSHA Personnel monitoring (done by Contractor). Results are to be posted within 48 hours of sampling.

4. Certification documentation for new workers.

1.19 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent Referenced. The publications are referenced in text by basis designation only.

B. ENVIRONMENTAL PROTECTION AGENCY (EPA):

National Emissions Standards for Hazardous Air Pollutants (NESHAPS), Title 40 Code of Federal Regulations (CFR), Part 61 Subpart M.

Asbestos Hazard Emergency Response Act (AHERA) Title 40 CFR, Part 763

Criteria for Classifications of Solid Waste Disposal Facilities and Practices, Title 40 Code of Federal Regulations (CFR), Part 257.

Guidance for Controlling Friable Asbestos-Containing Materials in Buildings.

A Guide to Respiratory Protection for the Asbestos Abatement Industry.

C. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA):

Asbestos Regulations Title 29 Code of Federal Regulations (CFR), Part 1926.1101.

Asbestos Regulations Title 29 Code of Federal Regulations (CFR), Part 1910.1001.

Access to Employee Exposure and Medical Records, 29 CFR 1910.20.

Specifications for Accident Prevention Signs and Tags, 29 CFR 1910.145.

Respiratory Protection, 29 CFR 1910.34.

Hazard Communication Program, 29 CFR 1910.1200.

D. MASSACHUSETTS DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT, DIVISION OF LABOR STADARDS:

"The Removal, Containment or Encapsulation of Asbestos," 453 CMR 6.00.

E. MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION:

Amendments to Regulations 310 CMR 7.00, 7.09, 7.15 to Control Airborne Asbestos Emissions for the Control of Air Pollution.

Disposal of Solid Waste by Sanitary Landfill, 310 CMR 19.00.

F. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):

Z9.2-79.Fundamentals Governing the Design and Operation of Local Exhaust Systems.

Z86.1-1973.Commodity Specification for Air.

Z88.2-80 Practices for Respiratory Protection.

G. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH):

Manual of Analytical Methods, 2nd Edition, Col. 1, Physical and Chemical Analysis Methods (P&CAM).

Method 239 Asbestos Fibers in Air.
Method 7400 Fibers (N1, 3rd Edition, Vol. 1).

"Respiratory Protection A Guide for the Employee."

H. U.S. DEPARTMENT OF TRANSPORTATION:

49 CFR 171-177.
51 CFR 42176.

I. UNDERWRITERS LABORATORIES, INC. (UL) PUBLICATIONS:

Test Performance of High Efficiency, Particulate, Air Filter Units, 586-77 (R-1982).

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Deliver all materials and equipment to the site in the original containers bearing the name of the manufacturer, and details for proper storage and usage.

B. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner, which shall not interfere with School Building operations or occupants.

C. Unloading and temporary storage sites, and transfer routes, must be approved in advance by the OWNER.

D. Damaged or deteriorated materials may not be used and must be promptly removed from the premises. Materials which become contaminated, with asbestos-containing material shall be packaged and legally disposed of in an approved, secure landfill.

2.02 MATERIALS

A. The list of required materials shall include, but is not necessarily limited to the following:

1. Disposable Clothing Manufactured of “Tyvek” by DuPont, or approved equal. Clothing shall consist of coverall, head cover and foot cover. Enough personal protective equipment for workers and all authorized visitors (Authorized visitors 2 sets per person per day).

2. Saturants Mixtures for material saturation and fiber control shall be prepared in the following ratios of water and surfactant, or a commercially prepared equivalent (Penewet by Wilbur & Williams Division of California Products Corp., Cambridge, MA or equal): 1 fluid ounce of surfactant to 5 gallons of water. Surfactant: 50% Polyoxyethylene Ester 50% Polyoxyethylene Ether.

3. Fire Rated Polyethylene film for walls, floors, etc. Minimum thickness as specified.

   Not required - Walls & ceilings are painted or non-porous and can be washed.

   (2 layers) 4 mil – Walls & ceilings, which are porous and will remain.

   (2 layers) 6 mil - Painted concrete, hard surface floor.

   (2 layers) 4 mil - Porous ceilings that are not asbestos containing, and will remain.

4. Clear polyethylene bags (with caution labels) six-mil (0.006”) minimum for disposal. Special bag widths are available for pipe covering.

5. Duct tape (minimum 2” width) shall be fabric type. Paper masking tape will not be permitted.

6. Plywood for critical barrier requirements shall be new and of fire-retardant grade.

7. Encapsulant rated acceptable in EPA encapsulant sealant test as done by Battele.

8. Spray adhesive for sealing poly to poly.

2.03 TOOLS AND EQUIPMENT

A. Airless Sprayer: An airless sprayer, suitable for application of encapsulating material, shall be used.

B. Negative Air Filtration Unit: Asbestos filtration devices shall utilize high efficiency particulate air (HEPA) filtration systems. 99.97% efficient to 0.3-micrometer diameter of mono-disperse particles. The negative air filtration unit shall be equipped with the following.

1. Magnehelic gauge to monitor the HEPA units air pressure difference across the filters and be able to interpret magnehelic readings to cfm.

2. Automatic shut off for filter failure or filter absence.

3. Alarm with flashing red light for unit shutdown.

4. Amber flashing warning light for filter loading.

5. Must have safety system that prevents unit from being operated with the HEPA filter in backwards.

C. Vacuum Equipment: All vacuum equipment implemented in the work area, shall utilize HEPA filtration systems. 99.97% efficient to 0.3 micrometer diameter of mono-disperse particles.

D. Water Sprayer: The water sprayer shall be an airless or other low-pressure sprayer for amended water application.

E. Other Tools and Equipment: The Contractor shall provide other suitable tools for the stripping, removal, and disposal activities including but not limited to: hand held scrapers, sponges, rounded edge shovels, brooms, and carts.

F. Ground fault circuit interrupters: To protect electrical cords and connections within the enclosed removal area.

PART 3 – EXECUTION

3.01 SCHEDULING

A. The Contractor shall coordinate all scheduling with the Owner's Consultant and as specified herein. A schedule of work including sequencing of asbestos removal shall be submitted to the Owners Consultant, as outlined in Section 1.18 and in contract documents.

3.02 PRE-ASBESTOS ABATEMENT PREPARATIONS FOR REMOVAL

A. Prior to any abatement work in an area, seal off the entire area to anybody other than trained personnel and authorized visitors. Isolate and blank off of duct systems. Erect signs around the perimeter in accordance with EPA, OSHA and this specification. Provide security against unauthorized entry during the abatement process. Maintain a log of all people entering and exiting the workplace.

B. Obtain the approval of the Owner's Consultant prior to the start of the work for the following: Enclosures, showers, personnel protection, exposure control systems, personnel training and testing, removable decontamination and storage, sealing off and securing of the work area and equipment for inter-room communications. These shall conform to the approved abatement plans.

C. Air filtration unit(s) shall be exhausted to the exterior of the School Building.

D. Construct decontamination areas for workers/visitors.

E. Seal all ceilings & walls with two layers of fire-retardant six-mil polyethylene. Poly should be used until all work complete on floor tile and mastic removal. Seal off all critical barriers such as duct openings, doors, windows, etc. with two layers of six-mil polyethylene sheeting and solid barriers (when applicable). Ensure that barriers are effectively sealed and taped. Use as wide a width of sheeting as possible to reduce floor seams. Spray adhesive will be used to seal poly to poly, then taped to ensure floor seams are sealed. Polyethylene, plywood or lumber must be in accordance with fire department requirements. Repair damaged barriers and remedy defects immediately as well as visually inspect enclosures prior to each workday. Use smoke methods to test effectiveness of barriers.

3.03 UTILITIES

A. Provide all necessary connections for temporary utilities in the workplace during abatement work. Shut down and disconnect all electric power to the work area so that there is no possibility of reactivation and electrical shock during the entire abatement process. The temporary electrical power shall be in accordance with OSHA Electrical Code for Wet Environment.

B. Provide temporary lighting to meet OSHA requirements. Lighting will remain in place through final clearance testing and will be sufficient for the Owners Consultant to thoroughly inspect the work area without the use of hand-held flashlights.

3.04 MONITORING, TESTING AND INSPECTION

A. The Owner's Consultant (The Vertex Companies) will perform full-time project monitoring throughout the work activities, with the exception of CONTRACTORS personnel monitoring.

B. The Owner's Consultant will closely monitor the performance and execution of the work throughout the abatement process. The monitoring will be outside the work area to ensure full compliance with these specifications and all applicable regulations. The continuous monitoring and checking will include air samples in the areas surrounding the work area, checking of the Standard Operating Procedures, Engineering Control System, Respiratory Protection System, Labeling, Packaging, Transporting and Disposing of asbestos. It shall also include checking the Decontamination Facilities and Procedures and any other aspects of the abatement process that may impact the health and safety of the people and the pollution of the environment.

C. Air monitoring tests for baseline background levels will be made and analyzed prior to removal of any asbestos in the contract area by the consultant. These tests will be made and documented by the consultant personnel before any removal work begins. Sample volume selected shall be sufficient to meet quantification limit.

D. The Owner's Consultant will collect samples during the removal process immediately beyond all major openings to the sealed area, work area.

E. Samples will be taken during the removal process according to the following:

1. Volume of sample determined by Quantification Limit, microscopic field, assuming 10 fibers/100field, filter area (effective collection area).

2. Baseline background sampling shall be done using NIOSH 7400 A Rules or equivalent outside but immediately adjacent to work barriers prior to start of removal work.

3. Background sample(s) shall be taken each day during removal work.

4. Subsequent background samples shall be high volume using NIOSH Method 7400 A Rules, or equivalent.

5. If subsequent ambient air fiber levels outside the work area are greater than 0.010 f/cc, work shall be halted until source of contamination is found and corrected.

6. Work area monitoring (during removal) Allowable limits:

   Outside work area - 0.010 f/cc ambient air monitoring.

   Inside work area - 0.05 f/cc ambient air monitoring.

   Clearance Level - (PCM) 0.010 f/cc for each sample.
   (TEM) 70 s/mm^2 as average of 5 inside.

7. Comply with OSHA requirements, including but not limited to, monitoring requirements, safety compliance and record keeping. Personnel monitoring results from the previous day shall be posted each day, and copies of the results forwarded to the Owner's Consultant.

E. All air monitoring samples must be analyzed by a laboratory participating in the NIOSH Proficiency Analytical Testing Program or an analyst who is listed on the Asbestos Analyst Registry as a proficient reader. PCM air samples may be analyzed by methods described in NIOSH 7400. All samples shall be analyzed on-site utilizing NIOSH 7400 Method.

3.05 FINAL INSPECTION AND TESTING

A. Note that clearance sampling is required for all types of abatement. This includes removal, repair, encapsulation, or enclosure (glove bag removal is exempt).

B. After thorough cleaning the Owner's Consultant shall determine the workspace is ready for inspection and final testing. The Owner's Consultant will visually inspect the workspace for the detection of any visible dust, debris or contamination. If the visual inspection does not reveal any dust, debris or other signs of contamination, the work shall be considered complete.

C. The final testing shall take place under active agitation of the air in the workspace with fans running, leaf blowers operating and any other means found suitable by the Owner's Consultant during the final testing. The final test will consist of taking five air samples in the workspace, five air samples outside the workspace and three blanks for Transmission Electron Microscopy (TEM) for areas greater than 160 square feet/260 linear feet. If less than that, Phase Contrast Microscopy (PCM) with five samples in the work area in the workplace.

D. Clean level samples shall be collected by Owners Consultant using aggressive sampling methods as described in EPA Regulations; "Asbestos-Containing Materials in Schools" (40 CFR 763 Appendix A). Architect's Environmental Consultant will confirm analysis by TEM method for completion of removal work in all areas regardless of demolition of buildings.

E. TEM monitoring will be performed as required by 40 CFR 763. For the work area, five air samples will be collected in the work area and five air samples will be collected outside the work area. A minimum volume of 1200 Liters will be drawn:

1. If the average concentration of the five air samples taken inside the work area, as analyzed by TEM method described in 40 CFR 763, does not exceed the filter background level of 70 structures per square millimeter (s/mm^2), the removal shall be considered complete and the containment area dismantled.

2. If inside five samples exceed 70 s/mm^2, outside samples shall not be analyzed. Area shall be considered as failed and the area shall be re-cleaned and sampling and analysis repeated at the expense of the Contractor. Additional sampling time and analysis shall be at the expense of the Contractor.

F. The Contractor shall not perform any containment dismantling operations until the Contractor has received approval from the Owner's Consultant.

G. After the decontamination levels specified have been confirmed through the final testing specified herein, the plastic enclosure shall be removed, the exposed surfaces thoroughly wet cleaned and/or HEPA vacuumed, and the plastic, tape and material from equipment room and shower room bagged and disposed of as asbestos waste. A final check will be carried out by the consultant to ensure that no dust or debris remains on surfaces as the result of dismantling operations. A final inspection report shall be prepared jointly between the Owner's Consultant and the CONTRACTOR detailing the list of items to be repaired.

3.06 ABATEMENT METHOD FOR REMOVAL OF THE ASBESTOS-CONTAINING AND ASBESTOS-CONTAMINATED MATERIALS

A. The following method of removal will be used for the abatement process. Modifications to the proposed method of removal must be in writing and approved by the Owner's Consultant prior to their implementation.

B. FULL CONTAINMENT REMOVAL FOR ASBESTOS-CONTAINING CEILING TILE AND ASBESTOS-CONTAMINATED CEILING TILE GRID

1. Review area with the Owner's Consultant. This work will be performed in phases.

2. Verify locations of decontamination set-up, clean areas, ventilation needs, sensitive equipment protection requirements and asbestos removal procedures from the approved abatement plan.

3. Follow all work area preparation as specified.

4. Remove all moveable objects within work area.

5. Conduct pre-cleaning activities prior to containment preparation.

6. Prepare the area using polyethylene and solid barriers as specified.

7. Set up Decontamination Facility as specified.

8. Install temporary lighting, showers, supply and exhaust ventilation.

9. Maintain negative pressure within the containment as specified in 1.17.

10. Obtain approval for enclosure by the Owner's Consultant.

11. Adequately wet material to be removed with amended water.

12. The Contractor will move all movable equipment from the work area after decontamination.

13. Remove material in a manner that will minimize the generation of airborne fibers. Ceiling tiles should be removed whole and bagged immediately.

14. Contractor shall remove asbestos-containing ceiling tile, asbestos-contaminated ceiling tile grid as well as lighting fixtures.

15. Lighting fixtures can be recycled if they can be properly decontaminated.

16. Bag or drum asbestos immediately upon removal.

17. Provide constant misting of work area using amended water.

18. Wash outside of first bag in Wash Room of bag out area and then double bag and label asbestos waste for transport.

19. Clean work area on a daily basis of all residual asbestos.

20. Air monitoring as specified in paragraph "MONITORING, TESTING, AND INSPECTION".

Proceed with "FINAL INSPECTION AND TESTING". Review area with the Owner's Consultant.

3.07 CLEANING AND FINAL DECONTAMINATION

A. After the removal of the asbestos has been completed and before removal of barriers, the entire area shall be thoroughly wet cleaned and/or vacuumed with HEPA filtered vacuum. Following the successful inspection and final testing as specified herein, remove all HVAC filters and dispose of them as asbestos waste. All plastic barriers, tapes and disposable contaminated equipment shall also be disposed of as asbestos waste. All reusable contaminated equipment such as masks, hard hats, etc., shall be thoroughly decontaminated through wet cleaning.

B. Repair and restore space in accordance with the final inspection list specified herein.

3.08 CONTRACTOR RESPONSIBILITY

A. Assume full responsibility and liability for the compliance with all applicable Federal, Commonwealth and local regulations pertaining to work practices, hauling and disposal of ACM and protection of workers and visitors to the site, and persons occupying areas adjacent to the site. The CONTRACTOR shall hold the OWNER and the Owner's Consultant harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself/herself, his/her employees or his/her subcontractors.

3.09 GENERAL APLICABILITY OF CODES, REGULATIONS, LAWS AND STANDARDS

A. Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, laws and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

3.10 EXTENT OF REMOVAL

A. A general estimate of asbestos-containing materials, quantities and locations are listed herein. The Contractor is required to verify actual estimates for bidding purposes. The following is a breakdown of asbestos-containing materials to be removed:

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**ACBM Description**	**Estimated Quantity**
Upper Level		
Front Entrance (270)	2' x 4' Ceiling Tile (Fissure)	1200 ft^2
Cloak Room (Room F) (269)	2' x 4' Ceiling Tile (Fissure)	300 ft^2
Room E (Police and Supply Room) (272/271)	2' x 4' Ceiling Tile (Fissure)	386 ft^2
266/267/268 Corridor (226)	2' x 4' Ceiling Tile (Fissure)	1400 ft^2
Room 268/265 (Social Worker Office)	2' x 4' Ceiling Tile (Fissure)	368 ft^2
Room 267	2' x 4' Ceiling Tile (Fissure)	368 ft^2
Room 266	2' x 4' Ceiling Tile (Fissure)	368 ft^2
Room 224/Server Room	2' x 4' Ceiling Tile (Fissure)	340 ft^2
Room H (Reception) (282)	2' x 4' Ceiling Tile (Fissure)	354 ft^2
Main Office Closet (283)	2' x 4' Ceiling Tile (Fissure)	354 ft^2
Room G (281)	2' x 4' Ceiling Tile (Fissure)	310 ft^2
Room I (Principal) (280)	2' x 4' Ceiling Tile (Fissure)	280 ft^2
Principal Bath	2' x 4' Ceiling Tile (Fissure)	340 ft^2
Room I-J Hall and Closet	2' x 4' Ceiling Tile (Fissure)	48 ft^2
Room J (Dean Office) and Closet (284)	2' x 4' Ceiling Tile (Fissure)	280 ft^2
Room M/K (Guidance Office) (287-291)	2' x 4' Ceiling Tile (Fissure)	672 ft^2
Clinic (Nurse Office) (292-295)	2' x 4' Ceiling Tile (Fissure)	900 ft^2
Copy Room (in Room 273) (263)	2' x 4' Ceiling Tile (Fissure)	144 ft^2
Room 273	2' x 4' Ceiling Tile (Fissure)	960 ft^2
Room 274	2' x 4' Ceiling Tile (Fissure)	960 ft^2
Room 275	2' x 4' Ceiling Tile (Fissure)	880 ft^2
Room 276	2' x 4' Ceiling Tile (Fissure)	640 ft^2
Main Office Corridor (Reception-Nurse)	2' x 4' Ceiling Tile (Fissure)	1000 ft^2
277-279 Corridor (304 and 305)	2' x 4' Ceiling Tile (Fissure)	1440 ft^2
Room 277	2' x 4' Ceiling Tile (Fissure)	1320 ft^2
Room 277 Bathroom (297)	2' x 4' Ceiling Tile (Fissure)	36 ft^2
Room 277 Hall	2' x 4' Ceiling Tile (Fissure)	60 ft^2
Room O (Time Out Room by 277) (298)	2' x 4' Ceiling Tile (Fissure)	144 ft^2
Room 278 (Music Room)	2' x 4' Ceiling Tile (Fissure)	1718 ft^2
Room 278 Bathroom (302)	2' x 4' Ceiling Tile (Fissure)	96 ft^2
278-279 Connector Room (301)	2' x 4' Ceiling Tile (Fissure)	240 ft^2
Music Storage Room (300)	2' x 4' Ceiling Tile (Fissure)	120 ft^2
Room 279 (Music Room)	2' x 4' Ceiling Tile (Fissure)	1460 ft^2
Room 217 (Art)	2' x 4' Ceiling Tile (Fissure)	1280 ft^2
Room 215 (Storage)	2' x 2' Ceiling Tile (Fissure)	112 ft^2
Room 218 (Art)	2' x 4' Ceiling Tile (Fissure)	1280 ft^2
Teachers' Lounge (219)	2' x 4' Ceiling Tile (Fissure)	960 ft^2
Teacher's-Men's Room (216)	2' x 4' Ceiling Tile (Fissure)	48 ft^2
Teacher's-Women's Room (220)	2' x 4' Ceiling Tile (Fissure)	48 ft^2
Boys Room by 208 (221)	2' x 4' Ceiling Tile (Fissure)	192 ft^2
Janitor Closet by Boys and Girls Room (222)	2' x 4' Ceiling Tile (Fissure)	48 ft^2
Girls Room by 208 (223)	2' x 4' Ceiling Tile (Fissure)	192 ft^2
Room 212	2' x 4' Ceiling Tile (Fissure)	420 ft^2

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**ACBM Description**	**Estimated Quantity**
Upper Level		
Room 210	2' x 4' Ceiling Tile (Fissure)	900 ft^2
Room 209	2' x 4' Ceiling Tile (Fissure)	900 ft^2
Room 208	2' x 4' Ceiling Tile (Fissure)	900 ft^2
Room 206	2' x 4' Ceiling Tile (Fissure)	900 ft^2
Room 205	2' x 4' Ceiling Tile (Fissure)	900 ft^2
Room 204 (Science)	2' x 4' Ceiling Tile (Fissure)	1010 ft^2
Room 203 (Science)	2' x 4' Ceiling Tile (Fissure)	1208 ft^2
Room 202/201	2' x 4' Ceiling Tile (Fissure)	1010 ft^2
201-212 Corridor (201/213/214)	2' x 4' Ceiling Tile (Fissure)	3204 ft^2
	2' x 4' Ceiling Tile (Fissure)	60 ft^2
Boys Locker Room (229)	2' x 4' Ceiling Tile (Dot)**	954 ft^2
Boys Locker Room Office and Closet (230)	2' x 4' Ceiling Tile (Fissure)	152 ft^2
Boys Locker Room Office Bathroom (231)	2' x 4' Ceiling Tile (Dot)**	42 ft^2
Boys Locker Room Bathroom (233)	2' x 4' Ceiling Tile (Fissure)	136 ft^2
Boys Locker Room Shower Room (236)	2' x 4' Ceiling Tile (Dot)**	450 ft^2
Stair # 1 to Archive (Former Girls Locker Room) (227)	2' x 4' Ceiling Tile (Fissure)	252 ft^2
Archive (Former Girls Locker Room) Storage (400)	2' x 4' Ceiling Tile (Fissure)	16 ft^2
Archive (Former Girls Locker Room) Storage (400)	2' x 4' Ceiling Tile (Dot)**	1584 ft^2
Archive Storage A Storage (400)	2' x 4' Ceiling Tile (Fissure)	140 ft^2
Archive Storage B Storage (400)	2' x 4' Ceiling Tile (Fissure)	180 ft^2
Archive Storage C, Bathroom and Closet Storage (400)	2' x 4' Ceiling Tile (Fissure)	140 ft^2
Archive Storage C, Bathroom and Closet Storage (400)	2' x 4' Ceiling Tile (Dot)**	60 ft^2
Archive Bathroom Storage (400)	2' x 4' Ceiling Tile (Fissure)	100 ft^2
Janitor Closet in Stair Adjacent to Archive	2' x 4' Ceiling Tile (Fissure)	36 ft^2
Storage Closet in Stair Adjacent to Archive	2' x 4' Ceiling Tile (Fissure)	216 ft^2
Stair # 2 to Archive (Former Girls Locker Room) (232)	2' x 4' Ceiling Tile (Fissure)	252 ft^2
Gym Storage (228)	2' x 4' Ceiling Tile (Fissure)	384 ft^2
Janitor Closet by Auditorium Lobby (250)	2' x 4' Ceiling Tile (Fissure)	18 ft^2
Auditorium Lobby (259)	2' x 4' Ceiling Tile (Fissure)	564 ft^2
Auditorium/Cafeteria/Gym Corridor (237)	2' x 4' Ceiling Tile (Fissure)	736 ft^2
Kitchen Locker Area and Bathroom (242/241)	2' x 4' Ceiling Tile (Fissure)	150 ft^2
Kitchen Pantry (244)	2' x 4' Ceiling Tile (Fissure)	80 ft^2
Cafeteria/Gym Storage Closet (243)	2' x 4' Ceiling Tile (Fissure)	288 ft^2
Cafeteria/Gym Storage Closet	2' x 4' Ceiling Tile (Fissure)	40 ft^2
Girls Locker Room Storage Closet (240)	2' x 4' Ceiling Tile (Fissure)	4 ft^2
Teachers (334)	2' x 4' Ceiling Tile (Fissure)	196 ft^2
Storage (333)	2' x 4' Ceiling Tile (Fissure)	168 ft^2
201-101 Stair (200)	2' x 4' Ceiling Tile (Fissure)	280 ft^2
206-107 Stair (207)	2' x 4' Ceiling Tile (Fissure)	280 ft^2
210-111 Stair (211)	2' x 4' Ceiling Tile (Fissure)	280 ft^2

Nathaniel Wixon Middle School - 901 Route 134, South Dennis, Massachusetts		
Location	**ACBM Description**	**Estimated Quantity**
Lower Level		
Teacher's Restroom by 113 (123/124)	2' x 4' Ceiling Tile (Fissure)	144 ft^2
Room 115	2' x 4' Ceiling Tile (Fissure)	1,192 ft^2
Electrical Room adjacent to Room 115 (114)	2' x 4' Ceiling Tile (Fissure)	120 ft^2
Room 116/115 Connector Room and Closets (126/127)	2' x 4' Ceiling Tile (Fissure)	130 ft^2
Library Storage (130/131)	2' x 4' Ceiling Tile (Fissure)	460 ft^2

Notes:

ft^2 = Square Foot

3.11 UNIT PRICES

A. Attention is directed to the Unit Price Schedule within this section. The Contractor shall familiarize himself/herself with each unit item and the associated specification section. Where feasible, the Contractor will use the least expensive method of abatement. Unit prices shall include pre-cleaning in all areas where required.

B. The Architect will use these unit prices to determine the appropriate addition or deduction in compensation to be received by the Contractor/Owner for each asbestos item. Unit price work will be paid for or credited to the Owner in accordance with the unit prices provided by Contractor for these items.

C. Unit prices include all costs for labor, materials, set-up, disposal, overhead, profit, bond and all other costs associated with the completion of the work. Methods and materials shall be in accordance with the requirements of the applicable sections of the specifications. The costs shall also be applied to deductions in the scope of the work.

UNIT PRICES FOR ABATEMENT CONTRACT BID

Item #	Work Description	Unit
1.	Remove and dispose of asbestos-containing ceiling tile and asbestos-contaminated grid	SF

END OF SECTION

SECTION 00 41 13 – FORM OF GENERAL BID

TO THE
DENNIS – YARMOUTH REGIONAL SCHOOL DISTRICTS SCHOOL COMMITTEE,
DENNIS – YARMOUTH, MASSACHUSETTS
(AWARDING AUTHORITY)

A. The undersigned proposes to furnish all labor and materials required for the:

NATHANIEL H. WIXON INNOVATION SCHOOL
CEILING / LIGHTING / FIRE ALARM REPLACEMENT
901- Rt. 134, Dennis , Massachusetts, 02660

In accordance with the accompanying Contract Documents, plans and specifications prepared by Edward Rowse Architects, Inc., 2 Hampshire Street, Suite 106, Foxboro, Massachusetts 02035 for the Contract Price specified below, subject to additions and deductions according to the terms of the Specifications.

B. The BID includes Addenda Numbered _____

C. **Base Bid**

$		**,**				**,**				**.**		

(Numeric)

_____

(Written)

We have included the required Bid Security in compliance with the Instructions to Bidders

D. The undersigned agrees that if he is selected as General Contractor, he will within five (5) days, Saturdays, Sundays, and legal holidays excluded, after presentation thereof by the Awarding Authority, execute a Contract in accordance with the terms of this general bid and furnish a performance bond and also a labor and materials payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of one hundred percent (100%) of the Contract Price, the premiums for which are to be paid by the General Contractor and are included in the Contract Price.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that he will comply fully with all laws and regulations applicable to award made subject to Section Forty-Four, A.

The undersigned agrees that he will comply with the minority manpower ratio and steps prescribed in Article 16 of the General Conditions, including compliance with the minority Subcontractor's requirements specified therein.

E. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work, that 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 that at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply with all laws and regulations applicable to award made subject to Section Forty-Four, A of Chapter 149 of the General Laws.

F. The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word “person” shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

G. The undersigned further certifies under the penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of Section Twenty-Nine F of Chapter Twenty-Nine, or any other applicable debarment provisions of any other Chapter of the General Laws or any rule or regulations promulgated thereunder.

Date _____, 2018.

_____
Name of General Bidder

By : _____
Title

_____
Business Address

If Bidder is a corporation,
Affix corporate seal here.

Note: If the Bidder is a corporation, indicate state of incorporation under signature and affix corporate seal; if a 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 00 41 13

SECTION 00 41 36 – FORM FOR SUB-BID

TO ALL GENERAL BIDDERS EXCEPT THOSE EXCLUDED

A. The undersigned proposes to furnish all labor and materials required for completing, in accordance with the Contract Documents, plans, specification, and addenda, all the work Specified in Section No. _____TRADE_____ of the Specifications and in any Drawings specified in such Sections, prepared by Edward Rowse Architects, Inc., for:

NATHANIEL H. WIXON INNOVATION SCHOOL
CEILING / LIGHTING / FIRE ALARM REPLACEMENT
901 Route 134, South Dennis, Massachusetts 02660

FOR THE CONTRACT SUM:

$				**,**				**,**				**.**		

(Numeric)

_____

(Written)

B. UNIT PRICES

Any or all Unit Prices as submitted by the Contractor within the Form for General Bid may be accepted or rejected by the Owner prior to the award of the Contract. Accepted Unit Prices shall be incorporated into the Contract and applied to additions or deletions of applicable work as changes to the Work.

BIDDER agrees to be bound by the following unit prices:

The following Unit Prices, if accepted in the award of this Contract, shall be used in establishing the adjustment of Contract Price for additions to or deductions from the Work in accordance with the applicable section of the General Conditions. Unit Prices listed shall include all costs, profit and overhead and no further surcharges are to be added to any Unit Price item of Work that may be order done. Work omitted from the contract will be calculated at 98 percent of the additional work unit prices.

Unit prices for fabricated items shall include all necessary connections and fastenings required to produce complete framing assemblies.

The Bidder (Contractor) shall maintain detailed logs recording all materials, weight and quantity slips, labor, equipment, invoices, statements and other services applicable to the unit price. All logs shall be quantified and submitted to the Owner and Architect on a weekly basis.

BIDDER agrees that the below listed unit prices will not contain anything to alter or void the Lump Sum Proposal and that applicable contents of this Proposal shall be binding on the unit prices and the work involved whether or not it be specifically stated.

All work covered by the unit prices enumerated below shall be performed in accordance with requirements of the specifications. See specification section 012200, Unit Prices", for additional requirements.

The Owner has the right to accept or reject all unit prices.

DESCRIPTION OF SERVICE	CONTRACTORS UNIT COST
1. Section 09 51 13 Acoustical Ceiling Tile per tile	
2.	
3.	
4.	**$** .

FOR ALTERNATE NO. 1 ADD $ _____ SUBTRACT $ _____

FOR ALTERNATE NO. 2 ADD $ _____ SUBTRACT $ _____

B. This Sub-bid includes Addenda numbered _____

C. This Sub-bid:

[ ] May be used by any General Bidder except:

_____
_____
_____
_____

[ ] May only be used by the following General Bidders:

_____
_____
_____
_____

(To exclude General Bidders, insert "X" in one box only and fill in blanks following that box. Do not answer "C" if no General Bidders are excluded).

D. In accordance with Chapter 193 of the Acts of 2004, the undersigned agrees that, if he is selected as a sub-bidder he will, within five (5) days, Saturdays, Sundays, and legal holidays excluded, after presentation of a sub-contract by the General Bidder selected as the General Contractor, execute with such General Bidder a Sub-contract in accordance with the terms of this Sub-bid, and contingent upon execution of the General Contract, **will furnish a performance bond and a labor and materials payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of one hundred percent (100%) of the sub-bid Price, the costs for which are to be included in the filed sub-bidder's Price.**.

E. The names of the persons, firms and corporations furnishing to the undersigned labor or labor and materials for the class or classes or part thereof of work for which the provisions of the section of the specifications for this-sub-trade required a listing in this paragraph, including the undersigned if customarily furnished by persons on his own payroll and in the absence of a contrary provisions in the specifications, the names of such class of work or part thereto and the bid price for such class of work or part thereof are:

NAME	CLASS OF WORK	BID PRICE
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(do not give bid price for any class or part thereof furnish by undersigned)

F. The undersigned agrees that the above list of bids to the undersigned represents bona fide bids based on the herein before described Drawings, Specifications and Addenda and that, if the undersigned is awarded the Contract, they will be used for the work indicated at the amounts stated, if satisfactory to the Awarding Authority.

G. The undersigned further agrees to be bound to the General Contractor by the terms of the herein before described drawings, specifications (including all General Conditions stated therein), and Addenda, and to assume toward him all the obligations and responsibilities that he, by those documents, assumes toward the Awarding Authority.

H. The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all requirements of the Drawings and Specifications.

1. Have been in business under present business name _____years

2. Ever failed to complete any work awarded? (Yes / No) (circle one)

I. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that 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 that at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply with all laws and regulations applicable to award made subject to Section Forty-Four, A of Chapter 149 of the General Laws.

J. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with the other elements of labor employed or to be employed on the work and that he will comply fully with all laws and regulations applicable to awards of subcontracts subject to Section Forty Four, F. The undersigned agrees that he will comply with the minority manpower ratio and steps prescribed in Article 16 of the General Conditions, including compliance with the minority Subcontractor's requirements specified herein..

K. The undersigned further certifies under the penalty of perjury that this sub-bid is in all respects bona fide, fair and made without collusion or fraud with any person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersign is not presently debarred from doing public construction work in the Commonwealth under the provisions of Section Twenty-Nine F of Chapter Twenty-Nine, or any other applicable

debarment provisions of any other Chapter of the General Laws or any rule or regulations promulgated thereunder.

Date _____ _____
(Name of Sub-Bidder)

BY: _____
Name

_____
Title

_____
Business Address

_____
City and State Zip Code

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

END OF SECTION 00 41 36

SECTION 00 43 13 – BID BOND

1. BID BOND

AIA Document A310, Bid Bond - 2010 Edition, and as amended, is an integral part of the Bid Documents. Provisions not amended or supplemented remain in full force and effect.

END OF SECTION

SECTION 00 43 43 – MINIMUM WAGE RATES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Work of this Section requires the General Contractor and all Subcontractors shall comply with the provisions of the Massachusetts General Laws (MGL), Public Bidding Law – Chapter 149, Sections 26 to 27H, inclusive and as amended.

C. The listing of CLASSIFICATIONS AND MINIMUM WAGE RATES as determined by The Commonwealth of Massachusetts Department of Labor and Workforce Development under the provisions of MGL 149 Section 26 to 27H inclusive and as amended, is attached herewith and is hereby made as part of the Contract Documents.

D. It is the obligation of the General Contractor to assure that the General Contractor and all of its Subcontractors comply with the requirements of the Massachusetts Prevailing Wage Law, MGL c149 Sections 26 to 27H, inclusive and as amended. The general Contractor shall be responsible for all loss, cost and damage suffered or incurred by the Owner as a result of any stop work order or other enforcement action taken by the Attorney General under the authority of MGL c149 Section27 and shall release, indemnify, hold harmless and defend the Owner, the Architect, their officers, employees and consultants, from and against all claims, actions, suits, fines, or administrative proceedings arising out of or related to the violation by the General Contractor’s or any Subcontractor of the said Prevailing Wage law (or, in the case of the Contractor’s defense obligation, the claimed violation thereof).

END OF SECTION 00 43 43

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

ROSALIN ACOSTA
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: Dennis-Yarmouth Regional School District

Contract Number:

City/Town: YARMOUTH

Description of Work: This contract is for a restroom addition to the current Observatory building

Job Location: 210 Station Avenue, S. Yarmouth, MA 02664

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.15	$10.91	$10.89	$0.00	$53.95
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.22	$10.91	$10.89	$0.00	$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.34	$10.91	$10.89	$0.00	$54.14
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$90.51	$9.80	$18.17	$0.00	$118.48
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 2*	06/01/2017	$33.15	$7.60	$13.50	$0.00	$54.25
	12/01/2017	$33.78	$7.60	$13.50	$0.00	$54.88
	06/01/2018	$34.62	$7.60	$13.50	$0.00	$55.72
	12/01/2018	$35.46	$7.60	$13.50	$0.00	$56.56
	06/01/2019	$36.33	$7.60	$13.50	$0.00	$57.43
	12/01/2019	$37.19	$7.60	$13.50	$0.00	$58.29
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	06/01/2017	$34.90	$11.50	$7.10	$0.00	$53.50
	12/01/2017	$35.90	$11.50	$7.10	$0.00	$54.50
	06/01/2018	$36.90	$11.50	$7.10	$0.00	$55.50
	12/01/2018	$37.90	$11.50	$7.10	$0.00	$56.50
	06/01/2019	$38.90	$11.50	$7.10	$0.00	$57.50
	12/01/2019	$39.90	$11.50	$7.10	$0.00	$58.50
	06/01/2020	$40.90	$11.50	$7.10	$0.00	$59.50
	12/01/2020	$41.90	$11.50	$7.10	$0.00	$60.50
ASPHALT RAKER *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 2*	06/01/2017	$33.15	$7.60	$13.50	$0.00	$54.25
	12/01/2017	$33.78	$7.60	$13.50	$0.00	$54.88
	06/01/2018	$34.62	$7.60	$13.50	$0.00	$55.72
	12/01/2018	$35.46	$7.60	$13.50	$0.00	$56.56
	06/01/2019	$36.33	$7.60	$13.50	$0.00	$57.43
	12/01/2019	$37.19	$7.60	$13.50	$0.00	$58.29
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2017	$42.92	$6.97	$16.21	$0.00	$66.10

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$27.90	$6.97	$10.54	$0.00	$45.41
2	65	$27.90	$6.97	$10.54	$0.00	$45.41
3	70	$30.04	$6.97	$11.35	$0.00	$48.36
4	75	$32.19	$6.97	$12.16	$0.00	$51.32
5	80	$34.34	$6.97	$12.97	$0.00	$54.28
6	85	$36.48	$6.97	$13.78	$0.00	$57.23
7	90	$38.63	$6.97	$14.59	$0.00	$60.19
8	95	$40.77	$6.97	$15.40	$0.00	$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (NEW BEDFORD)*	08/01/2017	$52.06	$10.75	$19.35	$0.00	$82.16
	02/01/2018	$52.74	$10.75	$19.35	$0.00	$82.84
	08/01/2018	$54.09	$10.75	$19.48	$0.00	$84.32
	02/01/2019	$54.73	$10.75	$19.48	$0.00	$84.96
	08/01/2019	$56.08	$10.75	$19.62	$0.00	$86.45
	02/01/2020	$56.72	$10.75	$19.62	$0.00	$87.09
	08/01/2020	$58.07	$10.75	$19.77	$0.00	$88.59
	02/01/2021	$58.71	$10.75	$19.77	$0.00	$89.23
	08/01/2021	$60.11	$10.75	$19.93	$0.00	$90.79
	02/01/2022	$60.70	$10.75	$19.93	$0.00	$91.38

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 New Bedford*

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.03	$10.75	$19.35	$0.00	$56.13
2	60	$31.24	$10.75	$19.35	$0.00	$61.34
3	70	$36.44	$10.75	$19.35	$0.00	$66.54
4	80	$41.65	$10.75	$19.35	$0.00	$71.75
5	90	$46.85	$10.75	$19.35	$0.00	$76.95

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.37	$10.75	$19.35	$0.00	$56.47
2	60	$31.64	$10.75	$19.35	$0.00	$61.74
3	70	$36.92	$10.75	$19.35	$0.00	$67.02
4	80	$42.19	$10.75	$19.35	$0.00	$72.29
5	90	$47.47	$10.75	$19.35	$0.00	$77.57

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2016	$37.45	$7.60	$14.35	$0.00	$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2016	$36.30	$7.60	$14.35	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2016	$36.30	$7.60	$14.35	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	09/01/2017	$39.28	$9.90	$17.50	$0.00	$66.68
	03/01/2018	$40.28	$9.90	$17.50	$0.00	$67.68
	09/01/2018	$41.32	$9.90	$17.50	$0.00	$68.72
	03/01/2019	$42.35	$9.90	$17.50	$0.00	$69.75

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.64	$9.90	$1.73	$0.00	$31.27
2	60	$23.57	$9.90	$1.73	$0.00	$35.20
3	70	$27.50	$9.90	$12.31	$0.00	$49.71
4	75	$29.46	$9.90	$12.31	$0.00	$51.67
5	80	$31.42	$9.90	$14.04	$0.00	$55.36
6	80	$31.42	$9.90	$14.04	$0.00	$55.36
7	90	$35.35	$9.90	$15.77	$0.00	$61.02
8	90	$35.35	$9.90	$15.77	$0.00	$61.02

Effective Date - 03/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.14	$9.90	$1.73	$0.00	$31.77
2	60	$24.17	$9.90	$1.73	$0.00	$35.80
3	70	$28.20	$9.90	$12.31	$0.00	$50.41
4	75	$30.21	$9.90	$12.31	$0.00	$52.42
5	80	$32.22	$9.90	$14.04	$0.00	$56.16
6	80	$32.22	$9.90	$14.04	$0.00	$56.16
7	90	$36.25	$9.90	$15.77	$0.00	$61.92
8	90	$36.25	$9.90	$15.77	$0.00	$61.92

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (NEW BEDFORD)*	07/01/2017	$47.40	$12.20	$19.41	$1.30	$80.31
	01/01/2018	$48.17	$12.20	$19.41	$1.30	$81.08
	07/01/2018	$49.56	$12.20	$19.41	$1.30	$82.47
	01/01/2019	$50.30	$12.20	$19.41	$1.30	$83.21
	07/01/2019	$51.69	$12.20	$19.41	$1.30	$84.60
	01/01/2020	$52.44	$12.20	$19.41	$1.30	$85.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (New Bedford)*

Effective Date - 07/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.70	$12.20	$12.41	$0.00	$48.31
2	60	$28.44	$12.20	$14.41	$1.30	$56.35
3	65	$30.81	$12.20	$15.41	$1.30	$59.72
4	70	$33.18	$12.20	$16.41	$1.30	$63.09
5	75	$35.55	$12.20	$17.41	$1.30	$66.46
6	80	$37.92	$12.20	$18.41	$1.30	$69.83
7	90	$42.66	$12.20	$19.41	$1.30	$75.57

Effective Date - 01/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.09	$12.20	$12.41	$0.00	$48.70
2	60	$28.90	$12.20	$14.41	$1.30	$56.81
3	65	$31.31	$12.20	$15.41	$1.30	$60.22
4	70	$33.72	$12.20	$16.41	$1.30	$63.63
5	75	$36.13	$12.20	$17.41	$1.30	$67.04
6	80	$38.54	$12.20	$18.41	$1.30	$70.45
7	90	$43.35	$12.20	$19.41	$1.30	$76.26

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
	12/01/2017	$48.38	$10.00	$15.25	$0.00	$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.71	$7.85	$0.00	$0.00	$33.56
2	55	$28.28	$7.85	$3.66	$0.00	$39.79
3	60	$30.85	$7.85	$3.99	$0.00	$42.69
4	65	$33.42	$7.85	$4.32	$0.00	$45.59
5	70	$35.99	$7.85	$14.11	$0.00	$57.95
6	75	$38.56	$7.85	$14.44	$0.00	$60.85
7	80	$41.13	$7.85	$14.77	$0.00	$63.75
8	90	$46.27	$7.85	$15.44	$0.00	$69.56

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 2*	06/01/2017	$37.00	$7.60	$14.65	$0.00	$59.25
	12/01/2017	$37.85	$7.60	$14.65	$0.00	$60.10
	06/01/2018	$38.80	$7.60	$14.65	$0.00	$61.05
	12/01/2018	$39.75	$7.60	$14.65	$0.00	$62.00
	06/01/2019	$40.75	$7.60	$14.65	$0.00	$63.00
	12/01/2019	$41.75	$7.60	$14.65	$0.00	$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 2*	06/01/2017	$38.00	$7.60	$14.65	$0.00	$60.25
	12/01/2017	$38.85	$7.60	$14.65	$0.00	$61.10
	06/01/2018	$39.80	$7.60	$14.65	$0.00	$62.05
	12/01/2018	$40.75	$7.60	$14.65	$0.00	$63.00
	06/01/2019	$41.75	$7.60	$14.65	$0.00	$64.00
	12/01/2019	$42.75	$7.60	$14.65	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 2*	06/01/2017	$37.75	$7.60	$14.65	$0.00	$60.00
	12/01/2017	$38.60	$7.60	$14.65	$0.00	$60.85
	06/01/2018	$39.55	$7.60	$14.65	$0.00	$61.80
	12/01/2018	$40.50	$7.60	$14.65	$0.00	$62.75
	06/01/2019	$41.50	$7.60	$14.65	$0.00	$63.75
	12/01/2019	$42.50	$7.60	$14.65	$0.00	$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 2*	06/01/2017	$38.00	$7.60	$14.65	$0.00	$60.25
	12/01/2017	$38.85	$7.60	$14.65	$0.00	$61.10
	06/01/2018	$39.80	$7.60	$14.65	$0.00	$62.05
	12/01/2018	$40.75	$7.60	$14.65	$0.00	$63.00
	06/01/2019	$41.75	$7.60	$14.65	$0.00	$64.00
	12/01/2019	$42.75	$7.60	$14.65	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 2*	06/01/2017	$37.75	$7.60	$14.65	$0.00	$60.00
	12/01/2017	$38.60	$7.60	$14.65	$0.00	$60.85
	06/01/2018	$39.55	$7.60	$14.65	$0.00	$61.80
	12/01/2018	$40.50	$7.60	$14.65	$0.00	$62.75
	06/01/2019	$41.50	$7.60	$14.65	$0.00	$63.75
	12/01/2019	$42.50	$7.60	$14.65	$0.00	$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 2*	06/01/2017	$37.00	$7.60	$14.65	$0.00	$59.25
	12/01/2017	$37.85	$7.60	$14.65	$0.00	$60.10
	06/01/2018	$38.80	$7.60	$14.65	$0.00	$61.05
	12/01/2018	$39.75	$7.60	$14.65	$0.00	$62.00
	06/01/2019	$40.75	$7.60	$14.65	$0.00	$63.00
	12/01/2019	$41.75	$7.60	$14.65	$0.00	$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$60.34	$9.80	$18.17	$0.00	$88.31
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$43.10	$9.80	$18.17	$0.00	$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$64.65	$9.80	$18.17	$0.00	$92.62
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$90.51	$9.80	$18.17	$0.00	$118.48
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN *ELECTRICIANS LOCAL 223*	09/01/2016	$39.21	$8.90	$11.51	$0.00	$59.62

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELECTRICIAN - Local 223*

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$15.68	$0.00	$0.47	$0.00	$16.15
2	42	$16.47	$0.00	$0.49	$0.00	$16.96
3	45	$17.64	$8.90	$0.53	$0.00	$27.07
4	48	$18.82	$8.90	$3.42	$0.00	$31.14
5	50	$19.61	$8.90	$3.55	$0.00	$32.06
6	55	$21.57	$8.90	$3.83	$0.00	$34.30
7	60	$23.53	$8.90	$4.12	$0.00	$36.55
8	65	$25.49	$8.90	$4.39	$0.00	$38.78
9	70	$27.45	$8.90	$4.68	$0.00	$41.03
10	75	$29.41	$8.90	$4.96	$0.00	$43.27

Notes:
Steps are 750 hours

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR
ELEVATOR CONSTRUCTORS LOCAL 4
01/01/2017 $55.86 $15.28 $15.71 $0.00 $86.85

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.93	$15.28	$0.00	$0.00	$43.21
2	55	$30.72	$15.28	$15.71	$0.00	$61.71
3	65	$36.31	$15.28	$15.71	$0.00	$67.30
4	70	$39.10	$15.28	$15.71	$0.00	$70.09
5	80	$44.69	$15.28	$15.71	$0.00	$75.68

Notes:
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER
ELEVATOR CONSTRUCTORS LOCAL 4
01/01/2017 $39.10 $15.28 $15.71 $0.00 $70.09

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR
LABORERS - ZONE 2

06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2017	$42.15	$10.00	$15.25	$0.00	$67.40
	11/01/2017	$42.88	$10.00	$15.25	$0.00	$68.13
	05/01/2018	$43.59	$10.00	$15.25	$0.00	$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2017	$43.61	$10.00	$15.25	$0.00	$68.86
	11/01/2017	$44.34	$10.00	$15.25	$0.00	$69.59
	05/01/2018	$45.06	$10.00	$15.25	$0.00	$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2017	$22.41	$10.00	$15.25	$0.00	$47.66
	11/01/2017	$22.83	$10.00	$15.25	$0.00	$48.08
	05/01/2018	$23.26	$10.00	$15.25	$0.00	$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 223*	09/01/2016	$39.21	$8.90	$11.51	$0.00	$59.62
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING*ELECTRICIANS LOCAL 223*	09/01/2016	$33.33	$8.90	$9.78	$0.00	$52.01
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$38.49	$10.00	$15.25	$0.00	$63.74
	12/01/2017	$39.32	$10.00	$15.25	$0.00	$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 2*	06/01/2017	$20.50	$7.60	$13.50	$0.00	$41.60
	12/01/2017	$21.50	$7.60	$13.50	$0.00	$42.60
	06/01/2018	$21.50	$7.60	$13.50	$0.00	$42.60
	12/01/2018	$22.50	$7.60	$13.50	$0.00	$43.60
	06/01/2019	$22.50	$7.60	$13.50	$0.00	$43.60
	12/01/2019	$23.50	$7.60	$13.50	$0.00	$44.60
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE II*	03/01/2016	$39.82	$9.80	$17.62	$0.00	$67.24

Apprentice - *FLOORCOVERER - Local 2168 Zone II*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.91	$9.80	$1.79	$0.00	$31.50
2	55	$21.90	$9.80	$1.79	$0.00	$33.49
3	60	$23.89	$9.80	$12.25	$0.00	$45.94
4	65	$25.88	$9.80	$12.25	$0.00	$47.93
5	70	$27.87	$9.80	$14.04	$0.00	$51.71
6	75	$29.87	$9.80	$14.04	$0.00	$53.71
7	80	$31.86	$9.80	$15.83	$0.00	$57.49
8	85	$33.85	$9.80	$15.83	$0.00	$59.48

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4* For apprentice rates see "Apprentice- OPERATING ENGINEERS"	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4* For apprentice rates see "Apprentice- OPERATING ENGINEERS"	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 1333*	06/01/2017	$36.28	$10.25	$8.95	$0.00	$55.48
	06/01/2018	$37.18	$10.40	$9.35	$0.00	$56.93
	06/01/2019	$38.18	$10.60	$9.90	$0.00	$58.68
	06/01/2020	$39.18	$10.80	$10.45	$0.00	$60.43

Apprentice - *GLAZIER - Local 1333*

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.14	$10.25	$1.45	$0.00	$29.84
2	56	$20.41	$10.25	$1.45	$0.00	$32.11
3	63	$22.68	$10.25	$1.95	$0.00	$34.88
4	69	$24.94	$10.25	$1.95	$0.00	$37.14
5	75	$27.21	$10.25	$2.45	$0.00	$39.91
6	81	$29.48	$10.25	$2.45	$0.00	$42.18
7	88	$31.75	$10.25	$8.95	$0.00	$50.95
8	94	$34.01	$10.25	$8.95	$0.00	$53.21

Effective Date - 06/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.59	$10.40	$1.60	$0.00	$30.59
2	56	$20.91	$10.40	$1.60	$0.00	$32.91
3	63	$23.24	$10.40	$2.10	$0.00	$35.74
4	69	$25.56	$10.40	$2.10	$0.00	$38.06
5	75	$27.89	$10.40	$2.60	$0.00	$40.89
6	81	$30.21	$10.40	$2.60	$0.00	$43.21
7	88	$32.53	$10.40	$9.35	$0.00	$52.28
8	94	$34.86	$10.40	$9.35	$0.00	$54.61

Notes:

Apprentice to Journeyworker Ratio:1:3

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$25.51	$10.00	$0.00	$0.00	$35.51
2	60	$27.83	$10.00	$15.25	$0.00	$53.08
3	65	$30.15	$10.00	$15.25	$0.00	$55.40
4	70	$32.47	$10.00	$15.25	$0.00	$57.72
5	75	$34.79	$10.00	$15.25	$0.00	$60.04
6	80	$37.10	$10.00	$15.25	$0.00	$62.35
7	85	$39.42	$10.00	$15.25	$0.00	$64.67
8	90	$41.74	$10.00	$15.25	$0.00	$66.99

Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$26.06	$10.00	$0.00	$0.00	$36.06
2	60	$28.43	$10.00	$15.25	$0.00	$53.68
3	65	$30.80	$10.00	$15.25	$0.00	$56.05
4	70	$33.17	$10.00	$15.25	$0.00	$58.42
5	75	$35.54	$10.00	$15.25	$0.00	$60.79
6	80	$37.90	$10.00	$15.25	$0.00	$63.15
7	85	$40.27	$10.00	$15.25	$0.00	$65.52
8	90	$42.64	$10.00	$15.25	$0.00	$67.89

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - B*	04/01/2016	$35.60	$10.70	$14.79	$1.83	$62.92
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 223*	09/01/2016	$39.21	$8.90	$11.51	$0.00	$59.62
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - B*	04/01/2016	$35.60	$10.70	$14.79	$1.83	$62.92
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2017	$40.69	$10.00	$17.60	$0.00	$68.29
	09/01/2018	$42.69	$10.00	$17.60	$0.00	$70.29
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2017	$40.69	$10.00	$17.60	$0.00	$68.29
	09/01/2018	$42.69	$10.00	$17.60	$0.00	$70.29
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS *LABORERS - ZONE 2*	06/01/2017	$33.15	$7.60	$13.50	$0.00	$54.25
	12/01/2017	$33.78	$7.60	$13.50	$0.00	$54.88
	06/01/2018	$34.62	$7.60	$13.50	$0.00	$55.72
	12/01/2018	$35.46	$7.60	$13.50	$0.00	$56.56
	06/01/2019	$36.33	$7.60	$13.50	$0.00	$57.43
	12/01/2019	$37.19	$7.60	$13.50	$0.00	$58.29
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2017	$47.09	$11.75	$14.20	$0.00	$73.04
	09/01/2018	$49.34	$11.75	$14.20	$0.00	$75.29
	09/01/2019	$51.84	$11.75	$14.20	$0.00	$77.79

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston*

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.55	$11.75	$10.45	$0.00	$45.75
2	60	$28.25	$11.75	$11.20	$0.00	$51.20
3	70	$32.96	$11.75	$11.95	$0.00	$56.66
4	80	$37.67	$11.75	$12.70	$0.00	$62.12

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.67	$11.75	$10.45	$0.00	$46.87
2	60	$29.60	$11.75	$11.20	$0.00	$52.55
3	70	$34.54	$11.75	$11.95	$0.00	$58.24
4	80	$39.47	$11.75	$12.70	$0.00	$63.92

Notes:
Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 37*	03/16/2016	$34.71	$7.70	$16.00	$0.00	$58.41

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 37*

Effective Date - 03/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	70	$24.30	$7.70	$16.00	$0.00	$48.00
2	75	$26.03	$7.70	$16.00	$0.00	$49.73
3	80	$27.77	$7.70	$16.00	$0.00	$51.47
4	85	$29.50	$7.70	$16.00	$0.00	$53.20
5	90	$31.24	$7.70	$16.00	$0.00	$54.94
6	95	$32.97	$7.70	$16.00	$0.00	$56.67

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 2*	06/01/2017	$32.40	$7.60	$13.50	$0.00	$53.50
	12/01/2017	$33.03	$7.60	$13.50	$0.00	$54.13
	06/01/2018	$33.87	$7.60	$13.50	$0.00	$54.97
	12/01/2018	$34.71	$7.60	$13.50	$0.00	$55.81
	06/01/2019	$35.58	$7.60	$13.50	$0.00	$56.68
	12/01/2019	$36.44	$7.60	$13.50	$0.00	$57.54

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 2*

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$19.44	$7.60	$13.50	$0.00	$40.54
2	70	$22.68	$7.60	$13.50	$0.00	$43.78
3	80	$25.92	$7.60	$13.50	$0.00	$47.02
4	90	$29.16	$7.60	$13.50	$0.00	$50.26

Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$19.82	$7.60	$13.50	$0.00	$40.92
2	70	$23.12	$7.60	$13.50	$0.00	$44.22
3	80	$26.42	$7.60	$13.50	$0.00	$47.52
4	90	$29.73	$7.60	$13.50	$0.00	$50.83

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER *LABORERS - ZONE 2*	06/01/2017	$32.40	$7.60	$13.50	$0.00	$53.50
	12/01/2017	$33.03	$7.60	$13.50	$0.00	$54.13
	06/01/2018	$33.87	$7.60	$13.50	$0.00	$54.97
	12/01/2018	$34.71	$7.60	$13.50	$0.00	$55.81
	06/01/2019	$35.58	$7.60	$13.50	$0.00	$56.68
	12/01/2019	$36.44	$7.60	$13.50	$0.00	$57.54
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 2*	06/01/2017	$32.40	$7.60	$13.50	$0.00	$53.50
	12/01/2017	$33.03	$7.60	$13.50	$0.00	$54.13
	06/01/2018	$33.87	$7.60	$13.50	$0.00	$54.97
	12/01/2018	$34.71	$7.60	$13.50	$0.00	$55.81
	06/01/2019	$35.58	$7.60	$13.50	$0.00	$56.68
	12/01/2019	$36.44	$7.60	$13.50	$0.00	$57.54
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 2*	06/01/2017	$32.60	$7.60	$13.45	$0.00	$53.65
	12/01/2017	$33.23	$7.60	$13.45	$0.00	$54.28
	06/01/2018	$34.07	$7.60	$13.45	$0.00	$55.12
	12/01/2018	$34.91	$7.60	$13.45	$0.00	$55.96
	06/01/2019	$35.78	$7.60	$13.45	$0.00	$56.83
	12/01/2019	$36.64	$7.60	$13.45	$0.00	$57.69
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 2*	06/01/2017	$32.40	$7.60	$13.50	$0.00	$53.50
	12/01/2017	$33.03	$7.60	$13.50	$0.00	$54.13
	06/01/2018	$33.87	$7.60	$13.50	$0.00	$54.97
	12/01/2018	$34.71	$7.60	$13.50	$0.00	$55.81
	06/01/2019	$35.58	$7.60	$13.50	$0.00	$56.68
	12/01/2019	$36.44	$7.60	$13.50	$0.00	$57.54
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 2*	06/01/2017	$32.40	$7.60	$13.50	$0.00	$53.50
	12/01/2017	$33.03	$7.60	$13.50	$0.00	$54.13
	06/01/2018	$33.87	$7.60	$13.50	$0.00	$54.97
	12/01/2018	$34.71	$7.60	$13.50	$0.00	$55.81
	06/01/2019	$35.58	$7.60	$13.50	$0.00	$56.68
	12/01/2019	$36.44	$7.60	$13.50	$0.00	$57.54
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2017	$39.82	$10.75	$17.80	$0.00	$68.37
	02/01/2018	$40.36	$10.75	$17.80	$0.00	$68.91
	08/01/2018	$41.44	$10.75	$17.93	$0.00	$70.12
	02/01/2019	$41.95	$10.75	$17.93	$0.00	$70.63
	08/01/2019	$43.03	$10.75	$18.07	$0.00	$71.85
	02/01/2020	$43.54	$10.75	$18.07	$0.00	$72.36
	08/01/2020	$44.62	$10.75	$18.22	$0.00	$73.59
	02/01/2021	$45.13	$10.75	$18.22	$0.00	$74.10
	08/01/2021	$46.25	$10.75	$18.38	$0.00	$75.38
	02/01/2022	$46.72	$10.75	$18.38	$0.00	$75.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.91	$10.75	$17.80	$0.00	$48.46
2	60	$23.89	$10.75	$17.80	$0.00	$52.44
3	70	$27.87	$10.75	$17.80	$0.00	$56.42
4	80	$31.86	$10.75	$17.80	$0.00	$60.41
5	90	$35.84	$10.75	$17.80	$0.00	$64.39

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.18	$10.75	$17.80	$0.00	$48.73
2	60	$24.22	$10.75	$17.80	$0.00	$52.77
3	70	$28.25	$10.75	$17.80	$0.00	$56.80
4	80	$32.29	$10.75	$17.80	$0.00	$60.84
5	90	$36.32	$10.75	$17.80	$0.00	$64.87

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2017	$52.10	$10.75	$19.35	$0.00	$82.20
	02/01/2018	$52.78	$10.75	$19.35	$0.00	$82.88
	08/01/2018	$54.13	$10.75	$19.48	$0.00	$84.36
	02/01/2019	$54.75	$10.75	$19.48	$0.00	$84.98
	08/01/2019	$56.10	$10.75	$19.62	$0.00	$86.47
	02/01/2020	$56.73	$10.75	$19.62	$0.00	$87.10
	08/01/2020	$58.08	$10.75	$19.77	$0.00	$88.60
	02/01/2021	$58.72	$10.75	$19.77	$0.00	$89.24
	08/01/2021	$60.12	$10.75	$19.93	$0.00	$90.80
	02/01/2022	$60.69	$10.75	$19.93	$0.00	$91.37

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.05	$10.75	$19.35	$0.00	$56.15
2	60	$31.26	$10.75	$19.35	$0.00	$61.36
3	70	$36.47	$10.75	$19.35	$0.00	$66.57
4	80	$41.68	$10.75	$19.35	$0.00	$71.78
5	90	$46.89	$10.75	$19.35	$0.00	$76.99

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.39	$10.75	$19.35	$0.00	$56.49
2	60	$31.67	$10.75	$19.35	$0.00	$61.77
3	70	$36.95	$10.75	$19.35	$0.00	$67.05
4	80	$42.22	$10.75	$19.35	$0.00	$72.32
5	90	$47.50	$10.75	$19.35	$0.00	$77.60

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) *MILLWRIGHTS LOCAL 1121 - Zone 2*	10/01/2017	$36.32	$9.90	$18.50	$0.00	$64.72
	04/01/2018	$37.17	$9.90	$18.50	$0.00	$65.57
	10/01/2018	$38.02	$9.90	$18.50	$0.00	$66.42
	04/01/2019	$38.87	$9.90	$18.50	$0.00	$67.27

Apprentice - *MILLWRIGHT - Local 1121 Zone 2*

Effective Date - 10/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$9.90	$5.31	$21.74	$36.95
2	0	$0.00	$9.90	$15.13	$25.69	$50.72
3	0	$0.00	$9.90	$16.10	$29.64	$55.64
4	0	$0.00	$9.90	$17.06	$33.59	$60.55

Effective Date - 04/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$9.90	$5.31	$22.23	$37.44
2	0	$0.00	$9.90	$15.13	$26.27	$51.30
3	0	$0.00	$9.90	$16.10	$30.32	$56.32
4	0	$0.00	$9.90	$17.06	$34.36	$61.32

Notes: Apprentice Wages same as set in Zone 1
Base Wage shown in "Supplemental Unemployment" column
Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$23.47	$10.00	$15.25	$0.00	$48.72
	12/01/2017	$23.99	$10.00	$15.25	$0.00	$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$27.54	$10.00	$15.25	$0.00	$52.79
	12/01/2017	$28.15	$10.00	$15.25	$0.00	$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.71	$7.85	$0.00	$0.00	$33.56
2	55	$28.28	$7.85	$3.66	$0.00	$39.79
3	60	$30.85	$7.85	$3.99	$0.00	$42.69
4	65	$33.42	$7.85	$4.32	$0.00	$45.59
5	70	$35.99	$7.85	$14.11	$0.00	$57.95
6	75	$38.56	$7.85	$14.44	$0.00	$60.85
7	80	$41.13	$7.85	$14.77	$0.00	$63.75
8	90	$46.27	$7.85	$15.44	$0.00	$69.56

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2017	$42.31	$7.85	$16.10	$0.00	$66.26

* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.16	$7.85	$0.00	$0.00	$29.01
2	55	$23.27	$7.85	$3.66	$0.00	$34.78
3	60	$25.39	$7.85	$3.99	$0.00	$37.23
4	65	$27.50	$7.85	$4.32	$0.00	$39.67
5	70	$29.62	$7.85	$14.11	$0.00	$51.58
6	75	$31.73	$7.85	$14.44	$0.00	$54.02
7	80	$33.85	$7.85	$14.77	$0.00	$56.47
8	90	$38.08	$7.85	$15.44	$0.00	$61.37

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$40.37	$7.85	$16.10	$0.00	$64.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.19	$7.85	$0.00	$0.00	$28.04
2	55	$22.20	$7.85	$3.66	$0.00	$33.71
3	60	$24.22	$7.85	$3.99	$0.00	$36.06
4	65	$26.24	$7.85	$4.32	$0.00	$38.41
5	70	$28.26	$7.85	$14.11	$0.00	$50.22
6	75	$30.28	$7.85	$14.44	$0.00	$52.57
7	80	$32.30	$7.85	$14.77	$0.00	$54.92
8	90	$36.33	$7.85	$15.44	$0.00	$59.62

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 2*	06/01/2017	$32.40	$7.60	$13.50	$0.00	$53.50
	12/01/2017	$33.03	$7.60	$13.50	$0.00	$54.13
	06/01/2018	$33.87	$7.60	$13.50	$0.00	$54.97
	12/01/2018	$34.71	$7.60	$13.50	$0.00	$55.81
	06/01/2019	$35.58	$7.60	$13.50	$0.00	$56.68
	12/01/2019	$36.44	$7.60	$13.50	$0.00	$57.54

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.46	$7.85	$0.00	$0.00	$28.31
2	55	$22.50	$7.85	$3.66	$0.00	$34.01
3	60	$24.55	$7.85	$3.99	$0.00	$36.39
4	65	$26.59	$7.85	$4.32	$0.00	$38.76
5	70	$28.64	$7.85	$14.11	$0.00	$50.60
6	75	$30.68	$7.85	$14.44	$0.00	$52.97
7	80	$32.73	$7.85	$14.77	$0.00	$55.35
8	90	$36.82	$7.85	$15.44	$0.00	$60.11

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$38.97	$7.85	$16.10	$0.00	$62.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.49	$7.85	$0.00	$0.00	$27.34
2	55	$21.43	$7.85	$3.66	$0.00	$32.94
3	60	$23.38	$7.85	$3.99	$0.00	$35.22
4	65	$25.33	$7.85	$4.32	$0.00	$37.50
5	70	$27.28	$7.85	$14.11	$0.00	$49.24
6	75	$29.23	$7.85	$14.44	$0.00	$51.52
7	80	$31.18	$7.85	$14.77	$0.00	$53.80
8	90	$35.07	$7.85	$15.44	$0.00	$58.36

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2012	$30.28	$9.07	$8.00	$0.00	$47.35
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	09/01/2013	$37.01	$9.80	$18.17	$0.00	$64.98
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 2)*	09/01/2013	$37.01	$9.80	$18.17	$0.00	$64.98

Apprentice - *PILE DRIVER - Local 56 Zone 2*

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$0.00	$0.00	$0.00	$0.00

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1$50.05/2$54.25/3$58.46/4$60.56/5$62.66/6$62.66/7$66.87/8$66.87

Apprentice to Journeyworker Ratio:1:3

PIPELAYER *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
PLUMBER & PIPEFITTER *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2017	$40.69	$10.00	$17.60	$0.00	$68.29
	09/01/2018	$42.69	$10.00	$17.60	$0.00	$70.29

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PLUMBER/PIPEFITTER - Local 51*

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$16.28	$10.00	$2.50	$0.00	$28.78
2	50	$20.35	$10.00	$2.50	$0.00	$32.85
3	60	$24.41	$10.00	$7.60	$0.00	$42.01
4	70	$28.48	$10.00	$12.16	$0.00	$50.64
5	80	$32.55	$10.00	$15.70	$0.00	$58.25

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.08	$10.00	$2.50	$0.00	$29.58
2	50	$21.35	$10.00	$2.50	$0.00	$33.85
3	60	$25.61	$10.00	$7.60	$0.00	$43.21
4	70	$29.88	$10.00	$12.16	$0.00	$52.04
5	80	$34.15	$10.00	$15.70	$0.00	$59.85

Notes:

Steps 2000hrs. Prior 9/1/05; 40/40/45/50/55/60/65/75/80/85

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2017	$40.69	$10.00	$17.60	$0.00	$68.29
	09/01/2018	$42.69	$10.00	$17.60	$0.00	$70.29
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER *LABORERS - ZONE 2*	06/01/2017	$33.40	$7.60	$13.50	$0.00	$54.50
	12/01/2017	$34.03	$7.60	$13.50	$0.00	$55.13
	06/01/2018	$34.87	$7.60	$13.50	$0.00	$55.97
	12/01/2018	$35.71	$7.60	$13.50	$0.00	$56.81
	06/01/2019	$36.58	$7.60	$13.50	$0.00	$57.68
	12/01/2019	$37.44	$7.60	$13.50	$0.00	$58.54
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 59*	06/01/2008	$19.00	$5.10	$4.21	$0.00	$28.31
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) *CARPENTERS -ZONE 2 (Residential Wood)*	06/01/2016	$25.32	$9.80	$16.82	$0.00	$51.94
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement.*CARPENTERS -ZONE 2 (Residential Wood)*	10/01/2017	$26.93	$7.07	$7.18	$0.00	$41.18
	04/01/2018	$27.35	$7.07	$7.18	$0.00	$41.60
	10/01/2018	$27.77	$7.07	$7.18	$0.00	$42.02
	04/01/2019	$28.20	$7.07	$7.18	$0.00	$42.45
	10/01/2019	$28.63	$7.07	$7.18	$0.00	$42.88

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Apprentice - *CARPENTER (Residential Wood Frame) - Zone 2*

Effective Date - 10/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$16.16	$7.07	$0.00	$0.00	$23.23
2	60	$16.16	$7.07	$0.00	$0.00	$23.23
3	65	$17.50	$7.07	$7.18	$0.00	$31.75
4	70	$18.85	$7.07	$7.18	$0.00	$33.10
5	75	$20.20	$7.07	$7.18	$0.00	$34.45
6	80	$21.54	$7.07	$7.18	$0.00	$35.79
7	85	$22.89	$7.07	$7.18	$0.00	$37.14
8	90	$24.24	$7.07	$7.18	$0.00	$38.49

Effective Date - 04/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$16.41	$7.07	$0.00	$0.00	$23.48
2	60	$16.41	$7.07	$0.00	$0.00	$23.48
3	65	$17.78	$7.07	$7.18	$0.00	$32.03
4	70	$19.15	$7.07	$7.18	$0.00	$33.40
5	75	$20.51	$7.07	$7.18	$0.00	$34.76
6	80	$21.88	$7.07	$7.18	$0.00	$36.13
7	85	$23.25	$7.07	$7.18	$0.00	$37.50
8	90	$24.62	$7.07	$7.18	$0.00	$38.87

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	08/01/2017	$41.36	$11.20	$14.80	$0.00	$67.36
	02/01/2018	$42.51	$11.20	$14.80	$0.00	$68.51
	08/01/2018	$43.61	$11.20	$14.80	$0.00	$69.61
	02/01/2019	$44.76	$11.20	$14.80	$0.00	$70.76

Apprentice - *ROOFER - Local 33*

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.68	$11.20	$3.44	$0.00	$35.32
2	60	$24.82	$11.20	$14.80	$0.00	$50.82
3	65	$26.88	$11.20	$14.80	$0.00	$52.88
4	75	$31.02	$11.20	$14.80	$0.00	$57.02
5	85	$35.16	$11.20	$14.80	$0.00	$61.16

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.26	$11.20	$3.44	$0.00	$35.90
2	60	$25.51	$11.20	$14.80	$0.00	$51.51
3	65	$27.63	$11.20	$14.80	$0.00	$53.63
4	75	$31.88	$11.20	$14.80	$0.00	$57.88
5	85	$36.13	$11.20	$14.80	$0.00	$62.13

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	08/01/2017	$41.61	$11.20	$14.80	$0.00	$67.61
	02/01/2018	$42.76	$11.20	$14.80	$0.00	$68.76
	08/01/2018	$43.86	$11.20	$14.80	$0.00	$69.86
	02/01/2019	$45.01	$11.20	$14.80	$0.00	$71.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - B*	04/01/2016	$35.60	$10.70	$14.79	$1.83	$62.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 17-B*

Effective Date - 04/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$14.24	$10.70	$3.51	$0.87	$29.32
2	45	$16.02	$10.70	$3.95	$0.94	$31.61
3	50	$17.80	$10.70	$9.33	$1.15	$38.98
4	55	$19.58	$10.70	$9.33	$1.21	$40.82
5	60	$21.36	$10.70	$12.08	$1.32	$45.46
6	65	$23.14	$10.70	$12.31	$1.38	$47.53
7	70	$24.92	$10.70	$12.54	$1.44	$49.60
8	75	$26.70	$10.70	$12.77	$1.51	$51.68
9	80	$28.48	$10.70	$12.99	$1.57	$53.74
10	85	$30.26	$10.70	$13.22	$1.63	$55.81

Notes:

Apprentice to Journeyworker Ratio:1:3

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:
Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.44	$10.91	$10.89	$0.00	$54.24
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.73	$10.91	$10.89	$0.00	$54.53
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section B) Zone 2*	03/01/2017	$50.47	$8.77	$17.20	$0.00	$76.44

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SPRINKLER FITTER - Local 550 (Section B) Zone 2*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$17.66	$8.77	$8.70	$0.00	$35.13
2	40	$20.19	$8.77	$8.70	$0.00	$37.66
3	45	$22.71	$8.77	$8.70	$0.00	$40.18
4	50	$25.24	$8.77	$8.70	$0.00	$42.71
5	55	$27.76	$8.77	$8.70	$0.00	$45.23
6	60	$30.28	$8.77	$10.20	$0.00	$49.25
7	65	$32.81	$8.77	$10.20	$0.00	$51.78
8	70	$35.33	$8.77	$10.20	$0.00	$54.30
9	75	$37.85	$8.77	$10.20	$0.00	$56.82
10	80	$40.38	$8.77	$10.20	$0.00	$59.35

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 223*	09/01/2016	$33.33	$8.90	$9.78	$0.00	$52.01

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 223*

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$0.00	$0.00	$0.00	$0.00

Notes: See Electrician Apprentice Wages
Steps are 750hrs
Telecom Apprentice Wages shall be the same as the Electrician Apprentice Wages

Apprentice to Journeyworker Ratio:2:3***

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2017	$51.00	$10.75	$19.35	$0.00	$81.10
	02/01/2018	$51.68	$10.75	$19.35	$0.00	$81.78
	08/01/2018	$53.03	$10.75	$19.48	$0.00	$83.26
	02/01/2019	$53.67	$10.75	$19.48	$0.00	$83.90
	08/01/2019	$55.02	$10.75	$19.62	$0.00	$85.39
	02/01/2020	$55.66	$10.75	$19.62	$0.00	$86.03
	08/01/2020	$57.01	$10.75	$19.77	$0.00	$87.53
	02/01/2021	$57.65	$10.75	$19.77	$0.00	$88.17
	08/01/2021	$59.05	$10.75	$19.93	$0.00	$89.73
	02/01/2022	$59.64	$10.75	$19.93	$0.00	$90.32

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.50	$10.75	$19.35	$0.00	$55.60
2	60	$30.60	$10.75	$19.35	$0.00	$60.70
3	70	$35.70	$10.75	$19.35	$0.00	$65.80
4	80	$40.80	$10.75	$19.35	$0.00	$70.90
5	90	$45.90	$10.75	$19.35	$0.00	$76.00

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.84	$10.75	$19.35	$0.00	$55.94
2	60	$31.01	$10.75	$19.35	$0.00	$61.11
3	70	$36.18	$10.75	$19.35	$0.00	$66.28
4	80	$41.34	$10.75	$19.35	$0.00	$71.44
5	90	$46.51	$10.75	$19.35	$0.00	$76.61

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$37.70	$7.60	$14.35	$0.00	$59.65
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.42	$7.60	$14.35	$0.00	$58.37
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.30	$7.60	$14.35	$0.00	$58.25
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4* For apprentice rates see "Apprentice- OPERATING ENGINEERS"	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$33.02	$10.91	$10.89	$0.00	$54.82

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$48.58	$7.60	$14.75	$0.00	$70.93
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$50.58	$7.60	$14.75	$0.00	$72.93
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$40.65	$7.60	$14.75	$0.00	$63.00
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$42.65	$7.60	$14.75	$0.00	$65.00
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.44	$10.91	$10.89	$0.00	$54.24
WAGON DRILL OPERATOR *LABORERS - ZONE 2*	06/01/2017	$32.65	$7.60	$13.50	$0.00	$53.75
	12/01/2017	$33.28	$7.60	$13.50	$0.00	$54.38
	06/01/2018	$34.12	$7.60	$13.50	$0.00	$55.22
	12/01/2018	$34.96	$7.60	$13.50	$0.00	$56.06
	06/01/2019	$35.83	$7.60	$13.50	$0.00	$56.93
	12/01/2019	$36.69	$7.60	$13.50	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2017	$40.69	$10.00	$17.60	$0.00	$68.29
	09/01/2018	$42.69	$10.00	$17.60	$0.00	$70.29
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$27.14	$7.75	$1.81	$0.00	$36.70
CABLEMAN (Underground Ducts & Cables) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$38.45	$7.75	$9.53	$0.00	$55.73
DRIVER / GROUNDMAN CDL *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$31.66	$7.75	$9.44	$0.00	$48.85
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
EQUIPMENT OPERATOR (Class A CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$38.45	$7.75	$13.61	$0.00	$59.81
EQUIPMENT OPERATOR (Class B CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$33.92	$7.75	$10.21	$0.00	$51.88
GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
GROUNDMAN -Inexperienced (<2000 Hrs.) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/03/2017	$20.35	$7.75	$1.61	$0.00	$29.71

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/03/2017	$45.23	$7.75	$16.61	$0.00	$69.59

Apprentice - *LINEMAN (Outside Electrical) - East Local 104*

Effective Date - 09/03/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$27.14	$7.75	$3.31	$0.00	$38.20
2	65	$29.40	$7.75	$3.38	$0.00	$40.53
3	70	$31.66	$7.75	$3.45	$0.00	$42.86
4	75	$33.92	$7.75	$5.02	$0.00	$46.69
5	80	$36.18	$7.75	$5.09	$0.00	$49.02
6	85	$38.45	$7.75	$5.15	$0.00	$51.35
7	90	$40.71	$7.75	$7.22	$0.00	$55.68

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$28.98	$4.25	$3.12	$0.00	$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$18.51	$3.55	$0.00	$0.00	$22.06

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

TREE TRIMMER GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$16.32	$3.55	$0.00	$0.00	$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE

UPDATE STATEMENTS ARE NOT PUBLIC RECORDS AND
ARE NOT OPEN TO PUBLIC INSPECTION (M.G.L. C.149, §44D)

Update Statement

TO ALL BIDDERS AND AWARDING AUTHORITIES

A Completed and Signed Contractor Update Statement Must Be Submitted with Every Bid for a Contract Pursuant To M.G.L. c.149, AND M.G.L. c. 149A. Any Bid Submitted Without An Update Statement Is Invalid And Must Be Rejected.

AWARDING AUTHORITIES

If the Awarding Authority determines that the bidder does not demonstrably possess the skill, ability and integrity necessary to perform the work on the project, it must reject the bid.

BIDDER'S AFFIDAVIT

I swear under the pains and penalties of perjury that I am duly authorized by the bidder named below to sign and submit this Contractor Update Statement on behalf of the bidder named below, that I have read this Contractor Update Statement, and that all of the information provided by the bidder in this Contractor Update Statement is true, accurate, and complete as of the bid date.

Bid Date	Print Name of Company
Project Number (or name if no number)	Bidder's Address
Awarding Authority	Bidder Telephone Number

SIGNATURE⇨

Bidder's Authorized Representative

INSTRUCTIONS

INSTRUCTIONS TO BIDDERS

- This form must be completed and submitted by all contractors bidding on projects where DCAMM Certification is required.
- You must give complete and accurate answers to all questions and provide all of the information requested. MAKING A MATERIALLY FALSE STATEMENT IN THIS UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM ALL PUBLIC CONTRACTING.
- This Update Statement must include all requested information that may not have been previously reported on the application used for your company's most recently issued (not extended or amended) Contractor Certificate of Eligibility. **The Update Statement must cover the entire period since the date of your Application, NOT since the date of your Certification.**

INSTRUCTIONS TO AWARDING AUTHORITIES

Determination of Bidder Qualifications

- It is the awarding authority's responsibility to determine who the lowest eligible and responsible bidder is. You must consider all of the information in the low bidder's Update Statement in making this determination. **Remember: this information was not available to the Division of Capital Asset Management and Maintenance at the time of certification.**
- The bidder's performance on the projects listed in Parts 1 and 2 must be part of your review.
- Contact the project references.
- AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE LOW BIDDERS CERTIFICATION FILE. WITH THE IMPLEMENTATION OF ELECTRONIC DOCUMENT MANAGEMENT FILE REVIEWS CAN BE PROVIDED ELECTRONICALLY. To discuss your request/options contact DCAMM's Contractor Certification (857) 204-1305.

Bidding Limits for Prime Contractors

Single Project Limit: The total amount of the bid, including all alternates, may not exceed the bidder's Single Project Limit.

Aggregate Work Limit: The annual value of the work to be performed on the contract for which the bid is submitted, when added to the annual cost to complete the bidder's other projects in progress, may not exceed the bidder's Aggregate Work Limit.

Correction of Errors and Omissions in Update Statements

Correction of Other Defects: An awarding authority may, in its discretion, give a contractor notice of defects, other than mistakes or omissions of form, in the contractor's Update Statement, and an opportunity to correct such defects, provided the correction of such defects is not prejudicial to fair competition. An awarding authority may reject a corrected Update Statement if it contains unfavorable information about the contractor that was omitted from the Update Statement filed with the contractor's bid.

PART 1 - COMPLETED PROJECTS

List all public *building* projects your company has completed since your most recently issued DCAMM Certificate of Eligibility. You must report all requested information not previously reported on that DCAMM application*.

PROJECT TITLE & LOCATION	WORK CATEGORY	CONTRACT PRICE	START DATE	DATE COMPLETED

Attach additional sheets if necessary

* If your company has been terminated from a project prior to completion of the work or has failed or refused to complete its work under any contract, full details and an explanation must be provided. See Part 3 (Project Performance) of this Update Statement.

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH COMPLETED PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC		
	OWNER:		
	DESIGNER:		
	GC:		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above, either through a business or family relationship? ☐ YES ☐ NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? ☐ YES ☐ NO

If you have answered YES to either question, explain. _____

PART 2 - PROJECTS IN PROGRESS

List all public building construction projects your company has under contract on this date regardless of when or whether the work commenced.

1	2	3	4	5	6	7	8	9
PROJECT TITLE & LOCATION	WORK CATEGORY	START AND END DATES	ON SCHEDULE (yes / no)	CONTRACT PRICE	% NOT COMPLETE	$ VALUE OF WORK NOT COMPLETE (col. 5 X col. 6)	NO. OF YEARS REMAINING* (see note below)	ANNUALIZED VALUE OF INCOMPLETE WORK (col. 7 ÷ col. 8) (divided by)

ANNUALIZED VALUE OF ALL INCOMPLETE CONTRACT WORK (Total of Column 9) $_____

Column 8 • If less than one year is left in the project schedule, write 1.
• If more than 12 months are left in the project schedule, divide the number of months left in the project schedule by 12 (calculate to three decimal places).

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:	*Owner Contact Person*	
	DESIGNER:	*Designer Contact Person*	
	GC:	*GC Contact Person*	
	OWNER:	*Owner Contact Person*	
	DESIGNER:	*Designer Contact Person*	
	GC:	*GC Contact Person*	
	OWNER:	*Owner Contact Person*	
	DESIGNER:	*Designer Contact Person*	
	GC:	*GC Contact Person*	
	OWNER:	*Owner Contact Person*	
	DESIGNER:	*Designer Contact Person*	
	GC:	*GC Contact Person*	
	OWNER:	*Owner Contact Person*	
	DESIGNER:	*Designer Contact Person*	
	GC:	*GC Contact Person*	
	OWNER:	*Owner Contact Person*	
	DESIGNER:	*Designer Contact Person*	
	GC:	*GC Contact Person*	

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above either through a business or family relationship? ☐ YES ☐ NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? ☐ YES ☐ NO

If you have answered YES to either question, explain. _____

PART 3 - PROJECT PERFORMANCE

For Parts 3 and 4, if you answer YES to any question, please provide on a separate page a complete explanation. Information you provide herein must supplement the Application for your most recently issued (not extended or amended) DCAMM Certificate of Eligibility. You must report all requested information not previously reported on that DCAMM Application for Certificate of Eligibility. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
1. Has your company been terminated on any contract prior to completing a project or has any officer, partner or principal of your company been an officer, partner or principal of another company that was terminated or failed to complete a project?	☐	☐
2. Has your company failed or refused either to perform or complete any of its work under any contract prior to substantial completion?	☐	☐
3. Has your company failed or refused to complete any punch list work under any contract?	☐	☐
4. Has your company filed for bankruptcy, or has any officer, principal or individual with a financial interest in your current company been an officer, principal or individual with a financial interest in another company that filed for bankruptcy?	☐	☐
5. Has your surety taken over or been asked to complete any of your work under any contract?	☐	☐
6. Has a payment or performance bond been invoked against your current company, or has any officer, principal or individual with a financial interest in your current company been an officer, principal or individual with a financial interest in another company that had a payment or performance bond invoked?	☐	☐
7. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?	☐	☐
8. Has any subcontractor filed a demand for direct payment with an awarding authority for a public project on any of your contracts?	☐	☐
9. Have any of your subcontractors or suppliers filed litigation to enforce a mechanic's lien against property in connection with work performed or materials supplied under any of your contracts?	☐	☐
10. Have there been any deaths of an employee or others occurring in connection with any of your projects?	☐	☐
11. Has any employee or other person suffered an injury in connection with any of your projects resulting in their inability to return to work for a period in excess of one year?	☐	☐

PART 4 - Legal or Administrative Proceedings; Compliance with Laws

Please answer the following questions. Information must supplement all judicial and administrative proceedings involving bidder's company, which were instituted or concluded (adversely or otherwise) since your company's application for your most recently issued (not extended or amended) Certificate of Eligibility. You must report all requested information not previously reported on that DCAMM application for Certificate of Eligibility.

The term "administrative proceeding" as used in this Contractor Update Statement includes (i) any action taken or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code, legal, or contractual requirement, except for those brought in state or federal courts, or (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal or contractual requirement.

The term "anyone with a financial interest in your company" as used in this Section "I", shall mean any person and/or entity with a 5% or greater ownership interest in the applicant's company.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding or action and any judgment, decision, fine or other sanction or result. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgment or decision was entered, fines or penalties imposed, etc.).

		YES	NO
1.	Have any civil, judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to the procurement or performance of any construction contract, including but not limited to actions to obtain payment brought by subcontractors, suppliers or others?	☐	☐
2.	Have any criminal proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to the procurement or performance of any construction contract including, but not limited to, any of the following offenses: fraud, graft, embezzlement, forgery, bribery, falsification or destruction of records, or receipt of stolen property?	☐	☐
3.	Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state's or federal procurement laws arising out of the submission of bids or proposals?	☐	☐
4.	Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of M.G.L. Chapter 268A, the State Ethics Law?	☐	☐

PART 4 - Legal or Administrative Proceedings; Compliance with Laws (continued)

	YES	NO
5. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state or federal law regulating hours of labor, unemployment compensation, minimum wages, prevailing wages, overtime pay, equal pay, child labor or worker's compensation?	☐	☐
6. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state or federal law prohibiting discrimination in employment?	☐	☐
7. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations?	☐	☐
8. Have any proceedings by a municipal, state, or federal agency been brought, concluded, or settled relating to decertification, debarment, or suspension of your company or any principal or officer or anyone with a financial interest in your company from public contracting?	☐	☐
9. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of state or federal law regulating the environment?	☐	☐
10. Has your company been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety? Note: this information may be obtained from OSHA's Web Site at www.osha.gov	☐	☐
11. Has your company been sanctioned for failure to achieve DBE/MBE/WBE goals, workforce goals, or failure to file certified payrolls on any public projects?	☐	☐
12. Other than previously reported in the above paragraphs of this Section I, have any administrative proceedings or investigations involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled by any local, state or federal agency relating to the procurement or performance of any construction contract?	☐	☐
13. Are there any other issues that you are aware which may affect your company's responsibility and integrity as a building contractor?	☐	☐

PART 5 - SUPERVISORY PERSONNEL

List all supervisory personnel, such as project managers and superintendents, who will be assigned to the project if your company is awarded the contract. **Attach the resume of each person listed below**.

NAME	TITLE OR FUNCTION

PART 6 - CHANGES IN BUSINESS ORGANIZATION OR FINANCIAL CONDITION

Have there been any changes in your company's business organization, financial condition or bonding capacity since the date your current Certificate of Eligibility was issued? ☐ Yes ☐ No
If YES, attach a separate page providing complete details.

PART 7 – LIST OF COMPLETED CONSTRUCTION PROJECTS SUBMITTED TO THE DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE.

Attach a copy of the completed construction projects which was submitted with your company's most recent DCAMM online application DCAMM Certificate of Eligibility.

- The Attachment must include a complete copy of the Completed Projects and Projects in Progress
- Dated signature page of your online application report submitted to the Division of Capital Asset Management and Maintenance Contractor Certification Office

SECTION 00 45 19 – NON COLLUSION AFFIDAVIT

DENNIS – YARMOUTH REGIONAL SCHOOL DISTRICTS SCHOOL COMMITTEE

DENNIS - YARMOUTH, MASSACHUSETTS

The undersigned hereby declares under the penalties of perjury that they have carefully examined the Instruction To Bidders, Form of Contract, General Conditions, Specifications, and Drawings referred to, and also the site upon which the proposed work is to be performed.

The undersigned also hereby certifies under the penalties of perjury that the bidder or is the only entity interested in this proposal; that it is made without any connection with any other person making any bid for the same work, that no person acting for, or employed by, the Town of Dennis – Yarmouth, Massachusetts is directly or indirectly interested in this proposal or in any Contract which be made under it, or in expected profits to arise therefrom; and without directly or indirectly influencing or attempting to influence any other person or corporation to bid or to refrain from bidding or to influence the amount of the bid of any other person or corporation; and that this proposal is made in good faith without collusion or connection with any other person bidding for the same work; and that this proposal is made with distinct reference and relation to the Contract Documents prepared for this Contract and herein mentioned. The undersigned further declares that in regard to the conditions affecting the work to be done and the labor and materials needed, this proposal is based solely on the bidder's own investigation and research and not in reliance upon any representation of any employee officer or agent of the Town of Dennis - Yarmouth, Massachusetts.

Name of Offer or: _____
Company or Joint Venture Name

_____
Authorized Representative Signature

_____
Print Name and Title

THIS FORM MUST BE SUBMITTED WITH YOUR BID

END OF SECTION 00 45 19

SECTION 00 45 20 – AFFIDAVIT OF COMPLIANCE WITH STATE SECRETARY

AFFIDAVIT OF COMPLIANCE

_____ Massachusetts Business Corp. _____ Foreign Corp. _____ Non-Profit Corp.

I, _____, _____ of
(Name) (Title)

_____ ,
(Offeror's Company Name)

With a principal office located at:

_____

Do hereby certify that the above named corporation has filed with the State Secretary all certificates and annual reports required by Chapter 156B Section 109 (business corporation) by Chapter 181, Section 4 (foreign corporation) or by Chapter 180, Section 26A (non-profit corporation) of the Massachusetts General Laws.

SIGNED UNDER THE PENALTIES OF PERJURY this _____ day of _____, 2018.

_____
Name of Authorized Representative

_____
Date

_____
Signature of Duly Authorized Corporate Officer

THIS FORM MUST BE SUBMITTED WITH YOUR BID

END OF SECTION 00 45 20

SECTION 00 45 30 – CONTRACTOR'S EQUAL EMPLOYMENT CERTIFICATION

_____ certifies that it

1. Intends to use the following listed construction trades in the work under the Contract:

   _____

   _____

   _____

   _____

2. Will comply with the minority manpower ratio and specific affirmative action steps contained herein; and

3. Will obtain from each of its subcontractors and submit to the Owner prior to the award of any subcontract under this Contract the subcontractor certification.

_____
(Signature of authorized representative of contractor)

_____ _____
(Date) (Name and title)

END OF SECTION 00 45 30

SECTION 00 45 35 – SUBCONTRACTOR'S EQUAL EMPLOYMENT CERTIFICATION

_____ certifies that it

1. Intends to use the following listed construction trades in the work under the Contract:

   _____

   _____

   _____

   _____

2. Will comply with the minority manpower ratio and specific affirmative action steps contained herein; and

3. Will obtain from each of its subcontractors and submit to the Owner prior to the award of any subcontract under this Contract the subcontractor certification.

_____
(Signature of authorized representative of contractor)

_____ _____
(Date) (Name and title)

END OF SECTION 00 45 35

SECTION 00 45 39 – CORI REQUEST FORM

PART 1 - GENERAL

1.1 GENERAL DESCRIPTION

A. Attached is the Contractors CORI Request Form.

END OF SECTION 00 45 39

SECTION 00 45 46 – BIDDER OSHA CERTIFICATION

Chapter 306 of the Acts of 2004

An Act Relative to the Health and Safety on Construction Projects

_____ (Name of General Contractor) hereby certifies that it, and all its subcontractors who are not filed sub bidders shall

certify that 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 that is at least 10 hours in duration at the time the employee begins work, and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

Signed under the penalties of perjury. _____ (date)

_____
Signature of authorized representative of contractor

_____
Print name of authorized representative of contractor

END OF SECTION 00 45 46

SECTION 00 45 50 – SUB-BIDDER OSHA CERTIFICATION

Chapter 306 of the Acts of 2004

An Act Relative to the Health and Safety on Construction Projects

_____ (Name of Sub-Bidder) hereby certifies that it, and all its subcontractors who are not filed sub bidders shall

certify that 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 that is at least 10 hours in duration at the time the employee begins work, and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

Signed under the penalties of perjury. _____ (date)

_____
Signature of authorized representative of contractor

_____
Print name of authorized representative of contractor

END OF SECTION 00 45 50

SECTION 00 52 13 – FORM OF AGREEMENT (AIA – A101)

1. AGREEMENT

AIA Document A101, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum - 2017 Edition, and as amended, forms the basis of Contract between the Owner and Contractor, is an integral part of the Bid Documents. Provisions not amended or supplemented remain in full force and effect.

END OF SECTION 00 52 13

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)

The Owner and Contractor agree as follows.

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.

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.

TABLE OF ARTICLES

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)*

SECTION 00 59 00 – FORM FOR FILED SUB-BID SUBCONTRACT

This AGREEMENT made this _____ day of _____

2018 by and between _____

_____

[ ] a corporation organized and existing under the laws of _____

[ ] a partnership consisting of _____

[ ] an individual doing business as _____

_____hereinafter call the “Subcontractor”,

WITNESSETH that the Contractor and Subcontractor, for the considerations hereafter named, agree as follows:

1. The Subcontractor agrees to furnish all labor and materials required for the completion of all work specified in Section No(s) _____
of the Specifications for _____
(Name of Sub-trade)

_____and the Drawings referred to therein and Addenda No._____

_____, for:

NATHANIEL H. WIXON INNOVATION SCHOOL
Ceiling / Lighting / Fire Alarm Replacement
South Dennis, Massachusetts

All as prepared by Edward Rowse Architects, Inc., 2 Hampshire Street, Foxboro, MA 02035 and their Consultants for the sum of _____

dollars ($_____) and the Contractor agrees to pay the Subcontractor said sum for said work.

(a) The Subcontractor agrees to be bound to the Contractor by the terms of the hereinbefore described Drawings, specifications (including all General Conditions stated therein) and Addenda and to assume to the Contractor all the obligations and responsibilities that the Contractor by those documents assumes to the DENNIS – YARMOUTH REGIONAL SCHOOL DISTRICTS SCHOOL COMMITTEE, hereinafter called the “Awarding Authority”, except to the extent that provisions contained therein are by their terms or by law applicable only to the Contractor.

(b) The Contractor agrees to be bound to the Subcontractor by the terms of the hereinbefore described documents and to assume to the Subcontractor all the obligations and responsibilities that the Awarding Authority by the terms of the hereinbefore described-documents assumes to the Contractor except to the extent that provisions contained therein are by their terms or by law applicable only to the Awarding Authority.

2. The Contractor agrees to begin, prosecute, and complete the entire work specified by the Awarding Authority in an orderly manner so that the Subcontractor will be able to begin, prosecute, and complete the work described in this subcontract: and, in consideration thereof, upon notice from the Contractor, either oral, or in writing, the Subcontractor agrees to begin prosecute, and complete the work described in this Subcontract in an orderly manner and with

due consideration to the date or time specified by the Awarding Authority for the completion of the entire Work.

3. The Subcontractor agrees to furnish to the Contractor within a reasonable time after the execution of this Subcontract, evidence of Workmen's Compensation Insurance as required by law, and evidence of Public liability and property Damage insurance of the type and in the limits required to be furnished to the Awarding Authority by the Contractor.

4. The Subcontractor agrees that no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Subcontractor to the Contractor during the first ten (10) days of the calendar month following that in which the claim originated.

5. This Agreement is contingent upon the execution of the General Contract between the Contractor and Awarding Authority for the complete Work.

IN WITNESS WHEREOF the parties hereto have executed this Agreement the day and year first above-written.

_____
(Name of Sub-contractor)

SEAL

ATTEST By: _____
(Named and Title of Person Signing Contract)

_____
(Name of Contractor)

SEAL

ATTEST By:_____
(Name and Title of Person Signing Subcontract)

SECTION 00 59 10 – AFFIDAVIT OF COMPLIANCE AND VOTE OF CORPORATION

At a meeting of the Board of Directors of ____

duly called and held on ___________________________________, 2018 at which a quorum was present and acting throughout, the following vote was duly adopted:

VOTED: That ____, the ___________________ of the corporation, be and hereby is authorized to affix the corporate seal, sign and deliver in the name and behalf of the corporation contract with ____ for the construction of Nathaniel H. Wixon, Middle School, 901 RT134 South Dennis MA 02660

nism1m1```

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````````````````````````````````````````````````````````````````````````````````````````````````````````s, Massachusetts,

02664 in the amount of

________________________________________________________________________________
(Dollars)

($_________________________________________), and also to seal and execute as above surety Company bonds to secure the performance of said contract and payment for labor and materials for each year of the term of the contract, all in such form and on such terms and conditions as he, by the execution thereof, shall deem proper.

A true copy.

ATTEST:

______________________________________________________________(Affix corporate seal)
Clerk of the Corporation

Countersignature: _________________________________________________________________

In the event that the Clerk of Secretary is the same person as the Officer authorized to sign contract or instrument for the corporation, this certificate must be countersigned by another officer of the Corporation.

END OF SECTION 00 59 10

SECTION 00 61 13 – PERFORMANCE AND PAYMENT BONDS (AIA – A312)

1. PERFORMANCE AND PAYMENT BONDS

AIA Document A312, Performance and Payment Bonds - 2010 Edition, and as amended, is an integral part of the Bid Documents. Provisions not amended or supplemented remain in full force and effect.

END OF SECTION 00 61 13

# 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)*

**BOND**
Date:
*(Not earlier than Construction Contract Date)*

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 16

| **CONTRACTOR AS PRINCIPAL** | | **SURETY** | |
|---|---|---|---|
| Company: | *(Corporate Seal)* | Company: | *(Corporate Seal)* |
| Signature: | | Signature: | |
| Name and Title: | | Name and Title: | |

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

*(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** | | **SURETY** | |
|---|---|---|---|
| Company: | *(Corporate Seal)* | Company: | *(Corporate Seal)* |
| Signature: | | Signature: | |
| Name and Title: | | Name and Title: | |
| Address: | | Address: | |

# 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)*

**BOND**
Date:
*(Not earlier than Construction Contract Date)*

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 18

| **CONTRACTOR AS PRINCIPAL** | | **SURETY** | |
|---|---|---|---|
| Company: | *(Corporate Seal)* | Company: | *(Corporate Seal)* |
| Signature: | | Signature: | |
| Name and Title: | | Name and Title: | |

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

*(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** | | **SURETY** | |
|---|---|---|---|
| Company: | *(Corporate Seal)* | Company: | *(Corporate Seal)* |
| Signature: | | Signature: | |
| Name and Title: | | Name and Title: | |
| Address: | | Address: | |

SECTION 00 62 33 – RELEASE OF CAD FILES

**Project** Nathaniel H. Wixon Innovation School
Ceiling / Lighting / Fire Alarm Replacement
901 RT. 134, South Dennis, Massachusetts 02660

**Owner:** Dennis – Yarmouth Regional School Districts School Committee
296 Station Avenue
South Yarmouth, Massachusetts 02664

**Architect:** Edward Rowse Architects, Inc.
2 Hampshire Street, Suite 106
Foxboro, Massachusetts 02035

**Contractor:** _____

**Date:** _____ ___, 2018

In accepting and utilizing any drawings or other data on any form of electronic media generated and provided by the Architect, the Contractor and it's agents covenant and agree that all such drawings and data are instruments of service of the Architect, who shall be deemed the author of the drawings and data; and shall retain the common law, statutory law and other rights, including copyrights. The electronic files transmitted by the Architect to the Contractor and its agents are submitted for an acceptance period of 5 (five) business days from the date shown above. Any defects the Contractor and its agents discovers during this period will be reported to the Architect for verification and, if applicable, correction. Correction of defects detected after the acceptance period will be the sole responsibility of the Contractor and its agents.

The Contractor and its agents further agree not to use these drawings and data, in whole or in part for any purpose or project other than the project indicated above. The Contractor and it's agents agrees to waive all claims against the Architect resulting in any way from any unauthorized changes or reuse of the drawings and data for this project or any other project by anyone other than the Architect.

The Contractor and its agents acknowledges that these CAD files may become unusable after a period of time due to software changes, hardware changes, file degradation or other causes and the Contractor and its agents agrees to the fullest extent permitted by law to indemnify and hold the Architect harmless from any damage, liability or costs, including reasonable attorney's fees and costs of defense arising from any degradation or file incompatibility or files becoming unusable.

In addition, the Contractor and its agents agrees to the fullest extent permitted by law to indemnify and hold the Architect harmless from any damage, liability or costs, including reasonable attorney's fees and costs of defense arising from any changes made by anyone other than the Architect or from any reuse of the drawings and data without prior written consent of the Architect.

Under no circumstances shall transfer of the drawings and other instruments of service on electronic media for use by the Contractor and its agents be deemed a sale by the Architect and the Architect makes no warrantees either expressed or implied of merchantability and fitness for any particular purpose.

Accepted:

_____
Duly Authorized

By:

_____
Print Name

Sign, date and copy this form, send original to Edward Rowse Architects, Inc.

END OF SECTION 00 62 33

SECTION 00 72 13 – GENERAL CONDITONS (AIA – A201)

AIA Document A201, General Conditions of the Contract for Construction - 2017 Edition, is an integral part of the Bidding and Contract Documents. Provisions not amended or supplemented remain in full force and effect.

END OF SECTION 00 72 13

# AIA® Document A201™ – 2017

## *General Conditions of the Contract for Construction*

**for the following PROJECT:**
*(Name and location or address)*

**THE OWNER:**
*(Name, legal status and address)*

**THE ARCHITECT:**
*(Name, legal status and address)*

**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.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

**TABLE OF ARTICLES**

INDEX
(Topics and numbers in bold are Section headings.)

## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 Basic Definitions

#### § 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

#### § 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### § 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### § 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

#### § 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

#### § 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### § 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### § 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

### § 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### § 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### § 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### § 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

### § 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

### § 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

### § 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set

forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## ARTICLE 2 OWNER

### § 2.1 General

**§ 2.1.1** The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

**§ 2.1.2** The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

### § 2.2 Evidence of the Owner's Financial Arrangements

**§ 2.2.1** Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

**§ 2.2.2** Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

**§ 2.2.3** After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

**§ 2.2.4** Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

### § 2.3 Information and Services Required of the Owner

**§ 2.3.1** Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

### § 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

### § 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

## ARTICLE 3 CONTRACTOR

### § 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

### § 3.2 Review of Contract Documents and Field Conditions by Contractor

**§ 3.2.1** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

**§ 3.2.2** Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

**§ 3.2.3** The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

### § 3.3 Supervision and Construction Procedures

**§ 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

**§ 3.3.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

**§ 3.3.3** The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

### § 3.4 Labor and Materials

**§ 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

### § 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

### § 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### § 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### § 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately

suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### § 3.8 Allowances

**§ 3.8.1** The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

**§ 3.8.2** Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

**§ 3.8.3** Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### § 3.9 Superintendent

**§ 3.9.1** The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

**§ 3.9.2** The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 3.9.3** The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

### § 3.10 Contractor's Construction and Submittal Schedules

**§ 3.10.1** The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

**§ 3.10.2** The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

### § 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### § 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

**§ 3.12.10** The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

**§ 3.12.10.1** If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

**§ 3.12.10.2** If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

### § 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### § 3.14 Cutting and Patching

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

### § 3.15 Cleaning Up

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

### § 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

### § 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

### § 3.18 Indemnification

**§ 3.18.1** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

**§ 3.18.2** In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

## ARTICLE 4 ARCHITECT

### § 4.1 General

**§ 4.1.1** The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

**§ 4.1.2** Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

### § 4.2 Administration of the Contract

**§ 4.2.1** The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

**§ 4.2.2** The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

**§ 4.2.3** On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not

have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

**§ 4.2.4 Communications**
The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

**§ 4.2.5** Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**§ 4.2.6** The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

**§ 4.2.7** The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.8** The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

**§ 4.2.9** The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

**§ 4.2.10** If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

**§ 4.2.11** The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

**§ 4.2.12** Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### § 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

### § 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will

similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

**§ 5.4 Contingent Assignment of Subcontracts**

**§ 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

**§ 5.4.2** Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

**§ 5.4.3** Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

## ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

**§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts**

**§ 6.1.1** The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

**§ 6.1.2** When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

**§ 6.1.3** The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

**§ 6.1.4** Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

**§ 6.2 Mutual Responsibility**

**§ 6.2.1** The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

**§ 6.2.2** If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the

Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

**§ 6.2.3** The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

**§ 6.2.4** The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

**§ 6.2.5** The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

**§ 7.1.1** Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

**§ 7.1.2** A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

**§ 7.1.3** Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

### § 7.2 Change Orders

**§ 7.2.1** A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

### § 7.3 Construction Change Directives

**§ 7.3.1** A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

**§ 7.3.2** A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

**§ 7.3.3** If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.4.

**§ 7.3.4** If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

**§ 7.3.5** If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

**§ 7.3.6** Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

**§ 7.3.7** A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

**§ 7.3.8** The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

**§ 7.3.9** Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

**§ 7.3.10** When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

### § 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor

change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

## ARTICLE 8 TIME

### § 8.1 Definitions

**§ 8.1.1** Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

**§ 8.1.2** The date of commencement of the Work is the date established in the Agreement.

**§ 8.1.3** The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

**§ 8.1.4** The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

### § 8.2 Progress and Completion

**§ 8.2.1** Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

**§ 8.2.2** The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

**§ 8.2.3** The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### § 8.3 Delays and Extensions of Time

**§ 8.3.1** If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

**§ 8.3.2** Claims relating to time shall be made in accordance with applicable provisions of Article 15.

**§ 8.3.3** This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

**§ 9.1.1** The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

**§ 9.1.2** If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

### § 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

### § 9.3 Applications for Payment

**§ 9.3.1** At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

**§ 9.3.1.1** As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

**§ 9.3.1.2** Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

**§ 9.3.2** Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

**§ 9.3.3** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

### § 9.4 Certificates for Payment

**§ 9.4.1** The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

**§ 9.4.2** The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

### § 9.5 Decisions to Withhold Certification

**§ 9.5.1** The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot

be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a Separate Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

**§ 9.5.2** When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

**§ 9.5.3** When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

**§ 9.5.4** If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

**§ 9.6 Progress Payments**

**§ 9.6.1** After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

**§ 9.6.2** The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

**§ 9.6.3** The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

**§ 9.6.4** The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

**§ 9.6.5** The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

**§ 9.6.6** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

### § 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

### § 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

### § 9.9 Partial Occupancy or Use

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

### § 9.10 Final Completion and Final Payment

**§ 9.10.1** Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;

.2 failure of the Work to comply with the requirements of the Contract Documents;

.3 terms of special warranties required by the Contract Documents; or

.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

### § 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

### § 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

### § 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

### § 10.3 Hazardous Materials and Substances

**§ 10.3.1** The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

**§ 10.3.2** Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

**§ 10.3.3** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

**§ 10.3.4** The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

**§ 10.3.5** The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

**§ 10.3.6** If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

### § 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

## ARTICLE 11 INSURANCE AND BONDS

### § 11.1 Contractor's Insurance and Bonds

**§ 11.1.1** The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

**§ 11.1.2** The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

**§ 11.1.3** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

**§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

### § 11.2 Owner's Insurance

**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

**§ 11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

### § 11.3 Waivers of Subrogation

**§ 11.3.1** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

**§ 11.3.2** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

### § 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

### § 11.5 Adjustment and Settlement of Insured Loss

**§ 11.5.1** A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

**§ 11.5.2** Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

## ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

### § 12.1 Uncovering of Work

**§ 12.1.1** If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to

the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

### § 12.2 Correction of Work

#### § 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

#### § 12.2.2 After Substantial Completion

**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

**§ 12.2.2.2** The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**§ 12.2.2.3** The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

**§ 12.2.3** The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

**§ 12.2.4** The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

**§ 12.2.5** Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

### § 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

### § 13.2 Successors and Assigns

**§ 13.2.1** The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

**§ 13.2.2** The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

### § 13.3 Rights and Remedies

**§ 13.3.1** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

**§ 13.3.2** No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

### § 13.4 Tests and Inspections

**§ 13.4.1** Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

**§ 13.4.2** If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

**§ 13.4.3** If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

**§ 13.4.4** Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

**§ 13.4.5** If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

**§ 13.4.6** Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### § 13.5 Interest

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

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 Termination by the Contractor

**§ 14.1.1** The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

**§ 14.1.2** The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

**§ 14.1.3** If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

**§ 14.1.4** If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

### § 14.2 Termination by the Owner for Cause

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or Suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

**§ 14.2.2** When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance,

the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

### § 14.3 Suspension by the Owner for Convenience

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

### § 14.4 Termination by the Owner for Convenience

**§ 14.4.1** The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

**§ 14.4.2** Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**§ 14.4.3** In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

## ARTICLE 15 CLAIMS AND DISPUTES

### § 15.1 Claims

### § 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

### § 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

### § 15.1.3 Notice of Claims

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

**§ 15.1.4 Continuing Contract Performance**

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

**§ 15.1.4.2** The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

**§ 15.1.5 Claims for Additional Cost**

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

**§ 15.1.6 Claims for Additional Time**

**§ 15.1.6.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

**§ 15.1.7 Waiver of Claims for Consequential Damages**

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

**§ 15.2 Initial Decision**

**§ 15.2.1** Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

**§ 15.2.2** The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the

Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

**§ 15.2.3** In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 15.2.4** If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

**§ 15.2.5** The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

**§ 15.2.6** Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

**§ 15.2.6.1** Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

**§ 15.2.7** In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

**§ 15.2.8** If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

**§ 15.3 Mediation**

**§ 15.3.1** Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

**§ 15.3.2** The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

**§ 15.3.3** Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

**§ 15.4 Arbitration**

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

**§ 15.4.4 Consolidation or Joinder**

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

# SECTION 01 10 00 - SUMMARY

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Work under separate contracts.
6. Owner-furnished products.
7. Access to site.
8. Coordination with occupants.
9. Work restrictions.
10. Specification and drawing conventions.
11. Miscellaneous provisions.

B. Related Requirements:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of site.

### 1.3 PROJECT INFORMATION

A. Project Identification: Nathaniel H. Wixon Innovation School – Ceiling / Light Fixture / Fire Alarm Replacement

B. Project Location: 901 RT – 134, South Dennis, Massachusetts 02660

C. Owner: Dennis – Yarmouth Regional School Districts School Committee
296 Station Avenue, South Yarmouth, Massachusetts 02664

D. Owner's Representative: Mr. Kenneth T. Jenks, Assistant Superintendant, Administration & Business Services
296 Station Avenue, South Yarmouth, Massachusetts 02664
Tel. (508) 398-7610 email:jenksk@dy-regional.k12.ma.us

E. Architect: Edward Rowse Architects, Inc.
2 Hampshire Street, Foxbourgh, Massachusetts 02035
Tel. (774) 215-0290

F. Project Architect Representative: Ted Rowse
2 Hampshire Street, Foxbourgh, Massachusetts 02035
Tel. (774) 215-0290 email: trowse@rowsearch.com

1.4 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": 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.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

A. Work of this Contract in-general comprises of removal of existing suspended asbestos ceiling tiles and support grid for approximately half of the building including the replacement of existing light fixtures and fire alarm devices in area identified as asbestos. The remaining of the building existing ceiling tiles do not contain asbestos and the tiles, grid and light fixtures shall remain, but existing fire alarm system shall be removed and a new code compliant system installed. The existing Auditorium recently had the ceiling tiles,light fixtures and fire alarm devices replaced, n io additional work required in this area. When the project will be complete there will be a new code compliant fire alarm system for the entire building.

**B.** The contractor must provide all material, labor, tools, plant, supplies, equipment, transportation, superintendence, temporary construction of every nature and all other services and facilities necessary to complete the construction for the Owner, including all incidental work as required or described in the contract documents. **This project must be completed during the school summer vacation of 2018, there will be no extension of time. The contractor shall be responsible for completing the work as required to meet this schedule which may require additional work crews, overtime hours including working evenings and weekends at no additional cost to the owners. The contractor shall be responsible for obtaining all approvals from the local Authorities Having Juridication.**

C. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6 WORK BY OWNER

A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.7 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

1. Limits: Confine construction operations to the areas as identified on Drawing A1.
2. Driveways, Walkways and Entrances: Keep driveways, parking lots, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1. Driveways, Walkways and Entrances: Access to the site will be at the upper level existing parking lot located on the east side of the building.

a. Coordinate closure, use and construction with the Owner. The Owner requires a minimum of 5 days notification of Contractor’s intent to close off any on site existing roadways or parking lot areas.
b. Contractor shall indicate on construction schedule proposed closure, use and construction dates / times as necessary.
c. Do not use existing parking lots or roadways utilized by the tenants of the building for construction access, parking or storage of materials unless otherwise approved by the Owner or the Owner’s Project Manager.
d. Schedule closures, construction, deliveries, etc. to minimize use of driveway and entrance by construction operations.
e. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
f. Owner’s use of driveways and parking areas has priority over construction schedule and contractor’s use.

1.8 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will partially occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.9 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend and Overtime Hours: Shall be as approved by the Owner, Owner's Project Manager, and Architect. This is not to limit the hours the contractor can perform work, but to only allow the Owner and Architect to have personnel available (in person or by phone) for questions or other issues.
2. Early Morning or Evening Hours: Shall be as regulated by authorities having jurisdiction for restrictions on noisy work.
3. All work activities shall be coordinated with the operation of the school and in particular, but not limited to, coordination of the Contractor's activities with student arrival and dismissal periods, schedules for Summer and Vacation Programs, evening and weekend activities (e.g.: sports events, meetings, shows, etc.). The Contractor shall schedule interior work within the existing building in cooperation with the School Administration and shall provide such work during evening, weekend, or vacation periods as requested by the School Administration at no additional cost to the project.
4. Vacation, night and weekend work: For work within the existing building coordinate and schedule all work with the Owner in order to minimize disruption of the operations of the Owner and to minimize noise, dust, dirt and service interruptions during the school day. Provide removal of materials and equipment daily from areas in use by the Owner as required to maintain a safe and secure facility for the school operations.
5. Provide all temporary signage, barricades, overhead protection and enclosures require in and around work within the existing building to provide a safe environment for the operations of the students and staff.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than four days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner or others.

1. Notify Owner not less than four days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the existing building or on the Project site.

F. Controlled Substances: Use of tobacco or controlled substances on Project site is not permitted.

G. All Workers on the Project shall remain within the limits of the construction area as defined on the drawings. When workers have reason to enter the existing school building or perform work beyond the prescribed limits of the construction area workers shall comply with the Dennis-Yarmouth Regional School District visitor badge policy by signing in and obtaining a visitor badge at the main office of the school. There shall be no exceptions to this requirement.

## 1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. 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. Imperative mood and streamlined language are generally used in the Specifications. 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.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

## 1.11 CODES, RULES AND REGULATIONS

A. All work is to be in accordance with the latest requirements of:

1. Federal, State and Municipal Laws
2. Commonwealth of Massachusetts Building and Fire Codes
3. National Plumbing Code
4. National Electric Code
5. Any prevailing rules, regulations pertaining to adequate protection and/or guarding of any moving parts or otherwise hazardous locations.

## 1.12 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.13 JOB SAFETY AND ACCIDENT PREVENTION

A. All construction work on this project must be performed in compliance with the Occupational Safety and Health Act of 1970 or with local or State occupational safety and health regulations enforced by an agency of the locality or State under a plan approved by the U.S. Department of Labor Occupational Safety and Health Administration (OSHA)

B. All contractors and subcontractors shall comply with requirements of the Occupational Safety and Health Act of 1970 or revisions thereto, which are applicable during the term of this contract and hold the Owner and Architect and/or their agents harmless from any claim or loss that may result from violations of or claims under this act.

C. See the General Conditions for further requirements.

1.14 MISCELLANEOUS PROVISIONS

A. SUPERINTENDENCE OF SUBCONTRACTORS

1. The contractor must supervise subcontractors in accordance with the provisions of General Conditions. A project superintendent shall be on site whenever any work is being performed. Superintendent shall be an employee of the Contractor.
2. Project superintendent shall be acceptable to the Owner, the Owner's Project manager, and Architect. Submit superintendent's qualifications for review and acceptance within two days of the notice of award or notice to proceed whichever is first.

B. COORDINATION

1. Prior to commencement of subcontract work, a designated representative of each subcontractor shall meet with project superintendent, Owner, Owner's Project manager, and Architect at the site to discuss requirements and scope of Work.
2. The Contractor and all subcontractors will be required to attend a preconstruction conference at a date and time set by the Owner.

C. BEHAVIOR OF PERSONNEL

1. If in the opinion of the Owner, Owner's Project manager, or Architect, any employee of the Contractor or his subcontractors is physically or mentally unfit for work or exhibits behavior incompatible with work site environment, said employee may be required to leave property and may be refused re-admittance.

D. SUBSTITUTIONS

1. In all cases where a proprietary designation is used in connection with materials or articles to be furnished under this contract and the phrase "or equal" is not used, the Contractor shall furnish the specified item, unless a written request for a substitute has been submitted by the Contractor and review by the Architect to his satisfaction.
2. See Section 01 60 00 for additional requirements and Contractor responsibility relating to substitutions. Specifically, subparagraphs relating to speculative substitutions and additional liabilities.

E. DRAWINGS AND SPECIFICATIONS

1. All work drawn on Plans and not specified or all work specified and not drawn are part of Contract Work required to be done and are to be executed as fully as if described in both of these ways. Only work specifically noted in the following manner shall be considered as not being in the contract:
2. ".....by Owner".

3. ".....NIC (Not In Contract)".
4. If, after examination of Contract Drawings and Specifications, or after a visit to the premises, any discrepancies, omissions, ambiguities, or conflicts are found in or amount contract documents or there is doubt as to their meaning, Architect is to be notified at the earliest possible date. Where information sought is not clearly indicated or specified, the Architect will issue addendum to the Contractor clarifying conditions, which addendum will become part of the Contract Documents. Neither the Owner, the Owner's Project Manager, nor the Architect will be responsible for any oral instructions.
5. If there are two ways and/or instruction in drawings and/or specifications, it shall be assumed that the Contractor has based his base bid price on the most expensive way.
6. If duplication is shown on drawings and/or specifications of work by more than one trade, Architect shall determine which trade shall do work and rebate shall be due from the other trades to Owner.
7. Drawings DO NOT include any necessary components for construction safety.
8. In all work shown on Drawings, figured dimensions are to be followed in all cases, though they may differ from scaled measurements. Before beginning the work, Contractor is to check through and verify all dimensions/elevations and call to the attention of the Architect any apparent or manifest discrepancy.
9. Contractor shall verify all dimensions with existing and actual field conditions, prior to start of any work.
10. All work and materials shown on drawings shall be interpreted by the Contractor as being new work and materials to be furnished and installed unless are specifically indicated as existing to remain.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

# SECTION 01 25 00 - SUBSTITUTION PROCEDURES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions. **Please note: there will be no substitution of light fixtures, the light fixtures specified conform to Cape Cod Light Rebate Program. The contractor must provide all purchase paperwork to the owner for their use.**

B. Related Requirements:

1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

### 1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

### 1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use CSI Form 13.1A.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Owner may require, and Contractor shall provide, a credit Change Order equal to the fee assessed by the Architect for the Extra Services required to review a substitution.

C. Owner can require a credit Change Order from the Contractor for the amount of any extra design services associated in response to an unreasonable amount of substitutions proposed by the Contractor, or responding to unreasonable and excessive requests for information (RFI’s) by the Contractor, where such information is available from a careful study and review of the Construction Documents.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

# SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Requests for Information (RFIs).
3. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.
3. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

### 1.3 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

### 1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 5 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner, Owner's Project Manager, and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner, Owner's Project Manager, and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: The Contractor will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Owner's Project Managert, Contractors, and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner, Owner's Project Manager, and Architect, but no later than 5 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, Owner's Project Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Lines of communications.
    f. Procedures for processing field decisions and Change Orders.
    g. Procedures for RFIs.
    h. Procedures for testing and inspecting.
    i. Procedures for processing Applications for Payment.
    j. Distribution of the Contract Documents.
    k. Submittal procedures.
    l. Preparation of record documents.
    m. Use of the premises and existing building.
    n. Work restrictions.
    o. Working hours.
    p. Owner's occupancy requirements.
    q. Responsibility for temporary facilities and controls.
    r. Procedures for moisture and mold control.
    s. Procedures for disruptions and shutdowns.
    t. Construction waste management and recycling.
    u. Parking availability.
    v. Office, work, and storage areas.
    w. Equipment deliveries and priorities.
    x. First aid.
    y. Security.
    z. Progress cleaning.

4. Minutes: The Contractor will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and

installations that have preceded or will follow, shall attend the meeting. Advise Architect, Owner, and Owner's Project Manager of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility requirements.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written instructions.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. The Contractor shall record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 5 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Owner’s Project Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

    a. Preparation of record documents.
    b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    c. Submittal of written warranties.
    d. Requirements for preparing operations and maintenance data.
    e. Requirements for delivery of material samples, attic stock, and spare parts.
    f. Requirements for demonstration and training.

g. Preparation of Contractor's punch list.
h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
i. Submittal procedures.
j. Installation of Owner's furniture, fixtures, and equipment.
k. Responsibility for removing temporary facilities and controls.

4. Minutes: The Contractor will record and distribute meeting minutes.

E. Progress Meetings: Conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner, Owner's Project Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Progress cleaning.
10) Quality and work standards.
11) Status of correction of deficient items.
12) Field observations.
13) Status of RFIs.
14) Status of proposal requests.
15) Pending changes.
16) Status of Change Orders.
17) Pending claims and disputes.
18) Documentation of information for payment requests.

4. Minutes: The Contractor will record and distribute the meeting minutes to each party present and to parties requiring information.

1.8 Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

# SECTION 01 33 00 - SUBMITTAL PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 013100 "Project Management and Coordination" for submitting Contractor's construction schedule.

### 1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

### 1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 10 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled date of fabrication.
    h. Scheduled dates for purchasing.

i. Scheduled dates for installation.
j. Activity or event number.

B. Contractor must submit Initial Submittal Schedule to Architect and Owner's Project Manager for review within ten (10) days of the notice to proceed.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.

B. Architect will not process or review submittals that have not been reviewed by the Contractor or that do not have the Contractor's review / approval stamp on them.

C. Submittals received by Architect after 12:00 p.m. will be considered as received the following working day.

D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

E. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 7 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.

a. Allow additional 5 days for review of each submittal where it is necessary for review by Architect or Owner consultant.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 7 days for review of each resubmittal.

a. Allow additional 5 days for review of each submittal where it is necessary for review by Architect or Owner consultant.

F. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information for processing and recording action taken:

a. Project name.
b. Date.
c. Name of Architect.
d. Name of Construction Manager.
e. Name of Contractor.
f. Name of subcontractor.
g. Name of supplier.
h. Name of manufacturer.
i. Submittal number or other unique identifier, including revision identifier.

1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alph numereic suffix (e.g., 061000.01R1).

j. Number and title of appropriate Specification Section.
k. Drawing number and detail references, as appropriate.
l. Location(s) where product is to be installed, as appropriate.
m. Other necessary identification.

4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.

a. Transmittal Form for Paper Submittals: Use AIA Document G810.
b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:

1) Project name.
2) Date.
3) Destination (To:).
4) Source (From:).
5) Name and address of Architect.
6) Name of Construction Manager.
7) Name of Contractor.
8) Name of firm or entity that prepared submittal.
9) Names of subcontractor, manufacturer, and supplier.
10) Category and type of submittal.
11) Submittal purpose and description.
12) Specification Section number and title.
13) Specification paragraph number or drawing designation and generic name for each of multiple items.
14) Drawing number and detail references, as appropriate.
15) Indication of full or partial submittal.
16) Transmittal number, numbered consecutively.
17) Submittal and transmittal distribution record.
18) Remarks.
19) Signature of transmitter.

G. Options: Identify options requiring selection by Architect.

H. Deviations: Identify deviations from the Contract Documents on submittals.

I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Action Submittals: Submit five paper copies of each submittal unless otherwise indicated. Architect will return two copies.
2. Informational Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will not return copies.
3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.

6. Submit Product Data in the following format:

    a. Five paper copies of Product Data unless otherwise indicated. Architect will return two copies.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm).
3. Submit Shop Drawings in the following format:

    a. Five opaque copies of each submittal. Architect will retain three copies; remainder will be returned.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of applicable Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.

        1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Submit product schedule in the following format:

    a. Four paper copies of product schedule or list unless otherwise indicated. Architect will return two copies.

F. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

G. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Summary."

H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."

I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."

J. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

R. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

T. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

## 2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and five paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

1. Contractor shall clearly identify ”any” and “all” deviations from the contract documents.
2. Contractor shall clearly identify items which need clarification with other trades than the trade submitting the submittal.
3. Contractor shall clearly identify “any” and “all” modifications to the contract documents required by the submittal.

B. Resubmittals shall have “all” changes, modifications , etc. clearly identified. Failure to identify changes, modifications, etc. shall be justification for returning the submittal without A/E review.

C. Project Closeout and Maintenance Material Submittals: See requirements in Division 01. "Closeout Procedures."

D. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

E. Failure of Contractor to properly review or stamp submittal shall be justification for returning the submittal without A/E review.

F. Contractor shall submit documents required by authorities having jurisdiction and obtain their approvals prior to submission to the Architect.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

END OF SECTION 01 33 00

# SECTION 01 42 00 - REFERENCES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": 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.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

### 1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents

| | | |
|---|---|---|
| AA | Aluminum Association (The)<br>www.aluminum.org | (703) 358-2960 |
| AABC | Associated Air Balance Council<br>www.aabchq.com | (202) 737-0202 |
| AAMA | American Architectural Manufacturers Association<br>www.aamanet.org | (847) 303-5664 |
| AATCC | American Association of Textile Chemists and Colorists<br>www.aatcc.org | (919) 549-8141 |
| ABAA | Air Barrier Association of America<br>www.airbarrier.org | (866) 956-5888 |
| ACI | American Concrete Institute<br>www.concrete.org | (248) 848-3700 |
| AGA | American Gas Association<br>www.aga.org | (202) 824-7000 |
| AHRI | Air-Conditioning, Heating, and Refrigeration Institute, The<br>www.ahrinet.org | (703) 524-8800 |
| AIA | American Institute of Architects (The)<br>www.aia.org | (800) 242-3837<br>(202) 626-7300 |
| AISC | American Institute of Steel Construction<br>www.aisc.org | (800) 644-2400<br>(312) 670-2400 |
| AISI | American Iron and Steel Institute<br>www.steel.org | (202) 452-7100 |
| ALSC | American Lumber Standard Committee, Incorporated<br>www.alsc.org | (301) 972-1700 |

| | | |
|---|---|---|
| AMCA | Air Movement and Control Association International, Inc.<br>www.amca.org | (847) 394-0150 |
| ANSI | American National Standards Institute<br>www.ansi.org | (202) 293-8020 |
| ARI | Air-Conditioning & Refrigeration Institute<br>www.ari.org | (703) 524-8800 |
| ASCE | American Society of Civil Engineers<br>www.asce.org | (800) 548-2723<br>(703) 295-6300 |
| ASCE/SEI | American Society of Civil Engineers/Structural Engineering Institute<br>(See ASCE) | |
| ASHRAE | American Society of Heating, Refrigerating and Air-Conditioning Engineers<br>www.ashrae.org | (800) 527-4723<br>(404) 636-8400 |
| ASME | ASME International<br>(American Society of Mechanical Engineers International)<br>www.asme.org | (800) 843-2763<br>(973) 882-1170 |
| ASTM | ASTM International<br>(American Society for Testing and Materials International)<br>www.astm.org | (610) 832-9500 |
| ATIS | Alliance for Telecommunications Industry Solutions<br>www.atis.org | (202) 628-6380 |
| AWI | Architectural Woodwork Institute<br>www.awinet.org | (571) 323-3636 |
| AWPA | American Wood Protection Association<br>(Formerly: American Wood Preservers' Association)<br>www.awpa.com | (205) 733-4077 |
| AWS | American Welding Society<br>www.aws.org | (800) 443-9353<br>(305) 443-9353 |
| AWWA | American Water Works Association<br>www.awwa.org | (800) 926-7337<br>(303) 794-7711 |
| BHMA | Builders Hardware Manufacturers Association<br>www.buildershardware.com | (212) 297-2122 |
| CCC | Carpet Cushion Council<br>www.carpetcushion.org | (610) 527-3880 |
| CGA | Compressed Gas Association<br>www.cganet.com | (703) 788-2700 |
| CIMA | Cellulose Insulation Manufacturers Association<br>www.cellulose.org | (888) 881-2462<br>(937) 222-2462 |

| | | |
|---|---|---|
| CISCA | Ceilings & Interior Systems Construction Association<br>www.cisca.org | (630) 584-1919 |
| CRI | Carpet and Rug Institute (The)<br>www.carpet-rug.com | (800) 882-8846<br>(706) 278-3176 |
| CRSI | Concrete Reinforcing Steel Institute<br>www.crsi.org | (847) 517-1200<br>(800) 328-6306 |
| CSI | Construction Specifications Institute (The)<br>www.csinet.org | (800) 689-2900<br>(703) 684-0300 |
| DHI | Door and Hardware Institute<br>www.dhi.org | (703) 222-2010 |
| FM Approvals | FM Approvals LLC<br>www.fmglobal.com | (781) 762-4300 |
| FM Global | FM Global<br>(Formerly: FMG - FM Global)<br>www.fmglobal.com | (401) 275-3000 |
| GA | Gypsum Association<br>www.gypsum.org | (301) 277-8686 |
| GANA | Glass Association of North America<br>www.glasswebsite.com | (785) 271-0208 |
| HMMA | Hollow Metal Manufacturers Association<br>(Part of NAAMM) | |
| HPVA | Hardwood Plywood & Veneer Association<br>www.hpva.org | (703) 435-2900 |
| KCMA | Kitchen Cabinet Manufacturers Association<br>www.kcma.org | (703) 264-1690 |
| LGSEA | Light Gauge Steel Engineers Association<br>www.arcat.com | (202) 263-4488 |
| LMA | Laminating Materials Association<br>(Now part of CPA) | |
| MFMA | Metal Framing Manufacturers Association, Inc.<br>www.metalframingmfg.org | (312) 644-6610 |
| MPI | Master Painters Institute<br>www.paintinfo.com | (888) 674-8937<br>(604) 298-7578 |
| NCTA | National Cable & Telecommunications Association<br>www.ncta.com | (202) 222-2300 |
| NEBB | National Environmental Balancing Bureau<br>www.nebb.org | (301) 977-3698 |
| NECA | National Electrical Contractors Association | (301) 657-3110 |

| | | |
|---|---|---|
| | www.necanet.org | |
| NeLMA | Northeastern Lumber Manufacturers' Association<br>www.nelma.org | (207) 829-6901 |
| NEMA | National Electrical Manufacturers Association<br>www.nema.org | (703) 841-3200 |
| NFPA | NFPA<br>(National Fire Protection Association)<br>www.nfpa.org | (800) 344-3555<br>(617) 770-3000 |
| PDI | Plumbing & Drainage Institute<br>www.pdionline.org | (800) 589-8956<br>(978) 557-0720 |
| RFCI | Resilient Floor Covering Institute<br>www.rfci.com | (706) 882-3833 |
| SCTE | Society of Cable Telecommunications Engineers<br>www.scte.org | (800) 542-5040<br>(610) 363-6888 |
| SDI | Steel Door Institute<br>www.steeldoor.org | (440) 899-0010 |
| SEI/ASCE | Structural Engineering Institute/American Society of Civil Engineers<br>(See ASCE) | |
| SMACNA | Sheet Metal and Air Conditioning Contractors' National Association<br>www.smacna.org | (703) 803-2980 |
| UL | Underwriters Laboratories Inc.<br>www.ul.com | (877) 854-3577<br>(847) 272-8800 |
| USGBC | U.S. Green Building Council<br>www.usgbc.org | (800) 795-1747 |
| | www.wicnet.org | |
| WMMPA | Wood Moulding & Millwork Producers Association<br>www.wmmpa.com | (800) 550-7889<br>(530) 661-9591 |
| WSRCA | Western States Roofing Contractors Association<br>www.wsrca.com | (800) 725-0333<br>(650) 570-5441 |
| WWPA | Western Wood Products Association<br>www.wwpa.org | (503) 224-3930 |

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents

| | | |
|---|---|---|
| IAPMO | International Association of Plumbing and Mechanical Officials<br>www.iapmo.org | (909) 472-4100 |

| | | |
|---|---|---|
| ICC | International Code Council<br>www.iccsafe.org | (888) 422-7233 |
| ICC-ES | ICC Evaluation Service, Inc.<br>www.icc-es.org | (800) 423-6587<br>(562) 699-0543 |

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

| | | |
|---|---|---|
| ADAAG | Americans with Disabilities Act (ADA)<br>Architectural Barriers Act (ABA)<br>Accessibility Guidelines for Buildings and Facilities<br>Available from U.S. Access Board<br>www.access-board.gov | (800) 872-2253<br>(202) 272-0080 |
| CFR | Code of Federal Regulations<br>Available from Government Printing Office<br>www.gpoaccess.gov/cfr/index.html | (866) 512-1800<br>(202) 512-1800 |

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

# SECTION 01 60 00 - PRODUCT REQUIREMENTS

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; comparable products and substitutions.

B. Related Requirements:

1. Section 012300 "Alternates" for products selected under an alternate.
2. Section 012500 "Substitution Procedures" for requests for substitutions.
3. Section 014200 "References" for applicable industry standards for products specified.

### 1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, which is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

C. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use CSI Form 13.1A or another form that is acceptable to the Architect.

2. Form shall be sent to Architect in both hardcopy and electronic file form so that Architect may respond back to Contractor electronically.
3. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

4. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

## 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

## 1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See Sections 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

## 1.8 SUBSTITUTIONS

A. Limitations on substitutions:

1. During Bidding period, Instructions to Bidders govern times for submitting requests for substitutions under requirements specified in this Section. There will be no substitution of light fixture, Light fixture specified are part of the Cape Cod Light rebate program.
2. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate formal request, when requested directly by subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.
3. Substitute products shall not be ordered or installed without written acceptance.
4. Only one request for substitution for each product will be considered. When substitution is not accepted, provide specified product.
5. Architect has sole right of determination of acceptability of substitutions.
6. A contractor or subcontractor who carries the cost of a substitute in his bid without prior review by the Architect, does so at his own risk. The Owner is no way obligated to review nor allow that a speculative substitution be furnished.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:

    a. Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

4. Manufacturers:

    a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

## 2.3 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Requested substitution provides sustainable design characteristics that specified product provided.
c. Substitution request is fully documented and properly submitted.
d. Requested substitution will not adversely affect Contractor's construction schedule.
e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

    a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    b. Requested substitution does not require extensive revisions to the Contract Documents.
    c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    d. Requested substitution provides sustainable design characteristics that specified product provided.
    e. Substitution request is fully documented and properly submitted.
    f. Requested substitution will not adversely affect Contractor's construction schedule.
    g. Requested substitution has received necessary approvals of authorities having jurisdiction.
    h. Requested substitution is compatible with other portions of the Work.
    i. Requested substitution has been coordinated with other portions of the Work.
    j. Requested substitution provides specified warranty.
    k. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.4 MANUFACTURER'S INSTRUCTIONS

A. When contract documents require installation of work to comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to the Owner's Representative. Maintain one copy of the instructions at the job site until project completion.

B. Should project conditions, drawings or specification requirements conflict with manufacturer's instructions the Contractor shall advise the Architect for further instructions, prior to commencement of the work.

C. Perform all work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure. If there are any conflicts with the contract documents notify the Architect prior to proceeding with the work.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

# SECTION 01 73 00 - EXECUTION

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 013300 "Submittal Procedures" for submitting surveys.
3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
4. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

### 1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

### 1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor and professional engineer.

B. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.

C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

E. Certified Surveys: Submit two copies signed by land surveyor.

F. Final Property Survey: Submit 5 copies showing the Work performed and record survey data.

## 1.5 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or those results in increased maintenance or decreased operational life or safety.

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Mechanical systems piping and ducts.
    f. Control systems.
    g. Communication systems.
    h. Fire-detection and -alarm systems.
    i. Conveying systems.
    j. Electrical wiring systems.
    k. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or those results in increased maintenance or decreased operational life or safety.

a. Water, moisture, or vapor barriers.
b. Membranes and flashings.
c. Exterior curtain-wall construction.
d. Sprayed fire-resistive material.
e. Equipment supports.
f. Piping, ductwork, vessels, and equipment.
g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

## 3.2 PREPARATION

A. Existing Utility Information: Furnish information to [local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements:

1. Verify space requirements and dimensions of items shown diagrammatically on Drawings.
2. Verify required finished ceiling height requirements prior to fabrication of HVAC and fire protection system piping or ductwork.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

## 3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

## 3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance as indicated or of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces, whichever is greater.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Temporary Support: Provide temporary support of work to be cut.

C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place 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, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

## 3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

## 3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

## 3.8 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Sections.

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

## 3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

# SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:
1. Section 024119 “Selective Demolition” for disposal of waste resulting from partial demolition of building materials, and site improvements.

### 1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from site preparation demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

### 1.4 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of 50 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

1. Construction Waste:

a. Masonry and CMU.
b. Lumber.
c. Wood sheet materials.

d. Wood trim.
e. Metals.
f. Roofing.
g. Insulation.
h. Carpet and pad.
i. Gypsum board.
j. Piping.
k. Electrical conduit.
l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Plastic pails.

1.5 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 7 days of date established for the Notice of Award.

1.6 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use Form CWM-7 for construction waste and Form CWM-8 for demolition waste. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons (tonnes).
4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. 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.

C. 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.

D. 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 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of site-preparation and construction waste generated by the Work. Use Form CWM-1 for construction waste and Form CWM-2 for site preparation waste. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use Form CWM-3 for construction waste and Form CWM-4 for site preparation waste. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
2. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
4. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Division 01 Section "Temporary Facilities and Controls." Coordinate with Section 00 31 26 Existing Hazardous Material Information.

B. Waste Management Coordinator: This can be the contractor's project manager, superintendent or other qualified individual acceptable to the architect. Waste management coordinator shall be responsible for implementing, monitoring, and reporting status of waste management work plan.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

## 3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Sale and Donation: Not permitted on Project site.

## 3.3 RECYCLING WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Contractor's Option: As this construction site is very limited in area the use of c co-mingled collection system with off site separation is acceptable.
2. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

3. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
4. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
5. Store components off the ground and protect from the weather.
6. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

## 3.4 RECYCLING SITE PREPARATION WASTE

A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch (38-mm) size.

B. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 3/4-inch (19-mm) size.

2. Clean and stack undamaged, whole masonry units on wood pallets.

C. Metals: Separate metals by type.

## 3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

## 3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

## 3.7 ATTACHMENTS

A. Form CWM-1 for construction waste identification.

B. Form CWM-2 for demolition waste identification.

C. Form CWM-3 for construction waste reduction work plan.

D. Form CWM-4 for demolition waste reduction work plan.

E. Form CWM-7 for construction waste

F. Form CWM-8 for demolition waste.

END OF SECTION 01 74 19

# SECTION 01 77 00 - CLOSEOUT PROCEDURES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.
6. Light Fixture Purchase Receipts

B. Related Requirements:

1. Section 017300 "Execution Requirements" for progress cleaning of Project site.
2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
4. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.
5. Sections 02 through 33 for specific closeout and special cleaning requirements for the Work in those Sections.

### 1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

### 1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

D. Certificate Of Occupancy from the authorities having jurisdiction.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 21 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Divisions 02 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Divisions 02 through 33 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 21 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 21 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

## 1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 14 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

## 1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in the following format:

a. MS Excel electronic file. Architect will return annotated file.
b. PDF electronic file. This file is for record purposes.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark 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 Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.10 RE-INSPECTION FEES

A. Should Architect perform re-inspections due to failure of the work to comply with the claims or status of completion made by the Contractor:

1. Owner will compensate the Architect for such additional services.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
q. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Division 01 Section "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

3.3 LIGHT FIXTURES RECEIPTS

A. Submit to Owner all receipts for the purchase of the new light fixtures and removal of old fixtures.

END OF SECTION 01 77 00

# SECTION 02 41 19 - SELECTIVE DEMOLITION

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of building or structure.

B. Related Sections include the following:

1. Section 011000 "Summary" for use of premises and Owner-occupancy requirements.
2. Section 015000 "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
3. Section 017300 “Execution” for procedural and administrative requirements for cutting and patching.
4. Section 017419 "Construction Waste Management and Disposal" for disposal of demolished materials.

### 1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

### 1.4 SUBMITTALS

A. Qualification Data:

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner’s on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.

4. Means of protection for items to remain and items in path of waste removal from building.

C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1. Comply with submittal requirements in Division 01 Section "Construction Waste Management and Disposal."

## 1.5 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

## 1.6 PROJECT CONDITIONS

1. The existing building will be fully partially occupied. Conduct selective demolition so Owner's operations will not be disrupted. All loud or vibration operations shall be performed before or after school operation.

2. Comply with requirements specified in Division 01 Section "Summary."

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Storage or sale of removed items or materials on-site is not permitted.

D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notifications before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

C. Verify that utilities have been disconnected and capped.

D. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

E. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

F. Notify Architect if determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure during selective demolition operations.

G. Survey of Existing Conditions:

1. Comply with requirements specified in Division 01 Section "Photographic Documentation."

H. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. General Contractor will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that

bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

    a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

## 3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

## 3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically as indicated on drawings
2. Neatly cut openings and holes plumb, square, and true to dimensions required. 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. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of

hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.

5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly. Comply with requirements in Division 01 Section "Construction Waste Management and Disposal."

B. Reuse of Building Elements: Project has been designed to result in end-of-Project rates for reuse of building elements as follows. Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.

C. 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 reinstalled in their original locations after selective demolition operations are complete.

D. Install dust curtains in areas for containment of particles. Properly remove all duct tape from surfaces and remove all glue. Repaint any damaged areas to blend in with existing surfaces. All surfaces must be restored to original condition without any blemishes.

## 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

3.5.1.1.1.1 The existing suspended acoustical ceiling tiles to be removed contain asbestos and must be removed by an approved certified asbestos removal firm in accordance with approved plan prepared by “Vortex, Inc.”. The existing suspended aluminum ceiling grid also contains asbestos and must be removed by certified personal. The existing light fixture, exit lights, emergency lights, fire alarm devices shall be disconnected by the electrician and removed. The light fixtures are to be boxed and stored for proper disposal by Cape Cod Light Compact. The existing security system and ceiling speakers are to remain and be re-installed at same locations by the ceiling contractor. The existing fire alarm system is new with new devices. The devices shall be removed, salvaged and re-used as directed by contractor.

## 3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated 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. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally disposes of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

# SECTION 09 51 13 - ACOUSTICAL TILE

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes acoustical panels and exposed suspension systems for ceilings.

### 1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, 6 inches (150 mm) in size.

### 1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

### 1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Ceiling Panels: Full-size panels equal to 5 percent of quantity installed.
2. Suspension-System Components: Quantity of each exposed component equal to 5 percent of quantity installed.

### 1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Comply with ASTM E 1264 for Class A materials.
2. Smoke-Developed Index: 450 or less.

B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 ACOUSTICAL PANELS, GENERAL

A. Source Limitations:

1. Acoustical Ceiling Panel: Obtain each type from single source from single manufacturer.
2. Suspension System: Obtain each type from single source from single manufacturer.

B. Glass-Fiber-Based Panels: Made with binder containing no urea formaldehyde.

C. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances unless otherwise indicated.

1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface according to ASTM E 795.

D. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

2.3 ACOUSTICAL PANELS

A. Basis-of-Design Product: Subject to compliance with requirements, provide acoustic panels as manufactured by Armstrong World Industries or comparable product by one of the following:

1. CertainTeed Corp.
2. Chicago Metallic Corporation.
3. Tectum Inc.

4. USG Interiors, Inc.; Subsidiary of USG Corporation.

B. Broad Spectrum Antimicrobial Fungicide and Bactericide Treatment (Type A Acoustic Panels): Provide acoustical panels treated with manufacturer's standard antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274 or ASTM G 21.

C. Type 1, Acoustic Panels: (ACT-1)

1. Size: 24” x 24”
2. Thickness: ¾”
3. Composition: Mineral fiber.
4. Edge: Square Lay-in.
5. Surface Color: White.
6. Surface Finish: No. 574B” Cirrus, HumiGuard Plus” with 15/16”wide grid system.

2.4 METAL SUSPENSION SYSTEMS, GENERAL

A. Metal Suspension-System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M.

B. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190, conducted by a qualified testing and inspecting agency.

C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than minimum size as recommended by manufacturer.

D. Angle Hangers: Angles with legs not less than 7/8 inch (22 mm) wide; formed with 0.04-inch- (1-mm-) thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation; with bolted connections and 5/16-inch- (8-mm-) diameter bolts.

E. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.

F. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.

G. Seismic Clips: Manufacturer's standard seismic clips designed and spaced to secure acoustical panels in place.

H. Hold-Down Clips: Where indicated, provide manufacturer's standard hold-down clips spaced 24 inches (610 mm) o.c. on all cross tees.

2.5 METAL SUSPENSION SYSTEM

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Armstrong World Industries, Inc.
2. CertainTeed Corp.
3. Chicago Metallic Corporation.
4. USG Interiors, Inc.; Subsidiary of USG Corporation.
5. Cap Finish: Painted white.

B. Wide-Face, Capped, Double-Web, Steel Suspension System (Type ACT-1) - Acoustic Panels: No. 574B “Cirrus, HumiGuard Plus “. Main and cross runners roll formed from cold-rolled steel sheet; prepainted, aluminum, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 9/16-inch- (15-mm-) wide metal caps on flanges.

1. Structural Classification: Intermediate-duty system.
2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
3. Face Design: Flat, flush.
4. Cap Material: Galvanized steel cold-rolled sheet.
5. Cap Finish: Painted white.

C. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and suspension systems indicated and that match width and configuration of exposed runners unless otherwise indicated.
2. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
4. Baked-Enamel or Powder-Coat Finish: Minimum dry film thickness of 1.5 mils (0.04 mm). Comply with ASTM C 635/C 635M and coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

## 3.3 INSTALLATION

A. General: Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
8. Do not attach hangers to steel deck tabs.
9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
10. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches (200 mm) from ends of each member.
11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
2. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.
3. Do not use exposed fasteners, including pop rivets, on moldings and trim.

D. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

E. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

1. Arrange directionally patterned acoustical panels as follows:
   a. Install panels with pattern running in one direction parallel to long axis of space.

2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
3. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
4. For reveal-edged panels on suspension-system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension-system surfaces and panel faces flush with bottom face of runners.
5. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
6. Install hold-down clips in areas indicated, in areas required by authorities having jurisdiction, and for fire-resistance ratings; space as recommended by panel manufacturer's written instructions unless otherwise indicated.
7. Install clean-room gasket system in areas indicated, sealing each panel and fixture as recommended by panel manufacturer's written instructions.
8. Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.

## 3.4 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

SECTION 23 01 30 – HVAC AIR DUCT CLEANING

1.0 GENERAL

1.01 REFERENCE

A. The drawings hereinafter listed represent an integral part of the contract documents. They should not be considered as a separate entity, as along with the technical specifications, form a process of disseminating information required to perform the work of the project.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.03 SUMMARY

A. This Section includes cleaning of existing exhaust ducts and removing and replacing exhaust fans with new at same locations.

B. Related Sections include the following:

1. Division 26 00 00 "Electrical" for work associated with the exhaust fans.

C. Cleaning of the existing Trash Chute and doors.

1.04 SUBMITTALS

A. Product Data: For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions.

1.05 QUALIFICATION OF THE HVAC SYSTEM CLEANING CONTRACTOR

A. Membership: The HVAC system cleaning contractor shall be a certified member of the National Air Duct Cleaners Association (NADCA).

B. Certification: The HVAC system cleaning contractor shall have a minimum of one (1) Air System Cleaning Specialist (ASCS) certified by NADCA on a full time basis, or shall have staff certified by a nationally recognized certification program and organization dedicated to the cleaning of HVAC systems.

C. Supervisor Qualifications: A person certified as an ASCA by NADCA, or maintaining an equivalent certification by a nationally recognized program and organization, shall be responsible for the total work herein specified.

D. Experience: the HVAC system cleaning contractor shall submit records of experience in the field of HVAC system cleaning as requested by the Architect. Bids shall only be considered from firms which are regularly engaged in HVAC system maintenance with an emphasis on HVAC system cleaning and decontamination.

E. Equipment, Materials and Labor: The HVAC system cleaning contractor shall possess and furnish all necessary equipment, materials and labor to adequately perform the specified services.

1. The contractor shall assure that its employees have received safety equipment training, medical surveillance programs, individual health protection measures, and manufacturer’s product and material safety data sheets (MSDS) as required for the work by the U.S. Occupational Safety and Health Administration, and as described by this specification.

2. The Contractor shall maintain a copy of all current MSDS documentation and safety certifications at the site at all times, as well as comply with all other site documentation requirements of applicable OSHA programs and this specification.

3. The contractor shall submit to the Architect all Material Safety Data Sheets (MSDS) for all chemical products proposed to be used in the cleaning process.

F. Licensing: The HVAC system cleaning contractor shall provide proof of maintaining the proper license(s), if any, as required to do work in the state. Contractor shall comply with all Federal, state and local rules, regulations, and licensing requirements.

1.06 STANDARDS

A. NADCA Standards: The HVAC system cleaning contractor shall perform the services specified here in accordance with the current published standards of the National Air Duct Cleaners Association (NADCA).

1. All terms in this specification shall have their meaning defined as stated in the NADCA Standards.
2. NADCA Standards must be followed with no modifications or deviations being allowed.

1.07 DOCUMENTS

A. Mechanical Drawings: The Owner shall provide the HVAC system cleaning contractor with one copy of the following documents:

1. Project drawings and specifications.

2. Any existing indoor air quality (IAQ) assessments or environmental reports prepared for the facility.

PART 2 - PRODUCTS

2.01 SCOPE OF WORK

A. Scope: This section defines the ***minimum*** requirements necessary to render HVAC components clean, and to verify the cleanliness through inspection and/or testing in accordance with items specified herein and applicable NADCA Standards.

The Contractor shall be responsible for the removal of visible surface contaminants and deposits from within the HVAC system in strict accordance with these specifications.

The Contractor shall be responsible for removing the existing roof top exhaust fans and replacing with new matching the existing CFM's and electrical voltage.

The HVAC system includes any interior surface of the facility's air distribution system for conditioned spaced and/or occupies zones. This includes the entire ventilation system from the points where the air enters the system to the points where the air is discharged from the system. The return air grilles, return air ducts to the air handling unit (AHU), the interior surfaces of the AHU, supply air ducts, fans, fan housing, fan blades, air wash systems, spray eliminators, turning vanes, filters, filter housings, and supply diffusers are all considered part of the HVAC system. The HVAC system may also include other components such as dedicated exhaust and ventilation components and make-up air systems.

2.02 HVAC System Component Inspections and Site Preparations

A. HVAC System Component Inspections: Prior to the commencement of any cleaning work, the HVAC system cleaning contractor shall perform a visual inspection of the HVAC system to determine appropriate methods, tools, and equipment required to satisfactorily complete this project. The cleanliness inspection should include air handling units and representative areas of the HVAVC system components and ductwork. In HVAC systems that include multiple air handling units, a representative sample of the units should be inspected.

The cleanliness inspection shall be conducted without negatively impacting the indoor environment through excessive disruption of settled dust, microbial amplification or other debris. In cases where contamination is suspected, and/or in sensitive environments where even small amounts of contaminant may be of concern, environmental engineering control measures should be implemented.

1. Damaged system components found during the inspection shall be documented and brought to the attention of the Architect.

B. Site Evaluation and Preparations: Contractor shall conduct a site evaluation, and establish a specific, coordinated plan which details how each area of the building will be protected during the various phases of the project.

C. Inspector Qualifications: Qualified personnel should perform the HVAC cleanliness inspection to determine the need for cleaning. At minimum, such personnel should have an understanding of HVAC system design, and experience in utilizing accepted indoor environmental sampling practices, current industry HVAC cleaning procedures, and applicable industry standards.

2.03 GENERAL HVAC SYSTEM CLEANING REQUIREMENTS

A. Containment: Debris removed during cleaning shall be collected and precautions must be taken to ensure that Debris is not otherwise dispersed outside the HVAC system during the cleaning process.

B. Particulate Collection: Where the Particulate Collection Equipment is exhausting inside the building, HEPA filtration with 99.97% collection efficiency of 0.3-micron size (or greater) particles shall be used. When the Particulate Collection Equipment is exhausting outside the building, Mechanical Cleaning operations shall be undertaken only with Particulate collection Equipment in place, including adequate filtration to contain Debris removed from the HVAC system. When the Particulate Collection Equipment is exhausting outside the building, precautions shall be taken to locate the equipment down wind and away from all air intakes and other points of entry into the building.

C. Controlling Odors: Measures shall be employed to control odors and/or mist vapors during the cleaning process.

D. Component Cleaning: Cleaning methods shall be employed such that all HVAC system components must be Visibly Clean as defined in applicable standards (see NADCA Standards). Upon completion, all components must be returned to those settings recorded just prior to cleaning operations.

E. Air-Volume Control Devices: Dampers and any air-directional mechanical devices inside the HVAC system must have their position marked prior to cleaning, and upon completion, must be restored to their parked position.

F. Service Openings: The contractor shall utilize service openings, as required for proper cleaning, at various points of the HVAC system for physical and mechanical entry, and inspection.

1. Contractor shall utilize the existing service openings already installed in the HVAC system where possible.

2. Other openings shall be created where needed and they must be created so they can be sealed in accordance with industry codes and standards.

3. Closures must not significantly hinder, restrict, or alter the airflow within the system.

4. Closures must be properly insulated to prevent heat loss/gain or condensation on surfaces within the system.

5. Openings must not compromise the structural integrity of the system.

6. Construction techniques used in the creation of openings should conform to requirements of applicable building and fire codes, and applicable NFPA, SMACNA and NADCA standards.

7. Cutting services openings into flexible duct is not permitted. Flexible duct shall be disconnected at the ends as needed for proper cleaning and inspection.

8. Rigid fiber glass duct systems shall be resealed in accordance with NAIMA recommended practices. Only closure techniques that comply with UL Standard 181 or UL Standard 181a are suitable for fiber glass duct system closures.

9. All service openings capable of being re-opened for future inspection or remediation shall be clearly marked and shall have their location reported to the Owner in project report documents.

G. Ceiling sections (tile): The contractor may remove and reinstall ceiling sections to gain access to HVAC systems during the cleaning process.

H. Air distribution devices (registers, grilles & diffusers): The contractor shall clean all air distribution devices.

I. Air handling units, terminal units (VAV, Dual duct boxes, etc.), blowers and exhaust fans: The contractor shall insure that supply, return, and exhaust fans and blowers are thoroughly cleaned. Areas to be cleaned include blowers, fan housings, plenums (except ceiling supply and return plenums), scrolls, blades, or vanes, shafts, baffles, dampers and drive assemblies. All visible surface contamination deposits shall be removed in accordance with NADCA Standards. Contractor shall:

1. Clean all air handling units (AHU) internal surfaces, components and condensate collectors and drains.

2. Assure that a suitable operative drainage system is in place prior to beginning wash down procedures.

3. Clean all coils and related components, including evaporator fins.

J. Duct Systems. Contractor shall:

1. Create service openings in the system as necessary in order to accommodate cleaning of otherwise inaccessible areas.

2. Mechanically clean all duct systems to remove all visible contaminants, such that the systems are capable of passing Cleaning Verification Tests (see NADCA Standards).

2.04 HEALTH AND SAFETY

A. Safety Standards: Cleaning contractors shall comply with applicable federal, state, and local requirements for protecting the safety of the contractor's employees, building occupants, and the environment. In particular, all applicable standards of the Occupational Safety and Health Administration (OSHA) shall be followed when working in accordance with this specification.

B. Occupant Safety: No processes or materials shall be employed in such a manner that they will introduce additional hazards into occupied spaces.

C. Disposal of Debris: All Debris removed from the HVAC System shall be disposed of in accordance with applicable federal, state, and local requirements.

2.05 MECHANICAL CLEANING METHODOLOGY

A. Source Removal Cleaning Methods: The HVAC system shall be cleaned using Source Removal mechanical cleaning methods designed to extract contaminants from within the HVAC system and safely remove contaminants from the facility. It is the contractor's responsibility to select Source Removal methods that will render the HVAC system Visibly Clean and capable of passing cleaning verification methods (See applicable NADCA Standards) and other specified tests, in accordance with all general requirements. NO cleaning method, or combination of methods, shall be used which could potentially damage components of the HVAC system or negatively alter the integrity of the system.

1. All methods used shall incorporate the use of vacuum collection devices that are operated continuously during cleaning. A vacuum device shall be connected to the downstream end of the section being cleaned through a predetermined opening. The vacuum collection device must be of sufficient power to render all areas being cleaned under negative pressure, such that containment of debris and the protection of the indoor environment are assured.

2. All vacuum devices exhausting air inside the building shall be equipped with HEPA filers (minimum efficiency), including hand-held vacuums and wet-vacuums.

3. All vacuum devices exhausting air outside the facility shall be equipped with Particulate Collection including adequate filtration to contain Debris removed from the HVAC system. Such devices shall exhaust in a manner that will not allow contaminants to re-enter the facility. Release of debris outdoors must not violate any outdoor environmental standards, codes or regulations.

4. All methods require mechanical agitation devices to dislodge debris adhered to interior HVAC system surfaces, such that debris may be safely conveyed to vacuum collection devices. Acceptable methods will include those, which will not potentially damage the integrity of the ductwork, nor damage porous surface materials such as liners inside the ductwork or system components.

B. Antimicrobial Agents and Coatings

1. Antimicrobial agents shall only be applied if active fungal growth is reasonably suspected, or where unacceptable levels of fungal contamination have been verified through testing.

2. Application of any antimicrobial agents used to control the growth of fungal or bacteriological contaminants shall be performed after the removal of surface deposits and debris.

3. When used, antimicrobial treatments and coatings shall be applied in strict accordance with the manufacturer's written recommendations and EPA registration listing.

4. Antimicrobial coatings shall be applied according to the manufacturer's written instructions. Coatings shall be sprayed directly onto interior ductwork surfaces, rather than "fogged" downstream onto surfaces.

2.06 CLEANLINESS VERIFICATION

A. General: Verification of HVAC System cleanliness will be determined after mechanical cleaning and before the application of any treatment or introduction of any treatment-related substance to the HVAC system, including biocidal agents and coatings.

B. Visual Inspection: The HVAC system shall be inspected visually to ensure that no visible contaminants are present.

1. If no contaminants are evident through visual inspection, the HVAC system shall be considered clean; however, the Owner reserves the right to further verify system cleanliness through Surface Comparison Testing or the NADCA vacuum test specified in the NADCA standards.

2. If visible contaminants are evident through visual inspection, those portions of the system where contaminants are visible shall be re-cleaned and subjected to re-inspection for cleanliness.

3. NADCA vacuum test analysis should be performed by a qualified third party experienced in testing of this nature.

2.07 PRE-EXISTING SYSTEM DAMAGE

A. Contractor is not responsible for problems resulting from prior inappropriate or careless cleaning techniques of others.

2.08 POST-PROJECT REPORT

A. At the conclusion of the project, the Contractor shall provide a report to the Owner indicating the following:

1. Success of the cleaning project, as verified through visual inspection and/or gravimetric analysis.

2. Areas of the system found to be damaged and/or in need of repair.

2.09 APPLICABLE STANDARDS AND PUBLICATIONS: The following current standards and publications of the issues currently in effect form a part of this specification to the extent indicated by any reference thereto:

A. National Air Duct Cleaners Association (NADCA): "Assessment, Cleaning & Restoration of HVAC Systems (ACR 2005)," 2004.

B. National Air Duct Cleaners Association (NADCA): "Understanding Microbial Contamination in HVAC Systems," 1996.

C. National Air Duct Cleaners Association (NADCA): "Introduction to HVAC system Cleaning Services," 2004.

D. National Air Duct Cleaners Association (NADCA): Standard 05 "Requirements for the Installation of Service Openings in HVAC Systems," 2004.

E. Underwriters' Laboratories (UL): UL Standard 181.

F. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE): Standard 62-89, “Ventilation for Acceptable Indoor Air Quality”.

G. Environmental Protection Agency (EPA): “Building Air Quality,” December 1991.

H. Sheet Metal and Air Conditioning Contractors’ National Association (SMACNA): “HVAC Duct Construction Standards – Metal and Flexible,” 1985.

2.10 TRASH CHUTE

A. The Contractor shall be responsible for the removal of visible surface contaminants and deposits from within the trash chute and each trash chute door located within the Trash Room on each floor.

B. The work shall include scubbing with a detergent that is suitable for the intended use. All work and particles removed shall be collected at the bottom of the shaft located with the compactor room located on the first floor. All collected materials shall be properly disposed of off site.

C. The Owner shall make arraingements for ther compactor to be removed during the cleaning operation. The Contractor shall coordinate their schedule with the Owner allowing at least two weeks notice.

PART 3 - EXECUTION (Not Used)

END OF SECTION 23 01 30

SECTION 26 00 00 – ELECTRICAL TABLE OF CONTENTS

SECTION 26 00 00

ELECTRICAL

PART 1 GENERAL

1.1 FILING OF SUB-BIDS

A. Sub-bids shall be submitted in accordance with the provisions of the General Laws, Chapter 149, Sections 44A to 44L, inclusive, as amended. The time and place for submission of Sub-bids shall be as set forth under “Instructions to Bidders”.

B. Each Sub-bid filed with the Awarding Authority shall be accompanied by a Bid Bond, Cash, Certified Check, Treasurer’s Check or Cashier’s Check issued by a responsible bank or trust company, payable to the Town of Dennis, in the amount stipulated on the “Instructions to Bidders”. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Each Sub-bid submitted for the work under this section shall be on a form furnished by the Awarding Authority, as required by Section 44G of Chapter 149 of the General Laws, as amended.

D. The Filed Sub-Bidder of work under this section shall list in Paragraph D of the “Form for Sub-Bid” the names of each person, firm, or corporation whom he proposes to use to perform the following classes of work or parts thereof and the bid price therefore.

| Class of Work | Reference Paragraph |
|---|---|

1.2 GENERAL REQUIREMENTS AND REFERENCES

A. Include “General Requirements” and applicable parts of Division 1 as part of this section.

B. Examine all other sections of the Specifications for requirements which affect work under this Section whether or not such work is specifically mentioned in this section. Where paragraphs of this section conflict with similar paragraphs of Division 1, requirements of this section shall prevail.

C. Coordinate work with that of all other trades affecting, or affected by work of this section. Cooperate with such trades to assure the steady progress of all work under the Contract.

D. The Subcontractor shall be responsible for filing all documents, payment of all fees, and securing of all inspections and approvals necessary for the work of this section.

E. The Electrical Subcontractor shall carry in the Bid Price all Utility Company and Municipal back charges for all materials furnished and work performed by them in conjunction with this Contract and pay same to the respective agency upon demand. The Electrical Subcontractor shall not be entitled to additional compensation after the submittal of his bid price should he fail, for any reason, to obtain the total back charge costs to be incurred by the Local Utility Companies or Municipal Agencies.

1.3 DEFINITIONS

A. As used in this section, “provide” means “furnish and install”, and “POS” means “Provided Under Other Sections”.

B. As used in the Contract Drawings and Specifications for Electrical work, certain non-technical words shall be understood to have specific meanings as follows, regardless of indications to the contrary in the General Conditions of other documents governing the Electrical work.

1. "Furnish" means: Purchase and deliver to the project site complete with every necessary appurtenance and support, all as part of the Electrical work. Purchasing shall include payment of all sales taxes and other surcharges as may be required to assure that purchased item(s) are free of all liens, claims, or encumbrances.

2. "Install" means: Unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project, all as part of the Electrical work.

3. "Provide" means: "Furnish" and "Install".

4. "New" means: Manufactured within the past two (2) years and never before used.

C. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any electrical item in the Contract Drawings or Specifications for Electrical work carries with it the instruction to furnish, install and connect the item as part of the Electrical work, regardless of whether or not this instruction is explicitly stated.

D. It shall be understood that the Specifications and Drawings for Electrical work are complimentary and are to be taken together for a complete interpretation of the Electrical work except that indications on the Contract Drawings, which refer to an individual element of work, take precedence over the Specifications where they conflict.

1.4 SCOPE

A. Perform work and provide material and equipment as shown on Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation.

1. All lighting systems indicated on the Contract Drawings, including all fixtures, lamps, mounting accessories, switches, controls, outlets, wiring, raceways, and all other components and fittings required for a complete lighting system.

2. Grounding and bonding of all electrical systems and equipment.

3. Fire alarm system complete with all devices and wiring including municipal connections.

4. Wiring devices (switches and receptacles) complete with associated wallplates.

5. Access panels (furnish only).

6. Coordination between electrical and other trades.

7. All required staging and scaffolding of any height.

B. Drawings and Specifications form complimentary requirements; provide work specified and not shown, and work shown and not specified as though explicitly required by both. Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation.

C. Before submitting bid, visit and carefully examine site to identify existing conditions and difficulties that will affect work of this Section. No extra payment will be allowed for additional work caused by unfamiliarity with site conditions that are visible or readily construed by an experienced observer. Site visit is particularly important because this is renovation work.

D. Before starting work in a particular area of the project, visit site and examine conditions under which work must be performed including preparatory work done under other Sections or

Contracts or by Owner. Report conditions that might affect work adversely in writing through Contractor to Architect. Do not proceed with work until defects have been corrected and conditions are satisfactory. Commencement of work shall be construed as complete acceptance of existing and preparatory work.

1.5 RELATED WORK UNDER OTHER SECTIONS

A. The following items are not included in this section and will be performed under the designated sections.

1. Temporary Facilities.
2. Masonry: All openings in masonry walls.
3. Waterproofing, Dampproofing and Caulking.

1.6 REGULATORY REQUIREMENTS

A. Comply with all applicable Federal and State laws, and all Local Codes, By-laws and Ordinances.

B. Where provisions of the Contract Documents conflict with any codes, rules or regulations, the latter shall govern. Where the contract requirements are in excess of applicable codes, rules or regulations, the contract provisions shall govern unless the Architect rules otherwise.

C. Request inspections from Authorities having jurisdiction, obtain all permits and pay for all fees and inspection certificates as applicable and/or required. All permits and certificates shall be turned over to the Owners at the completion of the work. Copies of permits shall be given to the resident engineer prior to the start of work.

D. Unless otherwise specified or indicated, materials and workmanship and equipment performance shall conform with the latest edition of the following standards, codes, Specifications, requirements and regulations:

1. State Building Code.
2. State Electrical Code.
3. National Fire Protection Association (NFPA).
4. Local Town Regulations and By-Laws.
5. Underwriter's Laboratories, Inc. (UL).
6. National Electrical Manufacturer's Association (NEMA).
7. American National Standards Institute (ANSI).

E. All Electrical work shall meet or exceed any other state and local codes and/or Authorities having jurisdiction including all other standards indicated herein.

1.7 SUBMITTALS

A. This paragraph shall supplement Division 1.

B. Definitions:

1. Shop Drawings: Information prepared by the Contractor to illustrate portions of the work in more detail than shown in the Contract Documents.

2. Coordination Drawings: Detailed, large-scale layout Shop Drawings showing HVAC, Electrical, Plumbing and Fire Protection work superimposed to identify conflicts and ensure inter-coordination of Mechanical, Electrical, Architectural, Structural and other work.

3. Manufacturer's Product Data: Information prepared by the manufacturer which depicts standard equipment.

C. Submittals, Procedures and Format:

1. Review submittal packages for compliance with Contract Documents and then submit to Architect for review. Electronically submitted shop drawings are acceptable.

2. Each Shop Drawing shall indicate in title block, and each Product Data package shall indicate on cover sheet, the following information:
   a. Title.
   b. Name and location of project.
   c. Names of Architect, Engineer, Contractor and Subcontractor(s).
   d. Names of Manufacturer, Supplier, Vendor, etc.
   e. Date of submittal.
   f. Whether original submittal or resubmitted.

3. Shop Drawings and/or Manufacturer's Product Data shall contain detailed dimensional Drawings, accurate and complete description of materials of construction, manufacturer's published performance characteristics and capacity ratings (performance data alone is not acceptable), electrical requirements and wiring diagrams. Drawings shall clearly indicate location (terminal block or wire number), voltage and function for all field terminations, and other information necessary to demonstrate compliance with all requirements of Contract Documents.

D. Acceptable Manufacturers:

1. The Architect's Mechanical/Electrical design for each project is based on the single manufacturer listed in the schedule or shown on the Contract Drawings. In Division 16 of these Specifications certain "Alternate Manufacturers" are listed as being acceptable. These are acceptable only if, as a minimum, they:
   a. Meet all performance criteria listed in the schedules and outlined in the Specifications.
   b. Have identical operating characteristics to those called for in the Specifications.
   c. Fit within the available space it was designed for, including space for maintenance and component removal, with no modifications to either the space or the product. Clearances to walls, ceilings and other equipment will be at least equal to those shown on the Contract Documents. The fact that a manufacturer's name appears as acceptable shall not be taken to mean the Architect has determined that the manufacturer's products will fit within the available space. This determination is solely the responsibility of the Contractor.
   d. For equipment mounted in areas where structural matters are a consideration, the products must have a weight no greater than the product listed in the schedules or Specifications.
   e. Products must adhere to all architectural considerations including, but not limited to, being the same size and of the same physical appearance as scheduled or specified products.

E. Substitutions: Substitution of products by manufacturers other than those listed shall only be done in accordance with subparagraph "F" "Substitutions and Deviations".

F. Substitutions and Deviations:

1. Deviations from the Contract Documents and the substitution of materials or equipment relative to the "Acceptable Manufacturers" referred to above shall be requested individually in writing whether deviations result from field conditions, standard shop practice, or other cause. Submit letter with transmittal of Shop Drawings which flags the substitution or deviation to the attention of the Architect. The letter shall describe changes in the system shown and physical characteristics (connections to adjacent materials, electrical services, service access requirements, and other characteristics), and differences in operating characteristics or cycles.

2. Without letters flagging the substitution or deviation to the Architect, it is possible that the Architect may not notice such substitution or deviation or may not realize its ramifications. Therefore, if such letters are not submitted to the Architect, the Contractor shall hold the Architect and his consultants harmless for any and all adverse consequences resulting from the deviations being implemented. Adverse consequences shall include, but not be limited to, excessive noise, excessive maintenance, shortened longevity, spatial coordination problems, and inadequate performance versus scheduled design. This shall apply regardless of whether the Architect has reviewed or approved Shop Drawings containing the deviation, and will be strictly enforced.

3. Do not request substitute materials or equipment unless identical material or equipment has been operated successfully for at least three (3) consecutive years. Such materials and equipment shall be a regular cataloged item shown in the current catalog of the manufacturer. When deviation or substitution is permitted, coordinate fully with related changes to Architectural, Structural, Plumbing, Fire Protection, Mechanical, and other work. Ensure that related changes necessary for coordination of substituted items are made within the Contract Price. Assume full responsibility for safety, operation and performance of the altered system. Any extra costs incurred to the project based on the use of alternate manufacturers shall be borne by the Contractor who has requested the substitution.

4. Substitutions of equipment, systems, etc. requiring approval of local Authorities must comply with such regulations and be filed by the Contractor (should filing be necessary).

5. Consideration will not be given to claims that the substituted item meets the performance requirements with lesser construction. Performance, as delineated in schedules and in the Specifications, shall be interpreted as minimum performance.

6. Approval of proposed deviations or substitutions, if any, will be made at discretion of Architect.

7. If equipment is proposed for substitution that is not tested and rated according to industry-wide standards, the Architect shall have the right to have performance tests completed, at the Contractor's expense, to confirm the manufacturer's performance claims.

G. Submittal Notations: Submittals will be returned from the Architect marked as illustrated below:

| | |
|---|---|
| □ NO EXCEPTION TAKEN | □ ACCEPTED AS NOTED |
| □ NOT ACCEPTED | □ REVISE AND RESUBMIT |

1. Checking is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Any action shown is subject to the requirements of the Contract Drawings and Specifications. Contractor is responsible for dimensions which shall be confirmed and correlated at the job site; fabrication process and techniques of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work.

H. Schedule: Incorporate the Shop Drawing review period into the construction schedule so that work is not delayed. Contractor shall assume full responsibility for delays caused by not incorporating the following Shop Drawing review time requirements into his project schedule. Allow at least ten (10) working days, exclusive of transmittal time, for review each time Shop Drawing is submitted or resubmitted.

I. List of Proposed Equipment and Materials: Within four (4) weeks after Award of Contract and before ordering materials or equipment, submit a complete list of proposed materials and

equipment and indicate manufacturer's names and addresses. No consideration will be given to partial lists submitted out of sequence.

J. Responsibility:

1. The intent of submittal review is to check for capacity, rating, and certain construction features. Contractor shall ensure that work meets requirements of the Contract Documents regarding information that pertains to fabrication processes or means, methods, techniques, sequences and procedures of construction; and for coordination of work of this and other Sections. Work shall comply with submittals marked "REVIEWED" to extent that they agree with the Contract Documents. Submittal review shall not diminish responsibility under this Contract for dimensional coordination, quantities, installation, wiring, supports and access for service, nor the shop drawing errors or deviations from requirements of the Contract Documents. The Architect's noting of some errors while overlooking others will not excuse the Contractor for proceeding in error. Contract Document requirements are not limited, waived, nor superseded in any way by review.

2. Inform Subcontractors, Manufacturers, Suppliers, etc. of scope and limited nature of review process and enforce compliance with the Contract Documents.

K. Material and equipment requiring Shop Drawing and/or Manufacturer's Data Submittals shall include but not be limited to:

1. Light fixtures.
2. Fire alarm system with wiring diagram and schedule.

1.8 SURVEYS AND MEASUREMENTS

A. Base all required measurements, both horizontal and vertical, on reference points established by the General Contractor and be responsible for the correct laying out of the Electrical work. In the event of a discrepancy between actual measurements and those indicated, notify the General Contractor in writing. Do not proceed with the work required until written instructions have been issued by the General Contractor.

1.9 COORDINATION

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 Structural and other trades and to meet Architectural requirements.

B. Work shall be performed in cooperation with other trades on the project and so scheduled as to allow speedy and efficient completion of the work.

C. Furnish to other trades advance information on locations and sizes of all frames, boxes, sleeves and openings needed for their work. Furnish information and Shop Drawings necessary to allow trades affected by the work to install their work properly and without delay.

D. 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 Architect. Where the Electrical work shall interfere with the work of other trades, assist in coordinating the space conditions to make satisfactory adjustments before installation. Without extra cost to the Owners, make reasonable modifications to the work as required by normal Structural interferences. Pay the General Contractor for additional openings, or relocating and/or enlarging existing openings through concrete floors, walls, beams and roof required for any work which was not properly coordinated. Maintain maximum headroom at all locations. All piping, duct, conduit, and associated components to be as tight to underside of structure as possible.

E. If any Electrical work has been installed before coordination with other trades so as to cause interference with the work of such trades, all necessary adjustments and corrections shall be made by the trades involved without extra cost to the Owners.

F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Architect for review and approval.

G. Protect all materials and work of other trades from damage which may be caused by the Electrical work, and repair all damages without extra cost to the Owners.

1.10 INSTALLATION REQUIREMENTS

A. The arrangement of all Electrical work shown on the Contract Drawings is diagrammatic only and indicates the minimum requirements of the work. Conditions at the building including actual measurements shall determine the details of the installation. All work shall be laid out and installed so as to require the least amount of cutting and patching.

B. Review the Architectural Drawings and Specifications before ordering any material and equipment. Any discrepancies shall be brought to the attention of the Architect for his determination prior to proceeding with the work.

1.11 SLEEVES, INSERTS

A. Furnish and install all sleeves, inserts, anchor bolts and similar items to be set into masonry or concrete, as required for Mechanical and Electrical work. Internal diameter of sleeve ball shall be 1/2" larger than the outside diameter of the pipe or insulation covered line passing through it.

1.12 CORING, DRILLING

A. Core, cut and/or drill all small holes 4.5” diameter or less in walls, floors and ceiling required for the installation of sleeves, supports, and conduit for the Electrical work.

1.13 FIRESTOPPING, SMOKEPROOFING AND WATERPROOFING

A. All penetrations made through fire rated assemblies (structures or partitions) shall be completely and properly fire sealed with the appropriate firestop systems installed in accordance with the Manufacturer’s recommendations. The firestop material UL listed fire rating shall match or exceed the fire rated assemblies. Verify with Architect if project is utilizing a specified product. If not, provide product manufactured by Hilti, Nelson or STI.

B. Provide waterproofing of all materials which penetrate a floor, exterior wall, slab or roof. All sleeves shall extend a minimum of 3 inches above floor or roof. All penetrations thru building foundation walls shall utilize Link-Seal products or approved equal.

1.14 COMMISSIONING OF SYSTEMS

A. Provide the services of a factory authorized technician to instruct and direct the Owner in the operation and maintenance of indicated systems and/or equipment. The Electrical Subcontractor shall be available throughout the entire Commissioning Phase to operate the systems/equipment. Systems and/or equipment that shall be commissioned include the following:

1. Occupancy/Vacancy sensors.
2. Fire Alarm systems.

B. Upon completion of all tests, the Electrical Subcontractor shall repair and/or replace any defective equipment. Once replaced and/or repaired, all Commissioning shall be performed.

C. Refer to Section 26 00 00 paragraph 3.2 for additional requirements.

1.15 ACCESSIBILITY

A. Install all work such that parts requiring periodic inspection, operation, maintenance and repair are readily accessible.

B. Furnish all access panels appropriate to particular conditions, to be installed by trades having responsibility for the construction of actual walls, floors or ceilings at required locations.

1.16 SUPPLEMENTARY SUPPORTING STEEL

A. Provide all supplementary (non-structural) steelwork required for mounting or supporting equipment and materials.

B. Steelwork shall be firmly connected to building construction as required. Locations and methods of attachment shall be approved by the Architect.

C. Steelwork shall be of sufficient strength to allow only minimum deflection in conformity with manufacturer's published requirements.

D. All supplementary steelwork shall be installed in a neat and workmanlike manner parallel to floor, wall and ceiling construction: all turns shall be made at forty-five and ninety degrees, and/or as dictated by construction and installation conditions.

E. All manufactured steel parts and fittings shall be galvanized.

1.17 TOOLS AND EQUIPMENT

A. Provide all tools and equipment required for the fabrication and installation of the Mechanical and Electrical equipment at the site.

1.18 PORTABLE AND DETACHABLE PARTS

A. Contractors shall retain in their possession all portable and/or detachable parts and portions of materials, devices, equipment, etc. necessary for the proper operation and maintenance of the Mechanical and Electrical systems until final completion of the work, at which time they shall be handed over to the Owners.

1.19 RECORD DRAWINGS, PROJECT CLOSEOUT

A. As work progresses and for the duration of Contract, maintain a complete and separate set of prints of Contract Drawings at job site at all times. Record work completed and all changes from original Contract Drawings clearly and accurately including work installed as a modification or addition to the original design. Work shall be updated on a weekly basis and shall be made available for review by Architect. Failure to perform this work shall be reason for withholding requisition payments. In addition, take photographs of all concealed equipment in gypsum board ceilings, shafts, and other concealed, inaccessible work. At completion of work, make copies of photographs with written explanation on back. These shall become part of Record Documents.

B. At completion of work prepare a complete set of Record Drawings utilizing AutoCAD produced drawings showing all systems as actually installed, including all fire alarm and electrical circuitry. Submit three (3) sets of prints to Architect for comments as to compliance with this section.

C. The Architect will not certify the accuracy of the Record Drawings. This is the sole responsibility of the Electrical Contractor.

D. This trade shall submit the Record Drawings for approval by the Fire and Building Departments in a form acceptable to the departments, when required by the jurisdiction.

E. Record Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer, make and model numbers of final equipment installation.

1.20 GUARANTEE/WARRANTY

A. Guarantee and 24 Hour Service:

1. Guarantee Work of this Section in writing for not less than one (1) year following the date of acceptance by the Owner. If the equipment is used for temporary power etc, prior to acceptance by the Owner, the bid price shall include an extended period of warranty covering the one (1) year of occupancy, starting from the date of acceptance by the Owner. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to the Architect's satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.

2. In addition to guarantee requirements of Division 1 and of Subparagraph A above, obtain written equipment and material warranties offered in manufacturer's published data without exclusion or limitation, in Owner's name.

3. Upon receipt of notice from the Owner of failure of any part of the systems or equipment during the warranty period, the affected part or parts shall be replaced by this Contractor without any reimbursement.

4. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Architect.

5. Provide 24 hour service beginning on the date the project is accepted by the Owner, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to the Owner. Service can be provided by this Contractor or a separate service organization. Choice of service organization shall be subject to Architect and Owner approval. Submit name and a phone number that will be answered on a 24 hour basis each day of the week, for the duration of the service.

6. Submit copies of equipment and material warranties to Architect before final payment.

7. At end of guarantee period, transfer manufacturer's equipment and material warranties still in force to Owner.

8. This paragraph shall not be interpreted to limit Owner's rights under applicable codes and laws and under this Contract.

9. PART 2 paragraphs of this Specification may specify warranty requirements that exceed those of this paragraph. Those paragraphs shall govern.

10. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of Work by Owner, and shall not initiate the guarantee period.

11. Provide manufacturer's engineering and technical staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to Owner's satisfaction, advise the Architect in writing, describe efforts to rectify situation, and provide analysis of cause of problem. The Architect and/or Engineer will direct course of action.

1.21 OPERATING, INSTRUCTION AND MAINTENANCE MANUALS

A. Refer to Section 01700 – CONTRACT CLOSEOUT for submittal procedures pertaining to operating and maintenance manuals.

B. Each copy of the approved operating and maintenance manual shall contain copies of approved Shop Drawings, equipment literature, cuts, bulletins, details, equipment and engineering data sheets and typewritten instructions relative to the care and maintenance for the operation of the equipment, all properly indexed. Each manual shall have the following minimum contents:

1. Table of Contents.

2. Introduction:
   a. Explanation of manual and its purpose and use.
   b. Description of the electrical systems.
   c. Safety precautions necessary for equipment.
   d. Illustrations, schematics and diagrams.
   e. Installation drawing.

3. Maintenance:
   a. Maintenance and lubricating instructions.
   b. Replacement charts.
   c. Trouble-shooting charts for equipment components.
   d. Testing instructions for each typical component.
   e. Two (2) typed sets of instructions for ordering spare parts. Each set shall include name, price, telephone number and address of where they may be obtained.

4. Manufacturer's Literature:
   a. The equipment for which Shop Drawings have been submitted and approved.

1.22 SERVICE CHARACTERISTICS

A. Primary Utility Voltage: 13.8 kv

B. Secondary Building Voltage: 120/208.

C. All equipment and wiring shall be suitable for the applied voltage.

1.23 QUALITY ASSURANCE

A. The requirements of the State Building Code and Local regulations establish the minimum acceptable quality of workmanship and materials, and all work shall conform thereto unless more stringent requirements are indicated or specified herein.

B. All work shall comply with the latest editions of the codes as referenced herein.

C. Follow manufacturer's directions for articles furnished, in addition to directions shown on Drawings or specified herein.

D. Protect all work, materials, and equipment from damage during process of work. Replace all damaged or defective work, materials and equipment without additional cost to the Owner.

E. All equipment and materials for permanent installation shall be the products of recognized manufacturers and shall be new.

F. Equipment and materials shall:

1. Where normally subject to Underwriters Laboratory Inc. listing or labeling services, be so listed and labeled.

2. Be without blemish or defect.

3. Not be used for temporary light and power purposes.

4. Be in accordance with the latest applicable NEMA standards.

5. Buy products which will meet with the acceptance of all Authorities having jurisdiction over the work. Where such acceptance is contingent upon having the products examined, tested and certified by Underwriters or other recognized testing laboratory, the product shall be so examined, tested and certified.

G. Except for conduit, conduit fittings, outlet boxes, wire and cable, all items of equipment or material of one generic type shall be the product of one manufacturer throughout.

H. For items which are to be installed but not purchased as part of the Electrical work, the Electrical work shall include:

1. The coordination of their delivery.

2. Their unloading from delivery trucks driven into any point on the property line at grade level.

3. Their safe handling and field storage until the time of permanent placement in the project.

4. The correction of any damage, defacement or corrosion to which they may have been subjected. Replacement, if necessary, shall be coordinated with the Contractor who originally purchased the item.

5. Field erection and internal wiring as necessary for their proper operation.

6. Mounting in place, including the purchase and installation of all dunnage, supporting members, and fastenings, necessary to adapt them to architectural and structural conditions.

I. Items which are to be installed but not purchased as part of the electric work shall be carefully examined upon delivery to the project. Claims that any of these items have been received in such condition that their installation will require procedures beyond the reasonable scope of the electric work will be considered only if presented in writing within one (1) week of the date of delivery to the project of the items in question. The electric work includes all procedures, regardless of how extensive, necessary to put into satisfactory operation, all items for which no claims have been submitted as outlined above.

1.24 DELIVERY, STORAGE AND HANDLING

A. All materials for the work of this section shall be delivered, stored and handled so as to preclude damage of any nature. Manufactured materials shall be delivered and stored in their original containers, plainly marked with the products' and manufacturer's name. Materials in broken containers or in packages showing watermarks or other evidence of damage, shall not be used and shall be removed from the site.

1.25 TEMPORARY POWER AND LIGHTING

A. The Electrical Subcontractor shall furnish and install feeders of sufficient size from the Utility Company's power lines for the electric light and power requirements for the building while under construction and until the permanent feeders and related equipment have been installed and are in operation. Temporary lighting shall be based on a minimum of one watt per square foot covering each and every square foot of floor area in the building. Sufficient wiring, lamps, and

outlets shall be installed to insure proper lighting in all rooms, space, stairwells, and corridors. Minimum sized lamp used shall be 100 watt. Where higher lighting intensities are required by Federal or State Standards of Laws or otherwise specified, the above specified wattage shall be increased to provide these increased intensities.

B. All necessary transformers, meters, cables, panelboards, switches, temporary lamp replacements and accessories required for the temporary light and power installation shall be provided by the Electrical Subcontractor.

C. The Electrical Subcontractor shall provide and maintain on each floor of the building, a feeder or feeders of sufficient capacity for the requirements of the entire floor and he shall provide a sufficient number of outlets, located at convenient points so that extension cords of not over 50 feet in length will reach all work requiring temporary light or power.

D. The Electrical Subcontractor shall install and maintain the wiring and accessories for the offices of the General Contractor and the Clerk of the Works as specified in the contract form.

E. All temporary Electrical work shall meet the requirements of the National Electrical Code Article 590 Temporary Wiring, the Local Utility Company, and all Federal Standards and Laws.

F. All temporary wiring and accessories thereto installed by the Electrical Subcontractor shall be removed after their purposes have been served.

G. The General Contractor will pay for the cost of electric energy consumed by himself and by all of his Subcontractors, unless otherwise indicated.

H. All lamps installed in permanent lighting fixtures and used for lighting during construction shall be replaced by the Electrical Subcontractor just prior to date of Use and Occupancy or Final Acceptance.

I. Provide all temporary lighting and power required above during the normal working hours of the project or a total of ten (10) hours per normal working day; Saturdays, Sundays and legal holidays are excluded. The ten hours per day shall include manning the temporary power and lighting 1/2 hour before and 1/2 hour after a normal eight (8) hour working day. In addition to the above, provide and maintain, to the satisfaction of the local Authorities having jurisdiction, all temporary lighting and power that may be required for safety purposes. The Electrical Subcontractor will be compensated by the General Contractor for any additional standby time, materials or equipment required by the General Contractor or other Subcontractors beyond the normal working hours, as defined above.

1.26 STAGING AND SCAFFOLDING

A. Provide staging and scaffolding for all the work of this section complying with Division 1 requirements.

1.27 EXTRA MATERIALS

A. Furnish extra materials as indicated below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.

1. 10% of total audio/visual appliances installed.
2. 10% of each total pull stations and smoke detectors installed.

1.28 SEISMIC REQUIREMENTS

A. Equipment and work shall meet the restraint requirements for the designated Seismic Design category. This shall include all installation and connections of material and equipment to the

building structure. Refer to Structural Drawings for Seismic Design category and ASCE7 for electrical requirements.

1.29 PHASING, DEMOLITION AND MAINTAINING EXISTING SERVICES

A. During the execution of the work, required relocation, etc., of existing equipment and systems in the existing building areas where new work is to be installed or new connections are scheduled to be made, shall be performed by the Electrical Subcontractor, as required by job conditions and as determined by the Architect in the field, to facilitate the installation of the new system, while demolition, relocation work or new tie ins will be performed. Outages required for construction purposes shall be scheduled for the shortest practical period of time, in coordination with the Owner's designated representative, for specified, mutually agreeable periods of time, after each of which the interruption shall cease and the service shall be restored. This procedure shall be repeated to suit the Owner's working schedule, as many times as required until all work is completed. Any outages of service shall be approved by the Owner, prior to commencing the work. No outages or shutdowns of service shall occur without the written authorization of the Owner prior to commencing the work. Give notice of any scheduled shutdowns, a minimum of two (2) weeks in advance. Owner shall make their best efforts to meet this request without adversely affecting the electric service to the existing building.

B. Prior to any deactivation and relocation or demolition work, consult the Contract Drawings and arrange a conference with the Architect and Owner's representative in the field to inspect each of the items to be deactivated, removed or relocated. Care shall be taken to protect all equipment designated to be relocated and reused or to remain in operation and be integrated with the new systems.

C. All deactivation, relocation and temporary tie-ins of electrical systems and equipment shall be provided by the Electrical Subcontractor. All demolition and removal of electrical systems and equipment designed to be demolished shall be provided by the Electrical Subcontractor. Place all demolished electrical materials except hazardous materials (PCB lighting ballasts, fluorescent lamps, etc.) as determined by the Authority Having Jurisdiction in General Contractor's dumpster. All hazardous electrical materials shall be legally disposed of by the Electrical Subcontractor.

D. The Owner reserves the right to inspect the material scheduled for removal and salvage any items he deems usable as spare parts.

E. Phasing:

1. The Electrical Subcontractor shall construct the subject project in phases as directed by the Architect to suit the project progress schedule, as well as the completion date of the project.

2. For additional information related to phasing, review the General Conditions and Supplementary Conditions and the Architectural Drawings.

PART 2 – PRODUCTS

2.1 GENERAL

A. Product Specifications are written in such a manner so as to specify what materials may be used in a particular location or application and therefore do not indicate what is not acceptable or suitable for a particular location or application. As an example: Non-metallic sheathed cable is not specified; therefore it is not acceptable.

B. For purpose of establishing a standard of quality and not for purposes of limiting completion, the basis of this Specification is upon specified models and types of equipment and materials, as manufactured by specified manufacturers.

C. In all cases, standard cataloged materials and systems have been selected. Materials such as lighting fixtures specially manufactured for this particular project, and not part of a manufacturer's standard product line, will not be acceptable. In the case of systems, the system components shall be from a single source regularly engaged in supplying such systems. A proposed system made up of a collection of various manufacturers products will be unacceptable.

D. Where Specifications list manufacturers names and/or "as approved" or "equal approved by Designer", other manufacturers equipment will be considered if equipment meets Specification requirements and has all features of the specified items as are considered essential by the Architect.

E. All materials shall be new and shall be UL listed.

2.2 RACEWAYS AND FITTINGS

A. Raceways – General:

1. No raceway shall be used smaller than 3/4" diameter. No conduit shall have more than three (3) 90° bends in any one run, and where necessary, pull boxes shall be provided.

2. Rigid metal conduit (RMC) conforming to, and installed in accordance with, Article 344 of NFPA 70 shall be heavy wall zinc coated steel conforming to American Standard Specifications C80-1 and may be used for service work, exterior work, slab work, and below grade level slab, wet locations, and in mechanical rooms and where raceway may be subjected to mechanical damage, i.e., loading docks, workshops, etc.

3. Intermediate metal conduit (IMC) conforming to, and installed in accordance with Article 342 of NFPA 70 shall be zinc coated steel and may be used in all areas similar to RMC.

4. Thin wall conduit (EMT), conforming to, and installed in accordance with, Article 358 of NFPA 70 shall be zinc coated steel, conforming to industry standards, may be used in masonry block walls, stud partitions, above furred ceilings where exposed but not subject to mechanical damage, and shall be used for fire alarm work.

5. Flexible metal conduit (FMC) conforming to, and installed in accordance with Article 348 of NFPA 70 shall be used for connections to recessed light fixtures, vibrating equipment and motors. All FMC shall be secured and supported in accordance with Article 348 of NFPA 70.

6. Liquidtight flexible metal conduit (LFMC) conforming to, and installed in accordance with Article 350 of NFPA 70 shall be used for connections to light fixtures, vibrating equipment and motors. All LFMC shall be secured and supported in accordance with Article 350 of NFPA 70. If used on roof applications, all LFMC shall be supported by sleepers approved by the Architect prior to installation.

7. PVC Schedule 40 may also be used for below grade slab circuits within building confines. Below slab rigid non-metallic conduits do not require concrete encasement. Rigid non-metallic conduits shall not be used in slabs. Rigid steel elbows or stubs shall be used for penetrations from below slab or through exterior walls into building. PVC shall not be installed within building. Raceways and fittings shall be produced by same manufacturer. All PVC conduit shall comply with ANSI/UL 651.

8. PVC coated rigid metal conduit shall be used where indicated and conform to the following:
   a. Prior to application of the PVC coatings, all conduits shall conform to Federal Specification WW-C-581 E, ANSI Standard C80.1, UL Standard #6 and shall be hot dip galvanized.
   b. The PVC exterior coating shall have a nominal thickness of 40 mils and shall be applied using a fluidized bed process.

c. Interior conduit, interior fitting surfaces and all threads shall all be protected by a two- part 2 mil urethane coating.
d. Interior and exterior coatings on conduit shall have sufficient flexibility to permit field bending without damage.

9. Where indicated on the project drawings provide color coded EMT as follows:
   a. Red – Fire and Emergency Systems.

10. Acceptable Manufacturers:
    a. Wheatland Tube Company
    b. Allied Tube
    c. Western Tube & Conduit
    d. Carlon
    e. Perma-Cote Supreme
    f. Cantex

11. Fittings:
    a. Provide insulated bushings on all raceways that house conductors #4 AWG or larger at all threaded fittings no matter what the size of the conductor.
    b. Manufacturer's standard fittings shall be used for raceway supports.
    c. Expansion Fittings: Expansion fittings shall be used where structural and concrete expansion joints occur and shall include a ground strap.
    d. Couplings for rigid metal conduit and IMC shall be threaded type. Provide insulated bushings.
    e. All fittings for EMT conduit shall be steel. No die-cast fittings are allowed. Set screw and compression connectors are allowed.
    f. Threadless fittings for EMT shall be watertight compression type. Set-screw type fittings are not acceptable. All fittings shall be concrete tight. No die-cast fittings allowed.
    g. Cable supports in vertical raceways shall be of the split wedge type. Armored cable supports for vertical runs to be of wire mesh basket design.
    h. Wall entrance seals shall be equal to O.Z. Gedney type "WSK" or Link-Seal.
    i. Couplings, elbows and other fittings used with rigid nonmetallic raceways shall be of the solvent cemented type to secure a waterproof installation.
    j. Acceptable manufacturers:
       1) O.Z. Gedney
       2) Crouse Hinds
       3) American Fittings
       4) Hubbell
       5) Thomas & Betts

2.3 WIRING MATERIALS

A. Building Wire and Cable shall be copper with 600V insulation, THWN for branch circuitry and XHHW for feeders.

B. Conductors shall be of soft drawn 98% minimum conductivity properly refined copper, solid construction where No. 10 AWG and smaller, stranded construction where No. 8 AWG and larger.

C. Exterior of wires shall bear repetitive markings along their entire length indicating conductor size, insulation type and voltage rating.

D. Exterior of wires shall be color coded, so as to indicate a clear differentiation between each phase and between each phase and neutral. In all cases, grounded neutral wires and cables shall be identified by the colors "white" or "gray". In sizes and insulation types where factory applied colors are not available, wires and cables shall be color coded by the application of colored plastic tapes in overlapping turns at all terminal points, and in all boxes in which splices are made. Colored tape shall be applied for a distance of 6 inches along the wires and cables, or along their entire extensions beyond raceway ends, whichever is less.

E. Final connections to motors shall be made with 18" of neoprene sheathed flexible conduit.

F. Minimum branch circuit conductor size shall be No. 12 AWG installed in conduit. Motor control circuit wiring shall be minimum No. 14 AWG installed in conduit.

G. Fire alarm and security system wiring shall be per manufacturer's recommendations.

H. Other wires and cables required for the various systems described elsewhere in this section of the Specifications shall be as specified herein, as shown on the Contract Drawings, or as recommended by the manufacturer of the specific equipment for which they are used, all installed in conduit.

I. Metal clad sheathed cable NFPA 70, type MC may be used for branch circuitry where shown and where run concealed and not subject to physical damage. All type MC cable used shall contain a full size insulated ground conductor. All conductors shall be copper. All type MC cable insulation used shall have voltage rating of 600 volts, shall have a temperature rating of 75° C, and shall be thermoplastic material. Armor material shall be steel and armor design shall be interlocked metal tape. Fire alarm rated MC cable may be used for fire alarm work where concealed and acceptable to the Local Authority Having Jurisdiction.

J. Mineral-insulated metal-sheathed fire-resistive cables, type MI, shall consist of a factory assembly of one or more solid copper conductors insulated with highly-compressed magnesium oxide and enclosed in a seamless, liquid and gas-tight continuous copper sheath. Cables shall be rated for 600 volts. Cable shall comply with Article 330 of the National Electrical Code. Cables shall be classified by Underwriters Laboratories, Inc. as having a 2-hour fire resistive rating. Cable terminations shall be made with UL listed mineral-insulated cable fittings. Cables shall be as manufactured by Pyrotenax USA, Inc., or approved equal.

K. Wiring materials except MI cable shall be manufactured by Southwire, Prysmian, General Cable, or equal.

2.4 OUTLET, JUNCTION, PULL BOXES AND WIRING TROUGHS FOR ALL SYSTEMS

A. Outlets:

1. Each outlet in wiring or raceway systems shall be provided with an outlet box to suit conditions encountered. Boxes installed in normally wet locations shall be of cast-metal type having hubs. Concealed boxes shall be cadmium plated or zinc coated sheet metal type. Old work boxes with Madison clamps are not allowed in new construction.

2. Each box shall have sufficient volume to accommodate number of conductors in accordance with requirements of NFPA 70. Boxes shall not be less than 1-1/2" deep unless shallower boxes are required by structural conditions and are specifically approved by Architect. Ceiling and bracket outlet boxes shall not be less than 4" octagonal except that smaller boxes may be used where required by particular fixture to be installed. Flush or recessed fixtures shall be provided with separate junction boxes when required by fixture terminal temperature requirements. Switch and receptacle boxes shall be 4" square or of comparable volume.

3. Acceptable Manufacturers:
   a. Appleton
   b. Crouse Hinds
   c. Steel City
   d. RACO

B. Pull and Junction Boxes: Where necessary to terminate, tap off, or redirect multiple raceway runs or to facilitate conductor installation, furnish and install appropriately designed boxes. Boxes shall be fabricated from code gauge steel assembled with corrosion resistant machine screws. Box size shall be as required by Code. Where intermediate cable supports are necessary

because of box dimensions, provide insulated removable core brackets to support conductors. Junction boxes are to be equipped with barriers to separate circuits. Where splices are to be made, boxes shall be large enough to provide ample work space. All conductors in boxes are to be clearly tagged to indicate characteristics. Boxes shall be supported independently of raceways. Junction boxes in moist or wet areas shall be galvanized type. Boxes larger than 4 inches square shall have hinged covers. Boxes larger than 12 inches in one dimension will be allowed to have screw fastened covers, if a hinged cover would not be capable of being opened a full 90 degrees due to installation location.

2.5 WIRING DEVICES

A. Provide wiring device type plates for all wall-mounted devices. All wall plates shall be smooth high impact nylon for all areas, color as directed by the Architect. Provide galvanized steel for all Utility, Electric and Mechanical Rooms.

B. Wiring devices standard for the project (i.e., with no specific type indicated) shall conform to the following:

1. Visible part colors of wiring devices shall be as directed by the Architect for all areas. Provide brown devices for all Utility, Electrical and Mechanical rooms.

2. Exclude compact or “despard” type devices.

C. Wiring device switches shall be toggle type, A.C. quiet design, specification grade, 20 amps on 120 volt circuits. Switches shall be mounted 48” to center line above finished floor unless noted otherwise.

1. Single pole switch shall be equal to Hubbell No. 1221.
2. Double pole switch shall be equal to Hubbell No. 1222.
3. Three-way switch shall be equal to Hubbell No. 1223.
4. Four-way switch shall be equal to Hubbell No. 1224.
5. Single pole pilot light switch shall be equal to Hubbell No. HBL 1221PL.
6. Equivalent 277 volt 20 amp switches shall be used where required.

D. Standard duplex convenience receptacles shall be 125 volt, 20 amps, three wire (two circuit wires plus ground), “U-bar” ground NEMA slot configuration 5-20R, specification grade. Receptacles shall be mounted 18” to center line above finished floor unless noted otherwise.

1. Equal to Hubbell No. 5362.

2. Where indicated on plans provide receptacles with ground fault current interrupters, UL Class A; 20A, 125V to be equal to Hubbell No. GF5362. All GFI receptacles shall be self-testing type in compliance with UL 943.

E. Non-standard convenience receptacles and special purpose power supply receptacles shall be as listed on plans.

F. Devices and device plates for flush wall devices which are not integrally equipped with same, shall be as directed by the Architect.

G. For unfinished spaces, plates for surface-mounted wall devices which are not integrally equipped with same, shall be galvanized sheet steel, formed raised type which does not overlap box. Where for switches, such plates shall have toggle guards.

H. Where more than one wiring device is indicated in the same location, the devices shall be mounted in gang under a common wall plate.

I. Mount duplex convenience and power receptacles vertically with grounding posts at top of device unless otherwise indicated. Locate grounding post to left when horizontal mounting is indicated.

J. Wiring devices and associated hardware shall be manufactured by Leviton, Hubbell or Pass and Seymour.

2.6 GROUNDING REQUIREMENTS

A. Ground all systems and equipment in accordance with best industry practice, the requirements of NFPA 70, Article 250 and the following:

1. Provide grounding bonds between all metallic conduits of the light and power system which enter and leave cable chambers or other non-metallic cable pulling and splicing boxes. Accomplish this by equipping the conduits with bushings of the grounding type individually cross connected.

2. Bond metallic conduits containing grounding electrode conductors and main bonding conductors to the ground bus service enclosure and/or grounding electrode at both ends of each run utilizing grounding bushings and jumpers.

3. Provide grounding bonds for all metallic conduits of the light and power system which terminate in pits below equipment for which a ground bus is specified. Accomplish this by equipping the conduits with bushings of the grounding type connected individually to the ground bus.

4. Provide supplementary ground bonding where metallic conduits terminate at metal clad equipment (or at the metal pull box of equipment) for which a ground bus is specified. Accomplish this be equipping the conduits with bushings of the grounding type connected individually by means of jumpers to the ground bus. Exclude the jumpers where directed. This exclusion will be required where an isolated ground for electronic equipment is to be maintained.

5. Each grounding type bushing shall have the maximum ground wire accommodation available in standard manufacture for the particular conduit size. Connection to bushing shall be with wire of this maximum size.

6. Bonding conductors on the load side of the service device and equipment grounding conductors shall be sized in relation to the fuses or trip size of the overcurrent device supplying the circuit.

7. The central equipment for the fire protective alarm system and telephone system shall have its grounding terminal connected to the grounding electrode by means of a No. 6 green coded insulated conductor, run in 3/4" conduit. Utilize a ground clamp of a type specifically manufactured for the purpose.

2.7 PHASING AND COLOR CODING

A. The insulation or covering of each wire or cable shall be color coded so as to provide for circuit identification as specified below:

| 120/208 V Circuits | Phase Circuits |
|---|---|
| Black | A |
| Red | B |
| Blue | C |
| White | Neutral |
| Green | Equipment Ground |

B. Color coding shall be achieved by one of the following methods:

1. The insulation or covering shall be coded during manufacture by use of one of the following methods:

a. Colored compounds.
b. Colored coatings.

2. In sizes and insulation types where factory applied colors are not available, wires and cables shall be color coded by the application of colored plastic tapes in overlapping turns at all terminal points, and in all boxes in which splices are made.

C. The same colored cable shall be connected to the same phase throughout the project.

D. In general, building load centers and panelboards shall be phased “A”, “B”, “C”, left to right. The neutral, although it may be in different locations for different equipment, shall be identified.

2.8 LIGHTING FIXTURES

A. All lighting fixtures shall be in accordance with identifications on the Contract Drawings and the following:

1. Finishes shall be as selected by the Architect or as indicated on the plans.

2. Any additional appurtenances required for installation and operation, where same are not covered by the identification used on the Contract Drawings, shall be included.

3. Recessed fixtures shall be coordinated with ceiling construction.

4. Exact location of all fixtures shall be confirmed with Architect prior to rough-in.

5. Recessed fixtures throughout shall have their components, wiring and external connections coordinated for use in ceilings utilized as air handling plenums.

6. Fixtures for use outdoors or in areas designated as damp locations, shall be suitably gasketed and UL listed for such applications.

7. All fixtures shall be UL approved with labels attesting thereto.

8. The Contractor shall obtain all information relative to the exact type of hung ceilings and suspension systems to be installed before ordering any recessed fixtures. This Contractor shall furnish the proper type fixtures applicable to the ceiling framing system. If, other than the type of fixtures specified are required for installation, due to the type of ceiling construction, this Contractor shall furnish and install the proper type fixtures and mounting appurtenances required at no extra charge.

9. The Contractor shall coordinate the exact locations of all lighting fixtures with the ceiling pattern during the construction period and before installation of the fixtures. Interferences between lighting fixtures, and other equipment, shall be brought to the attention of the General Contractor.

10. Include the aiming and/or adjustments of all lighting fixtures requiring same in accordance with instructions issued by the Architect in the field.

11. All lamp sockets in lighting fixtures shall be suitable for the indicated lamps and shall be set so that the lamps are positioned in optically correct relation to all lighting fixture components.

12. Lighting fixtures shall be supported from building structure only, not from hung or suspended ceiling, by means of chains, threaded rods or #14 gauge tie wire.

13. All fixtures shall include seismic clips and shall be supported to comply with seismic regulations.

B. LED Lamps and Luminaires:

1. Solid State Lighting/Light Emitting Diode (LED) Lamps and Luminaries:
   a. Luminaire manufacturer shall have a minimum of five (5) years' experience in the manufacture and design of LED products and systems and no less than one hundred (100) North American installations.
   b. Unless otherwise specified, all LED luminaires and power/data supplies shall be provided by a single manufacturer to ensure compatibility.
   c. All components, peripheral devices and control software are to be provided by and shall be the responsibility of a single entity. All components shall perform successfully as a complete system.
   d. Include all components necessary for a complete installation. Provide all power supplies, synchronizers, data cables, and data terminators for a complete working system.
   e. All LED sources used in the LED luminaire shall be of proven quality from established and reputable LED manufacturers and shall have been fabricated after 2007.

2. Replacement and Spares:
   a. Manufacturer will keep record of original bin for each LED module and have replacement modules from the same bin available for three (3) years after date of installation.
   b. Manufacturer will keep an inventory of replacement parts (source assembly, power and control components).
   c. Manufacturer's LED system will not become obsolete for ten (10) years.
   d. Manufacturer will provide exact replacement parts, or provide upgraded parts that are designed to fit into the original luminaire and provide equivalent distribution and lumen output to the original, without any negative consequences.
   e. Manufacturer has in place a written recycling and re-use program, and will accept returned product and/or components for recycling or re-use.
   f. Manufacturer will properly dispose of non-recyclable components that are deemed harmful to the environment.
   g. System shall carry a full warranty for five (5) years. Manufacturer shall be responsible for cost of labor not to exceed $50 per individual part, and cost of shipping, to replace any component of the system that fails within two (2) years of installation.

3. Products and Components – Performance:
   a. LED luminaires and components shall be UL listed or UL classified.
   b. LED luminaires and components shall be CE certified.
   c. LED luminaires and components shall be PSE marked.
   d. All LED luminaires shall be subjected to the following JEDEC Reliability Tests for Lead-free Semiconductors: HTOL, RTOL, LTOL, PTMCL, TMSK, Mechanical Shock, Variable Vibration Frequency, SHR, Autoclave.
   e. To ensure luminaire quality, luminaire shall have been tested under accelerated life test conditions including an operating temperature span of 360 degrees F, and cyclic loading up to 60G.
   f. All products included in system shall use Mil-Std 810F, Random Vibration 7.698g as a minimum standard. In installations subject to vibration, luminaire shall be installed with vibration isolation hardware to sufficiently dampen vibrations.
   g. All LED components shall be mercury and lead-free.
   h. All manufacturing processes and materials shall conform to the requirements of the European Union's Restriction on the Use of Hazardous Substances in Electrical and Electronics Equipment (RoHS) Directive, 2002/95/EC.
   i. LEDs shall comply with ANSI/NEMA/ANSLG C78.377-2008 – Specifications for the Chromaticity of Solid State Lighting Products. Color shall remain stable throughout the life of the lamp. Color shall match approved sample.
   j. LEDs shall comply with IESNA LM-80 – Standards for Lumen Maintenance of LED Lighting Products.
   k. White LEDs shall have a rated source life of 50,000 hours under normal operation conditions. RGB LEDs shall have a rated source life of 100,000 hours. LED "rated

source life" is defined as the time when a minimum of 70% of initial lumen output remains.

l. Luminaire assembly shall include a method of dissipating heating so as to not degrade life of source, electronic equipment, or lenses. LED luminaire housing shall be designed to transfer head from the LED board to the outside environment. Luminaire housing shall have no negative impact on life of components.
m. Manufacturer shall supply in writing a range of permissible operating temperatures in which system will perform optimally.
n. High power LED luminaires shall be thermally protected using one or more of the following thermal management techniques: metal core board, gap pad, and/or internal monitoring firmware.
o. LEDs shall be adequately protected from moisture or dust in interior applications.
p. For wet and damp use, LED-based luminaires itself shall be sealed, rated, and tested for appropriate environmental conditions, not accomplished by using an additional housing or enclosure. Such protection shall have no negative impact on rated life of source or components, or if so, such reductions shall be explicitly brought to the attention of the Designer.
q. All hardwired connections to LED luminaires shall be reverse polarity protected and provide high voltage protection in the event connections are reversed or shorted during the installation process.
r. The LED luminaire shall be operated at constant and carefully regulated current levels. LEDs shall not be overdriven beyond their specified nominal voltage and current.
s. RGB LED luminaries shall utilize an equal combination of high brightness red, blue and green LEDs, unless otherwise noted, to provide up to 16.78 million additive RGB colors and shall be capable of at least 8-bit control.
t. Manufacturer shall be able to provide supporting documentation of the product meeting third party regulatory compliance.
u. Manufacturer shall ensure that products undergo and successfully meet appropriate design and manufacturability testing including Design FMEA, Process FMEA, Environmental Engineering Considerations and Laboratory Tests, IEC standards and UL/CE testing.
v. All LED luminaires (100% of each lot) shall undergo a minimum twenty-four (24) hour burn-in during manufacturing, prior to shipping.
w. Manufacturer shall provide Luminaire Efficacy (lm/W), total luminous flux (lumens), luminous intensity (candelas) chromaticity coordinates, CCT and CRI optical performance, polar diagrams, and relevant luminance and illuminance photometric data. Provide data in IES file format in accordance with IES LM-79-2008, based on test results from an independent Nationally Recognized Testing Laboratory.
x. Power/Data supply shall have the following:
    1) Supply outputs shall have current limiting protection.
    2) Supply shall provide miswiring protection.
    3) Supply shall have power factor correction.
    4) Supply shall provide connections that are conduit-ready or clamp-style connections in the case of low-voltage wiring.
    5) Supply shall come with a housing that meets a minimum IP20 rating for dry location installation unless located in a damp or wet location.
    6) Supply shall be UL listed for Class 1 or Class 2 wiring.

## 2.9 FIRE ALARM SYSTEM

A. Furnish and install an addressable fire alarm system as indicated on the Drawings and as herein described. The equipment and installation shall comply with the current applicable provisions of the following standards:

1. NFPA 70 National Electrical Code
2. NFPA 71 Central Station Signaling Systems-Protected Premises Unit.
3. NFPA 72 National Fire Alarm Code
4. State Building Codes.

5. All requirements of the Local Authority Having Jurisdiction.
6. Underwriters Laboratories, Inc.
7. Massachusetts Electrical Code.
8. NFPA 101 Life Safety Code
9. Americans with Disabilities Act

B. The system and all components shall be listed by Underwriters Laboratories, Inc. for use in Fire Protective Signaling Systems under the following standards as applicable:

1. UL864 Control Units for Fire Protective Signaling Systems.
2. UL268 Smoke Detectors for Fire Protective Signaling Systems.
3. UL 268A Smoke Detectors for Duct Applications.
4. UL 217 Smoke Detectors, Single and Multiple Station.
5. UL 521 Heat Detectors for Fire Protective Signaling Systems.
6. UL 228 Door Closers-Holders for Fire Protective Signaling Systems.
7. UL 464 Audible Signaling Appliances.
8. UL 1638 Visual Signaling Appliances.
9. UL 38 Manually Actuated Signaling Boxes.
10. UL 1481 Power supplies for Fire Protective Signaling Systems.
11. City Fire Alarm Regulations.

C. General Requirements

1. Submittals
   a. Submit complete documentation for the Fire Alarm/Life Safety System showing the Model Number, type, rating, size, style, Manufacturer's Names, and Manufacturer's Catalog Data Sheets for all items to ensure compliance with these Specifications. Submittals shall be prepared by a NICET level III and reviewed signed and dated by a NICET IV.
   b. Upon Contract Bid approval, and prior to start of system installation, submit Shop Drawings to and obtain written approval from the Fire Department, prior to ordering fire alarm equipment. General requirements are as follows:
      1) Submittal of fire rated sealant for penetrations.
      2) A complete point to point riser diagram of the fire alarm system. (Typical riser diagrams are not acceptable).
      3) A complete point to point installation diagram. (Typical installation diagrams are not acceptable).
      4) A complete list of current drain requirements during normal supervisory, trouble, and alarm condition.
      5) Battery standby calculations showing total standby power required to meet the specified system requirements.
      6) Supplier’s qualifications indicating years in business, service policies, warranty definitions, and list of similar installations.
      7) Electrical Subcontractor qualifications, indicating years in business, prior experience with installations that include the type of equipment that is to be supplied, and installers license number and type of license.
      8) Circuit calculations for all Notification Appliance Circuits. Calculations shall conform to UL864 10th edition and shall be performed using 19vdc starting voltage with a drop allowance to minimum nameplate voltage for the devices on each circuit.
      9) Amplifiers shall be calculated based on the following tap settings”
         a) Gym, Cafeteria, Auditorium, rooms greater than 1,000 square feet and mechanical rooms shall be set at 2watts
         b) Corridors shall be at .5watts
         c) Classrooms shall be at 1 watt
         d) Offices shall be at .25
         e) Provide One back up amplifier for each 50 watts provided to support the system. Provide 75% spare capacity.
   c. All substitute equipment proposed as equal to the equipment specified herein, shall meet or exceed the fire alarm equipment standards. For equipment other than that specified,

the Electrical Subcontractor shall supply proof that such substitute equipment does in fact equal or exceed the features, functions, performance, and quality of the specified equipment. Submit this information for approval by the engineer at least ten (10) days prior to bid.

2. Equipment Manufacturer's
   a. All references to manufacturer's or supplier's model numbers and other pertinent information herein is intended to establish minimum standards of performance, function and quality. Equivalent equipment (compatible UL Listed) from other manufacturers may be substituted for the specified equipment.

3. General Equipment and Material Requirements
   a. All equipment and components shall be supplied by a factory authorized Autocall affiliate. All equipment and material shall be new and unused and listed by Underwriter's Laboratories for the specific intended purpose. All control panel components and field peripherals shall be designed for continuous duty without degradation of function or performance. All equipment covered by this Specification or noted on Installation Drawings shall be the best equipment suited for the application and shall be provided by a single manufacturer or be recognized and U.L. listed as compatible by both manufacturers.
   b. Furnish and install a fully Microprocessor Based, Fire Alarm System according to the following Specifications and as shown on the Drawings.
   c. The system will permit maximum system expansion and owner flexibility with a minimum of additional field wiring. The system shall be wired, connected, tested, and left in first class operating condition.
   d. The system shall be totally solid state, microprocessor based, to ensure reliable operation, low maintenance costs, and long life.
   e. The equipment and completed installation shall meet the approval of the Fire Department, the Authorities having jurisdiction, and in accordance with applicable Sections of NFPA 72 for Auxiliary Fire Alarm Systems, and National Fire Codes.
   f. All fire alarm control panels shall be predominately red in color and have a white label with the words FIRE ALARM CONTROL PANEL on the front of the panel with a minimum four (4) inch letter size. No other functions shall be allowed in the panel (e.g. security system).
   g. All fire alarm control panels shall provide 30% excess power supply capacity for future expansion.
   h. All equipment shall be listed by Underwriters Laboratories.
   i. Approved Equipment Suppliers
      1) Equipment and materials shall be as manufactured by Autocall or approved equal as manufactured by Edwards or Notifier. Equipment designations and model numbers herein specified are those of Autocall. It will be the responsibility of the Engineered System Distributor to ensure proper Specification adherence for system operation, final connection, test, turnover, warranty compliance, and after-market service. The distributor of the equipment specified shall be factory trained and certified.
   j. All equipment shall be provided by one manufacturer, Autocall, Notifier, or Edwards. Manufacturers listed shall insure compliance with the functional operating requirements specified herein.

D. System Operation

1. The system shall provide means to detect fire conditions within a protected property, transmit the alarm to the Fire Department via a digital alarm communicating Transmitter to a UL listed Central Station, alert Building occupants in which the alarm occurred, supervise the entire system for conditions which would impair proper system operation and to annunciate such abnormal conditions in accordance with applicable codes.

2. Except as alternately required by the Fire Marshal, the operation of any alarm-initiating device shall cause the evacuation alarm to sound and be displayed on all evacuation signaling devices in all areas of the Building.

3. Systems designed to sound/display evacuation signals only in designated areas shall be provided with means to sound/display the evacuation signal on any individual signaling device, group of devices or all connected devices. This means shall be field programmable any operated via selection switches provided at the control panel. There shall be no limit to the quantity of signaling zones and circuit wiring shall not dictate signaling zones.

4. Audible/Visual devices shall be speaker or strobes listed for fire alarm service except as otherwise permitted. Addressable signal modules shall be utilized to accomplish field programmable signaling zones.

5. Visual signaling devices shall be approved for the purpose and shall operate only in those areas where the evacuation signaling is required to be sounded and shall have the word "FIRE" permanently inscribed on their surfaces. Visual signaling zones shall also be field programmable as required.

6. The system shall be electrically/electronically supervised against component failure of the entire audio path including wiring, switches and electrical contacts and shall detect opens, shorts, grounds or loss of signal, which might impair the function of the system.

E. Main Fire Alarm Control Panel:

1. The FACP shall be a Autocall 4100ES or equal as manufactured by Edwards, or Notifier and shall contain a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with and control the following types of equipment used to make up the system: addressable detectors, addressable notification devices, addressable modules, printer, annunciators, and other system controlled devices.
   a. General: Comply with UL 864, "Control Units and Accessories for Fire Alarm Systems".
   b. Network Communications shall be fiber optic interconnection of panels for data, voice and two-way communications via Modular Network Communications Cards
   c. Alphanumeric Display and System Controls: Panel shall include an 854 character, expanded content multi-line QVGA LCD display to indicate alarm, supervisory, and component status messages and shall include a keypad for use in entering and executing control commands.
   d. Nodes shall be interconnected via fiber-optic cable in minimum of 2” conduit.
   e. Network node communication shall be through a token ring, hub, or star topology configuration, or combination thereof
   f. A single open, ground or short on the network communication loop shall not degrade network communications. Token shall be passed in opposite direction to maintain communications throughout all network nodes. At the same time the status of the communication link shall be reported
   g. If a group of nodes becomes isolated from the rest of the network due to multiple fault conditions, that group shall automatically form a sub-network with all common interaction of monitoring and control remaining intact. The network shall be notified with the exact details of the lost communications
   h. The communication method shall be NFPA 72 style 7

2. Network Synchronization of Notification Appliances
   a. The fire alarm and emergency communications network shall be capable of providing UL Listed synchronization across all the notification appliance circuits for all panels on a network loop in accordance with the requirements of UL 1971
   b. Systems that require all notification appliances to be connected to a single panel for synchronization thus creating a potential single point of failure shall not be acceptable

c. Up to 99 panels on a network loop shall be capable of UL Listed synchronization of all notification appliance circuits across the network loop in accordance with the requirements of UL 1971
d. Should network communications be disrupted, re-synchronization shall occur across all nodes that continue to communicate together after network re-initialization is completed and restored to affected nodes.

3. System Capacity and General Operation
   a. The control panel shall provide 2,500-point capacity where (1) point equals (1) monitor (input) or (1) control (output).
   b. 2000 points of annunciation where one (1) point of annunciation equals 1 LED driver output on a graphic driver or 1 switch input on a graphic switch input module, 1 LED on panel or 1 switch on panel
   c. Alphanumeric Display and System Controls: Panel shall include an 854 character, expanded content multi-line QVGA LCD display to indicate alarm, supervisory, and component status messages and shall include a keypad for use in entering and executing control commands
   d. Software: The fire alarm system shall allow for loading and editing instructions and operating sequences as necessary
      1) The system shall be capable of on-site programming to accommodate system expansion and facilitate changes in operation
      2) All software operations shall be stored in a non-volatile programmable memory within the fire alarm control unit. Loss of primary and secondary power shall not erase the instructions stored in memory
      3) Panels shall be capable of full system operation during new site-specific configuration download, master exec downloads, and slave exec downloads. Panels shall be fully operational during program modifications
      4) Remote panel site-specific software and executive firmware downloads shall be capable of being performed over proprietary fire alarm network communications, and via TCP/IP Ethernet network communications. Ethernet access to any fire alarm panel shall be capable of providing access only to authenticated users through a cryptographically authenticated and secure SSL tunnel
      5) Panels shall automatically store all program changes to the panel's non-volatile memory each time a new program is downloaded. Panels shall be capable of storing the active site-specific configuration program and no less than 9 previous revisions in reserve. A compare utility program shall also be available to authorized users to compare any two of the saved programs. The compare utility shall provide a deviation report highlighting the changes between the two compared programs.
      6) Panels shall provide electronic file storage with a means to retrieve a record copy of the site-specific software and up to 9 previous revisions. Sufficient file storage shall be provided for other related system documentation such as record drawings, record of completion, owner's manuals, testing and maintenance records, etc.
      7) The media used to store the record copy of site-specific software and other related system documentation shall be electrically supervised. If the media is removed a trouble shall be reported on the fire alarm control unit.
   e. The FACP shall provide the following features:
      1) History Logs: The system shall provide a means to recall alarms and trouble conditions in chronological order for the purpose of recreating an event history. A separate alarm and trouble log shall be provided.
      2) Fire Alarm Control Panel (FACP) shall provide the necessary hardware to provide supplemental notification and remote user access to the FACP using Ethernet and TCP/IP communications protocol compatible with IEEE Standard 802.3.
      3) The means of providing supplemental email and SMS text messaging notification shall be agency listed for specific interfaces and for the purpose described in this section. The use of non-listed external third-party products and interfaces is not acceptable.

4) The fire panel internet interface shall be capable of sending automated notification of discrete system events via email and SMS text messaging to up to 50 individual user accounts and via email to up to 5 distribution lists.
5) Each user account and distribution list shall be capable of being configurable for the specific type of events to be received. Each account shall be configurable to receive notification upon any combination of the following types of events:
   a) Fire Alarm,
   b) Priority 2,
   c) Supervisory,
   d) Trouble,
   e) Custom Action Messages,
   f) Maintenance Alerts to warn of excessive compensation.

f. Required Functions: The following are required system functions and operating features:
1) Priority of Signals: Fire alarm events have highest priority. Subsequent alarm events are queued in the order received and do not affect existing alarm conditions. Priority Two, Supervisory and Trouble events have primary, based upon emergency condition-, third-, and fourth-level priority, respectively. Signals of a higher-level priority take precedence over signals of lower priority even though the lower-priority condition occurred first. Annunciate all events regardless of priority or order received.
2) Noninterfering: An event on one zone does not prevent the receipt of signals from any other zone. All zones are manually resettable from the FACP after the initiating device or devices are restored to normal. The activation of an addressable device does not prevent the receipt of signals from subsequent addressable device activations.
3) Transmission to an approved Supervising Station: Automatically route alarm, supervisory, and trouble signals to an approved supervising station service provider, under another contract.
4) Annunciation: Operation of alarm and supervisory initiating devices shall be annunciated at the FACP and the remote annunciator, indicating the type of device, the operational state of the device (i.e. alarm, trouble or supervisory) and shall display the custom label associated with the device.
5) Selective Alarm: A system alarm shall include: Indication of alarm condition at the FACP and the annunciator(s). Identification of the device /zone that is the source of the alarm at the FACP and the annunciator(s).
6) Operation of audible and visible notification appliances until silenced at FACP.
7) Closing doors normally held open by magnetic door holders.
8) Unlocking designated doors.
9) Shutting down supply and return fans serving zone where alarm is initiated.
10) Transmission of signal to the supervising station.
11) Initiation of elevator Phase I functions (recall, shunt trip, illumination of indicator in cab, etc.) in accordance with ANSI/ASME A17.1 / CSA B44, Safety Code for Elevators and Escalators, when specified detectors or sensors are activated, as appropriate.
12) Supervisory Operations: Upon activation of a supervisory device such as a fire pump power failure, low air pressure switch, and tamper switch, the system shall operate as follows:
13) Activate the system supervisory service audible signal and illuminate the LED at the control unit and the remote annunciator.
14) Pressing the Supervisory Acknowledge Key will silence the supervisory audible signal while maintaining the Supervisory LED "on" indicating off-normal condition. Record the event in the FACP historical log.
15) Transmission of supervisory signal to the supervising station.
16) Restoring the condition shall cause the Supervisory LED to clear and restore the system to normal.
17) Alarm Silencing: If the "Alarm Silence" button is pressed, all audible alarm signals shall cease operation.

18) Priority Two Operations: Upon activation of a priority two condition such as gas detection, chemical leak detection, intrusion alert, weather alert, the system shall operate as follows:
19) Activate the system priority two audible signal and illuminate the LED at the control unit and the remote annunciator.
20) Pressing the Priority 2 Acknowledge Key will silence the audible signal while maintaining the Priority 2 LED "on" indicating off-normal condition.
21) Record the event in the FACP historical log.
22) Transmission of priority two signal to the supervising station.
23) Restoring the condition shall cause the Priority 2 LED to clear and restore the system to normal.
24) System Reset: The "System Reset" button shall be used to return the system to its normal state. Display messages shall provide operator assurance of the sequential steps ("IN PROGRESS", "RESET COMPLETED") as they occur. The system shall verify all circuits or devices are restored prior to resetting the system to avoid the potential for re-alarming the system. The display message shall indicate "ALARM PRESENT, SYSTEM RESET ABORTED.
25) "Should an alarm condition continue, the system will remain in an alarmed state.A manual evacuation (drill) switch shall be provided to operate the notification appliances without causing other control circuits to be activated.
26) WALKTEST: The system shall have the capacity of 8 programmable passcode protected one person testing groups, such that only a portion of the system need be disabled during testing. The actuation of the "enable one person test" program at the control unit shall activate the "One Person Testing" mode of the system as follows:
27) The city circuit connection and any suppression release circuits shall be bypassed for the testing group.
28) Control relay functions associated with one of the 8 testing groups shall be bypassed.
29) The control unit shall indicate a trouble condition.
30) The alarm activation of any initiating device in the testing group shall cause the audible notification appliances assigned only to that group to sound a code to identify the device or zone.
31) The unit shall automatically reset itself after signaling is complete.
32) Any opening of an initiating device or notification appliance circuit wiring shall cause the audible signals to sound for 4 seconds indicating the trouble condition.
33) Install Mode: The system shall provide the capability to group all non-commissioned points and devices into a single "Install Mode" trouble condition allowing an operator to clearly identify event activations from commissioned points and devices in occupied areas.
34) It shall be possible to individually remove points from Install Mode as required for phased system commissioning.
35) It shall be possible to retrieve an Install Mode report listing that includes a list of all points assigned to the Install Mode. Panels not having an install mode shall be reprogrammed to remove any non-commissioned points and devices.
36) Module Distribution: The fire alarm control unit shall be capable of allowing remote location of modules; interface of such modules shall be through a Style 7 (Class A) supervised serial communications channel (SLC): Initiating Device Circuits Notification Appliance Circuits Auxiliary Control Circuits Graphic Annunciator LED/Switch Control Modules
37) In systems with two or more Annunciators and/or Command Centers, each Annunciator/Command Center shall be programmable to allow multiple Annunciators/Command Centers to have equal operation priority or to allow hierarchal priority control to be assigned to individual Annunciator/Command Center locations.

F. System Functional Operation

1. System Alarm Detection and Reporting.

a. When a fire alarm condition is detected and reported by one of the system initiating devices or appliances, the following functions shall immediately occur:
   1) The System Alarm LED shall flash.
   2) A local Piezo-Electric signal in the control panel shall sound.
   3) The racter LCD display shall indicate all information associated with the Fire Alarm condition, including: type of alarm point, its location within the protected premises, and the time and date of that activation.
   4) All system output programs assigned via control-by-event equations to be activated by the particular point in alarm shall be executed, and the associated System Outputs (Alarm Indicating Appliances and/or relays) shall be activated.
      a) A signal shall be sent to the Fire Department via masterbox/radio master box/telephone dialer/cellular fire alarm communicator.
         (1) A signal shall be sent to a central station via single or dual path cellular commercial fire alarm communicator,
      b) Close all fire doors.
      c) Capture the elevator.
      d) Shut down all HVAC units equipped with duct smoke detectors.
   5) Unacknowledged alarm messages shall have priority over trouble messages, and if such an Alarm occurs during a Trouble sequence, the Alarm condition will have display priority.

2. System Trouble Detection: When a trouble condition is detected and reported by one of the system initiating devices, the following functions shall immediately occur:
   a. The System Trouble LED shall flash.
   b. A local Piezo electric signal in the control panel shall sound.
   c. The LCD display shall indicate all information associated with the Fire Alarm trouble condition, including: type of trouble point, its location within the protected premises, and the time and date of that activation.
   d. If any of the available optional serially connected equipment is being used, then each of the connected peripherals will display/print the information associated with the Fire Alarm Control Panel condition, including the time/date stamping of the change of status event.
   e. If applicable, all system output programs assigned via control-by-event equations to be activated by the particular point in trouble shall be executed, and the associated System Outputs (Trouble Indicating Appliances and/or relays) shall be activated.
   f. Unacknowledged alarm messages shall have priority over trouble messages, and if such an Alarm occurs during a Trouble sequence, the Alarm condition will have display priority.

3. Voice Alarm: Provide an emergency communication system, integral with the FACP, including voice alarm system components, microphones, amplifiers, and tone generators. Features include:
   a. The evacuation alarm and alert signals shall be capable of being initiated automatically from the fire alarm control panel (FACP) and transmitted to any programmable speaker circuit, selected speaker circuits or all speaker circuits. Speaker circuits shall be fully programmable from the FACP. It shall be possible to create signaling/paging circuits withoput the need to rewire. Additional compensation shall not be awarded should the AHJ require additional signaling zones. This shall be accomplished via addressable control modules for each speaker/strobe shown on the drawings
   b. The alarm signal, alert signal and live voice announcements shall be capable of manual transmission from the FACP to any speaker circuit, selected speaker circuits or all speaker circuits by manual selection of the associated speaker circuit control switches. The system shall not limit the quantity of circuits that may be programmed and shall not be contingent on wiring
   c. Live voice announcements, via the hand-held microphone or patched in warden phone, by use of speaker control switches, shall take priority over all previously activated alarm inputs. In addition to NFPA 72 requirements, the system shall be capable of priority live voice announcements over subsequent alarm conditions. In no case shall subsequent alarms disrupt emergency live voice announcements

d. Alarm speaker amplification equipment shall be sized, as a minimum, to provide the following wattage levels for each location type of alarm speaker:
   1) Each floor alarm speaker: Provide one watt of input power.
   2) Each toilet alarm speaker: Provide one-half (1/2) watt of input power.
   3) Each auditorium, gymnasium, cafeteria and mechanical room alarm speaker: Provide two watts of input power.
   4) Each stairwell alarm speaker: Provide one-half (1/2) watt of input power.
   5) Each elevator cab alarm speaker: Provide one-quarter (1/4) watt of input power.
   6) As a minimum, alarm speaker amplification equipment shall be sized to provide the above indicated wattage of input power to each location type of alarm speaker shown on the Drawings, plus twenty-five percent (25 percent) spare capacity to permit the addition of future alarm speakers
   7) Alarm speaker amplifiers shall be paired to provide 100 percent redundancy. One back-up alarm speaker amplifier shall be provided for each primary alarm speaker amplifier. If any primary alarm speaker amplifier fails, its function shall be taken over by its dedicated backup amplifier. Provide dedicated power amplifiers for each speaker circuit (4 min.) with one dedicated backup per amplifier (one to one backup)
   8) Alarm tone and alert tone oscillators and pre-amplifiers shall be paired to provide 100 percent redundancy
   9) As a minimum, each stairwell shall be provided with a dedicated notification appliance circuit
   10) As a minimum, the system shall be configured as a two channel voice system
   11) Within the individual assembly occupancies in this project, an alarm received during a program occupancy shall sound an alert alarm at a constantly attended location and perform the following actions
   12) Deliver a field programmable, digitized custom evacuation message to the occupants, detailing evacuation instructions.
   13) A simultaneous message shall be delivered via all alarm speakers installed in remainder of the building directing evacuation using exits other than the assembly occupancy exit path.
   14) Perform all control functions as detailed elsewhere in this specification
   15) An automatic announcement or tone evacuation signal shall be capable of interruption by the operation of the system microphone to give voice evacuation instructions overriding the pre-programmed sequences

G. Field Devices

1. Addressable Circuit Interface Modules
   a. Addressable Circuit Interface Modules: Arrange to monitor or control one or more system components that are not otherwise equipped for addressable communication. Modules shall be used for monitoring of waterflow, valve tamper, non-addressable devices, and for control of AHU systems.
   b. Addressable Circuit Interface Modules will be capable of mounting in a standard electric outlet box. Modules will include cover plates to allow surface or flush mounting. Modules will receive their operating power from the signaling line circuit or a separate two wire pair running from an appropriate power supply, as required.
   c. There shall be the following types of modules:
      1) Type 1: Monitor Circuit Interface Module:
         a) For conventional 2-wire smoke detector and/or contact device monitoring with Class B or Class A wiring supervision. The supervision of the zone wiring will be Class B. This module will communicate status (normal, alarm, trouble) to the FACP.
         b) For conventional 4-wire smoke detector with Class B wiring supervision. The module will provide detector reset capability and over-current power protection for the 4-wire detector. This module will communicate status (normal, alarm, trouble) to the FACP.
      2) Type 2: Line Powered Monitor Circuit Interface Module

a) This type of module is an individually addressable module that has both its power and its communications supplied by the two wire signaling line circuit. It provides location specific addressability to an initiating device by monitoring normally open dry contacts. This module shall have the capability of communicating four zone status conditions (normal, alarm, current limited, trouble) to the FACP.
b) This module shall provide location specific addressability for up to five initiating devices by monitoring normally closed or normally open dry contact security devices. The module shall communicate four zone status conditions (open, normal, abnormal, and short). The two-wire signaling line circuit shall supply power and communications to the module..

3) Type 3: Single Address Multi-Point Interface Modules
a) This multipoint module shall provide location specific addressability for four initiating circuits and control two output relays from a single address. Inputs shall provide supervised monitoring of normally open, dry contacts and be capable of communicating four zone status conditions (normal, open, current limited, and short). The input circuits and output relay operation shall be controlled independently and disabled separately.
b) This dual point module shall provide a supervised multi-state input and a relay output, using a single address. The input shall provide supervised monitoring of two normally open, dry contacts with a single point and be capable of communicating four zone status conditions (normal, open, current limited, and short). The two-wire signaling line circuit shall supply power and communications to the module.
c) This dual point module shall monitor an unsupervised normally open, dry contact with one point and control an output relay with the other point, using a single address. The two-wire signaling line circuit shall supply power and communications to the module.

4) Type 4: Line Powered Control Circuit Interface Module
a) This module shall provide control and status tracking of a Form "C" contact. The two-wire signaling line circuit shall supply power and communications to the module.

5) Type 5: 4-20 mA Analog Monitor Circuit Interface Module
a) This module shall communicate the status of a compatible 4-20 mA sensor to the FACP. The FACP shall annunciate up to three threshold levels, each with custom action message; display and archive actual sensor analog levels; and permit sensor calibration date recording.

6) All Circuit Interface Modules shall be supervised and uniquely identified by the control unit. Module identification shall be transmitted to the control unit for processing according to the program instructions. Modules shall have an on-board LED to provide an indication that the module is powered and communicating with the FACP. The LEDs shall provide a troubleshooting aid since the LED blinks on poll whenever the peripheral is powered and communicating.

2. Isolator Module: Isolator modules shall be provided every between every 25 devices and between floors to provide short circuit isolation for addressable notification appliance SLC wiring. Isolator shall be listed to UL 864. The Isolator shall mount directly to a minimum 2 1/8" deep, standard 4" square electrical box, without the use of special adapter or trim rings. Power and communications shall be supplied by the Addressable Controller channel SLC; dual port design shall accept communications and power from either port and shall automatically isolate one port from the other when a short circuit occurs. The following functionality shall be included in the Isolator module:
a. Report faults to the host FACP.
b. On-board Yellow LED provides module status.
c. After the wiring fault is repaired, the Isolator modules shall test the lines and automatically restore the connection.

H. Addressable Manual Pull Stations:

1. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

2. Description: Addressable double- action type, red LEXAN. Station shall mechanically latch upon operation and remain so until manually reset by opening with a key common with the control units. Station shall be pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit. Where double-action stations are provided, the mechanism shall require two actions push top activation door to initiate an alarm.

3. Provide with a front showing red LED showing that will flash each time it is scanned by the Control Unit (once every 4 seconds). In alarm condition, the station LED shall be on steady.

4. Indoor Protective Shield: Where required, or as indicated on the drawings, provide a factory-fabricated, tamperproof, clear LEXAN enclosure shield and red frame that easily fits over manual pull stations which shall be hinged at the top to permit lifting for access to initiate a local alarm. Unit shall be NRTL listed. Lifting the cover shall actuate an integral battery-powered audible horn intended to discourage false-alarm operation. The horn shall be silenced by lowering and realigning the shield. The horn shall provide 85dB at 10 feet and shall be powered by a 9 VDC battery.

5. Weatherproof Protective Shield: Factory-fabricated clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.

I. Addressable Analog Smoke Sensors:

1. General Requirements for System Smoke Detectors:
   a. Comply with UL 268, "Smoke Detectors for Fire Protective Signaling Systems." Include the following features:
      1) Factory Nameplate: Serial number and type identification.
      2) Operating Voltage: 24 VDC, nominal and shall be two-wire type.
      3) Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore normal operation.
      4) Plug-In Arrangement: Sensor and associated electronic components are mounted in a module that connects to a fixed base with a twist-locking plug connection. Base shall provide break-off plastic tab that can be removed to engage the head/base locking mechanism. Provide terminals in the fixed base for connection to building wiring. No special tools shall be required to remove head once it has been locked. Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the control unit. Sensors shall include a communication transmitter and receiver in the mounting base having a unique identification and capability for status reporting to the FACP. Sensor address shall be located in base to eliminate false addressing when replacing sensors. Integral Addressable Module shall be arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit. Each sensor base shall contain an integral visual-indicating LED
      5) Each sensor base shall contain a magnetically actuated test switch to provide for easy pre-certification alarm testing at the sensor location.
      6) Each sensor shall be scanned by the Control Unit for its type identification to prevent inadvertent substitution of another sensor type. Upon detection of a "wrong device", the control unit shall operate with the installed device at the default alarm settings for that sensor; 2.5% obscuration for photoelectric sensor, 135-deg F and 15-deg F rate-of-rise for the heat sensor, but shall indicate a "Wrong Device" trouble condition.

7) Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit. Provide multiple levels of detection sensitivity for each sensor.
8) Environmental compensation, programmable sensitivity settings, status testing, and monitoring of sensor dirt accumulation for the duct smoke sensor shall be provided by the FACP.
9) The sensor's electronics shall be immune from nuisance alarms caused by EMI and RFI. Removal of the sensor head for cleaning shall not require the setting of addresses.
10) Bases: CO Sensor, relay output, sounder and isolator bases shall be supported alternatives to the standard base.

J. Addressable Sensor Bases:

1. Standard base - Twist lock addressable base with address selection DIP switch accessible from front with sensor removed. Integral red LED for power-on (pulsing), or alarm or trouble (steady on). Locking anti-tamper design mounts on standard outlet box.

2. Sensor Base with remote device connection - All standard base features with wired connection for either a Remote LED alarm indicator or remote relay (relay is unsupervised and requires separate 24VDC).

3. Supervised Relay Bases - All standard base features and shall be available in either a 4-Wire Sensor Base to use with remote or locally mounted relay; requires separate 24 VDC, or as a 2-Wire Sensor Base to use with remote or locally mounted relay; no separate power required. Supervised relay operation shall be programmable and shall be manually operated from control panel.

4. Sensor base with built-in electronic alarm sounder - All standard base features and piezoelectric sounder shall provide high output (88 dBA) with low current requirements (20 mA). Sounder shall be synchronized via SLC communications or by the NAC if NAC powered, sounder shall operation shall be programmable and shall be manually operated from control panel.

K. Addressable Heat Sensors:

1. General Requirements for Heat Detectors: Comply with UL 521.

2. Thermal Sensor Combination type: Fixed-temperature and rate-of-rise unit with plug-in base and alarm indication lamp; Actuated by either a fixed temperature of 135 deg F (57 deg C) or a rate of rise that exceeds 15 deg F (8 deg C) per minute unless otherwise indicated.

3. Thermal sensor shall be of the epoxy encapsulated electronic design. It shall be thermistor-based, rate-compensated, self-restoring and shall not be affected by thermal lag. Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation.

4. Mounting: Twist-lock base interchangeable with smoke-sensor heads.

5. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

6. Sensor fixed temperature sensing shall be independent of rate-of-rise sensing and programmable to operate at 135-deg F or 155-deg F. Sensor rate-of-rise temperature detection shall be selectable at the FACP for either 15-deg F or 20-deg F per minute.

7. Sensor shall have the capability to be programmed as a utility monitoring device to monitor for temperature extremes in the range from 32-deg F to 155-deg F.

8. Unless otherwise indicated, sensors shall be analog-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for temperature by fire-alarm control unit.

9. Rate-of-rise temperature characteristic shall be selectable at fire-alarm control unit for 15 or 20 deg F (8 or 11 deg C) per minute.

10. Fixed-temperature sensing shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F (57 or 68 deg C).

L. Addressable CO Sensor:

1. Addressable CO Sensor:
   a. The CO Sensor shall be an addressable carbon monoxide (CO) sensing module providing both CO toxic gas detection and enhanced fire detection, and shall be listed to UL 268, Smoke Detectors for Fire Alarm Signaling Systems and UL 2075, Gas and Vapor Detectors and Sensors; allowing systems to be listed to UL 2034, Single and Multiple Station Carbon Monoxide Alarms.
   b. The CO Sensor shall include CO sensor element mounted in the sensor base which can be easily replaced without replacing the complete sensor base assembly.
   c. The CO Sensor base shall provide address selection in the base allowing the address to remain with its location when the sensor is removed for service or type change.
   d. The CO Sensor base shall include an integral red LED to indicate the power-on, trouble, test mode or alarm status.
   e. CO sensor shall provide enhanced fire detection with the addition of two selectable modes of operation: Nuisance Alarm Reduction Mode and Faster Fire Detection.
   f. The CO Sensor shall provide a 10 year life expectancy before replacement is necessary or required.
   g. The CO Sensor base shall report the following CO Sensor troubles: Communication loss, Disabled, Almost Expired 12 Months, Almost Expired 6 Months, Expired (End of Life), and Sensor Missing/Failed.

M. Addressable CO Sounder Base:

1. The CO Sensing element shall support operation with a Sounder base; the CO Sensor Sounder base shall provide temporal code 3 (TC3) for fire, or temporal code 4 (TC4) for toxic carbon monoxide alarms.

2. The CO Sensor Sounder base shall be listed to UL464, Audible Signal Appliances.

3. CO sensor shall provide enhanced fire detection with the addition of two selectable modes of operation: Nuisance Alarm Reduction Mode and Faster Fire Detection.

4. The CO Sensor Sounder Base shall include CO sensor element mounted in the sounder base which can be easily replaced without replacing the complete sensor base assembly.

5. The CO Sensor Sounder base shall provide address selection in the base allowing the address to remain with its location when the sensor is removed for service or type change.

6. The CO Sensor Sounder Sensor base shall include an integral red LED to indicate the power-on, trouble, test mode or alarm status.

7. The CO Sensor Sounder base shall report the following CO Sensor troubles: Communication loss, Disabled, Almost Expired 12 Months, Almost Expired 6 Months, Expired (End of Life), and Sensor Missing/Failed.

8. The CO Sensor Sounder Base shall be interchangeable with the CO Sensor 520 Hz Sounder Base.

N. Notification Appliances:

1. Notification appliances shall be fully addressable to allow for maximum flexibility in the creation of signaling zones. Systems that utilize conventional technology for notification appliances shall furnish and install an addressable module at each device to facilitate the desired operation specified. Systems that require addressable modules to support the desired operation shall insure ADA compliance. Provide selectable building audio signaling zones as follows:
   a. Gymnasium
   b. Cafeteria
   c. Auditorium
   d. Band/Chorus
   e. Boiler room
   f. All rooms greater than 1,000 square feet
   g. Stairwells
   h. Elevators
   i. Common areas
   j. Per Dennis Fire Department requirements

2. Addressable Visible/Only: Addressable strobe shall be listed to UL 1971. The V/O device shall consist of a xenon flash tube and associated lens/reflector system, cover and mounting plate. For ease of installation the mounting plate shall mount directly to standard single gang, double gang or 4" square electrical box, without the use of special adapters or trim rings. When the appliance is connected to an active circuit, the front cover of the appliance shall be removable without causing a trouble indication on the fire alarm control unit. Appliances shall be wired with UTP conductors, having a minimum of 3 twists per foot. The V/O appliance shall be provided with multiple minimum flash intensities of 15cd, 30cd, 75cd, 110cd, 135cd and 185cd. The Candela levels shall be settable from the fire alarm control unit or by using a hardware selector on the appliance.

3. Addressable Weatherproof Visible Only: Addressable weatherproof strobe shall be UL 1971 listed for indoor applications with strobe intensity selectable as 15 or 75 cd or UL 1638 listed for outdoor applications with strobe rated at 75 cd (WP75) or 185 cd (WP185). The appliances shall be acceptable for indoor and outdoor, extended temperature and extended humidity applications. The V/O device shall consist of a xenon flash tube and associated lens/reflector system, weatherproof cover and weatherproof mounting box. The V/O appliance shall be provided with multiple minimum flash intensities of 15, 75, WP 75, or WP 185 candela. The Candela levels shall be settable from the fire alarm control unit or by using a hardware selector on the appliance.

4. Addressable Speaker: Addressable Speaker notification appliances shall be listed to UL 1480. Individual device level supervision and activation control shall be provided by the fire alarm control unit.
   a. Speakers shall be individually powered, addressed, and controlled from a compatible fire alarm control unit Signaling Line Circuit (SLC) using Unshielded Twisted Pair (UTP) cable and T-taps shall be allowed for Class B installation reducing wiring costs and wiring distances. Shielded cable shall not be required.
      1) Speakers shall provide for Fire Alarm and General Signaling functionality in a single unit, eliminating additional devices. Device “Self-Test” shall be supported by a compatible fire alarm control unit and shall be UL listed and NFPA 72 compliant. Speakers shall be UL listed to provide a 520Hz audio tone in compliance with NFPA 72 for sleeping areas.
      2) The speaker audio shall be provided by a standard 25VRMS or 70.7VRMS audio circuit using Unshielded Twisted Pair (UTP) cable and T-taps shall be allowed for Class B installation reducing wiring costs and wiring distances. Supervision of this

circuit shall be provided by the addressable speaker. Shielded cable shall not be required.

3) Speaker power taps shall be at a minimum of 0.25W, 0.50W, 1.0W and 2.0W. At the 1.0W tap, the speaker shall have a minimum UL rated sound pressure level of 86dBA at 10 feet for the Standard Output version and 84dBA at 10 feet for the High Fidelity version.
4) Speakers shall be available in either “Standard Output” with a minimum frequency response of 400 to 4000 Hz or in “High Fidelity Output” with a minimum frequency response of 200 to 10,000 Hz. Standard Output speakers shall use a multi-tapped speaker for audio/tone notification.
5) Wall mount appliances shall be available in White and Red and ceiling mount appliances shall be available in White, Red, and Black. Labeling shall be available as either “FIRE”, “ALERT” or no labeling.
6) The speaker shall install directly to a 4" square, 2 1/8" deep electrical box. Extensions for these boxes shall not be required. Units shall be modular in design to allow for easy installation and for easy changing of device color and labeling.

5. Addressable Speaker/Visible: Combination Speaker/Visible (S/V) units combine the speaker and visible functions into a common housing. The S/V shall be listed to UL 1971 and UL 1480. Addressable functionality controls visible operation, while the speaker shall operate on a 25VRMS or 70.7VRMS NAC.
   a. Operational functions and features of Addressable Speaker above shall apply to this section. Operational functions and features of Addressable Strobe above shall apply to this section.
   b. Wall mount appliances shall be available in White and Red and ceiling mount appliances shall be available in White, Red, and Black. Labeling shall be available as either “FIRE”, “ALERT” or no labeling.
   c. The speaker shall install directly to a 4" square, 2 1/8" deep electrical box. Extensions for these boxes shall not be required. Units shall be modular in design to allow for easy installation and for easy changing of device color and labeling.

6. Addressable Notification appliance operation shall provide power, supervision and separate control of speakers/horns/strobes and combination devices over a single pair of wires. The controlling channel (SLC) digitally communicates with each appliance and receives a response to verify the appliance's presence on the channel. The channel provides a digital command to control appliance operation. SLC channel wiring shall be unshielded twisted pair (UTP), with a capacitance rating of less than 60pf/ft and a minimum 3 twists (turns) per foot.

7. All Notification Appliances shall operate as a completely independent device allowing for specific location alerting of both fire alarm and Mass Notification functions. Each visible device (both clear fire alarm and amber mass notification) shall be capable of operating on multiple notification zones or completely separate from all other notification devices, this allows “On the fly” program operation changes for Mass Notification alerting and fire alarm notification.

8. All Notification Appliances shall operate as a completely independent device allowing for appliances in handicap accessible rooms and other locations to operate on the same SLC and to activate individually based on an alarm condition in a room or as part of a general alarm condition where all appliances activate together.

9. Individual Notification Appliances shall be able to be grouped into zones (or operational groups) by central programming at the main fire alarm control unit.

10. Notification Appliances shall provide for “unobtrusive” testing. Each Notification Appliance shall be tested for audible and visible operation on an individual basis at the device or from the main fire alarm control unit, allowing for minimal invasive impact.

11. Each Addressable notification appliance shall contain an electronic module and a selectable address setting to allow it to occupy a unique location on the channel. This on-board module shall also allow the channel to perform appliance diagnostics that assist with installation and subsequent test operations. A visible LED on each appliance shall provide verification of communications and shall flash with the appliances address setting when locally requested using a magnetic test tool.

12. Each addressable notification appliance shall have electrical test point access without removing the device cover.

O. Exterior Strobe Light

1. Maxi-Signal 490S series. The exterior strobe shall also be of weather-resistant rain tight construction.

2. Provide weatherproof backbox.

3. Weatherproof strobe shall be installed where directed by the Fire Department.

4. Color of device shall be red.

P. Magnetic Door Holders

1. Furnish and install, where shown on the plans, magnetic door holders, Autocall Model FM series. Magnetic door holders shall operate from 120VAC.

2. The housing and contact plates shall be brushed zinc finish. Units shall have a holding force of approximately 35 pounds.

3. Provide new devices as shown on plans and as required

Q. Stopper Covers

1. Provide Model STI1100 stopper covers on all manual pull stations. The protective shield shall be tamper proof, clear lexan with red frame installed over the fire alarm pull station. When the protective shield is lifted to gain access to the manual pull station, the protective shield shall sound a loud, piercing warning horn. The horn shall be battery powered and may be silenced by lowering and re-aligning the protective shield. Each stopper cover shall include a battery and the Electrical Subcontractor shall furnish two dozen spare batteries for replacement parts.

R. Remote Annunciator with Microphone and Speaker Select

1. Provide remote alpha numeric, LCD Annunciator(s). Each annunciator will have a backlit LCD display with message scrolling buttons, System Status LED's for Power, Fire Alarm, Supervisory, System Trouble, Signal Silence, and Point Disabled, and key-enabled common control switches for Acknowledge, System Reset, Signal Silence, Drill, and Lamp Test. The LCD annunciators shall display all alarm and trouble conditions in the system. The annunciators shall connect to a Remote Unit interface.

2. Remote Microphone with Power and Trouble LED's, two (2) form C contacts with one activating when microphone is in use.

3. Speaker circuit annunciator control module for manual control of twenty four (24) individual programmable speaker circuits. Each speaker circuit button to have corresponding Alarm and Trouble indicator.

4. Remote annunciator, Speaker control module and Remote microphone to be housed in a single cabinet with glass door and lock.

5. Provide a graphic zone map adjacent to each LCD annunciator. The graphic zone map shall conform to Fire Department requirements.

S. Fire Alarm/Life Safety System Installation

1. Provide and install the system in accordance with the plans and Specifications, all applicable Codes, and manufacturer's' recommendations. All wiring shall be installed in strict compliance with all the provisions of National Electrical Code, Power Limited Fire Protective Signaling Circuits or if required may be reclassified as non-power limited and wired in accordance with National Electrical Code. Upon completion, the Electrical Subcontractor shall so certify in writing to the Owner.

2. Removal of a smoke detector will not interfere with the transmission of signal from manual stations, waterflow switches, and other initiating devices.

3. All Equipment shall be attached to a non-load-bearing wall, and shall be held firmly in place. Fastening and supports shall be adequate to support the required load, and provide a safety factor of five.

4. As indicated on the Riser/Connection Diagram Drawings, each system alarm point or zone in the system shall be uniquely labeled within the Fire Alarm Control Panel. Names of the system point(s)/zone(s) shall be as defined by the Engineer.

5. Fire Sprinkler Activation detecting System(s) shall each be indicated on a separate zone in the Fire Alarm Control Panel.

6. Fire Alarm Control Panel will be mounted with the center of panel 60 inches above floor level.

7. All junction boxes shall be sprayed red and labeled "Fire Alarm". Wiring color codes shall be maintained throughout the installation.

8. Cable and Wiring.
   a. Conduit and Conductors: Provide complete wiring and conduit between all equipment. Unless otherwise specified within the Installation Manual of the specific equipment being used, all field wiring shall be minimum #14 Type in separate conduit, maximum 40% full, and shall be approved for use as Fire Alarm cable. Conduits of proper size shall be installed from the Control Panel; Equipment to field devices. All field devices shall be mounted upon U.L. Listed Electrical junction boxes. All splices in field wiring shall be made in U.L. Listed Electrical junction boxes. All Electrical junction boxes shall be labeled as "Fire Alarm System" with decal or other approved markings. The Fire Alarm/Life Safety Installation shall comply fully with all Local, State and National Codes, and the Local Authority Having Jurisdiction (AHJ).
   b. The Fire Alarm Control Panel shall be connected to a separate dedicated branch circuit, maximum 20 amperes. This circuit shall be labeled at the Main Power Distribution Panel as FIRE ALARM. Fire Alarm Control Panel Primary Power wiring shall be 12 AWG. The Control Panel Cabinet shall be grounded securely to either a cold water pipe or grounding rod. Conduit shall enter into the Fire Alarm Control Panel backbox only at those areas of the backbox, which have factory conduit knockouts.
   c. All field wiring shall be completely supervised. In the event of a primary power failure, disconnected standby battery, removal of any internal modules, or any open circuits in the field wiring; an audible and visual trouble signal will be activated until the system and its associated field wiring are restored to normal condition.
   d. Fire alarm MC cable shall be allowed above ceilings, in attics and in other areas allowing surface wiring if so approved by the Local Authority Having Jurisdiction.

e. Cable shall be the type listed for Fire Alarm/Life Safety use and shall be installed per National Electrical Code.
f. Cable for Addressable/Intelligent Alarm Initiating Appliances (Manual Stations, Heat Detectors, and Smoke Detectors) shall be connected as shown on the riser diagram. Cable shall be installed from the Fire Alarm Control Panel to all devices in that Signaling Line Circuit (SLC) loop. The connection and continuity of the wires, which make up that SLC loop will be continuously supervised for shorts, opens, and ground circuit conditions.
g. Cable for Alarm Initiating Devices and Appliances (Manual Stations, Heat Detectors, and Smoke Detectors) shall be connected to the Fire Alarm Control Panel, and labeled as shown on the riser diagram. Cable shall be installed from the Fire Alarm Control Panel to all devices in that Initiating Device Circuit (IDC) loop. The connection of the cable to that loop will be continuously supervised for shorts, opens, and ground circuit conditions.
h. Cable for Alarm Indicating Appliances (Audible or Visual or combination signal(s)) shall be connected on a per zone basis. Cable shall be installed from the Fire Alarm Control Panel to all devices in that Indicating Appliance Circuit (IAC) loop. The connection of the cable to that loop will be continuously supervised for shorts, opens, and ground circuit conditions.
i. Cable must be separated from any open conductors of Power, or Class 1 circuits, and shall not be placed in any conduit, junction box or raceway containing these conductors, as per National Electrical Code.
j. All exposed cable below 84 inches from the surface of the finished floor, or other locations where the cable may become exposed and/or damaged, must be within a steel conduit.
k. Conduits must also be provided in elevator shafts and hoist ways. Cables within ducts or plenums must conform with the Specifications of the National Electrical Code.
l. Conduit shall not enter the Fire Alarm Control Panel, or any other remotely mounted Control Panel equipment or back boxes, except where conduit entry knockouts have been provided by the factory.
m. Cable shall meet all the manufacturer's requirements including shielding, twists, capacitance, resistance and gauge. The cable shall not be installed without approval of the manufacturer in writing.

T. Final System Acceptance:

1. The system will be accepted only after a Factory-Trained Distributor in the presence of the Electrical Subcontractor, the owner’s representative and the Local Fire Marshal have accomplished a satisfactory test of the entire system, in accordance with NFPA 72. Upon completion of a successful test, the Electrical Subcontractor shall so certify in writing to the Owner. The Electrical Subcontractor shall pay all back charges assessed by the Fire Department for all fire alarm system tests.

2. The Electrical Subcontractor shall submit, in the Shop Drawings, a letter confirming that they will provide a U.L. listed testing company to provide the acceptance test.

3. The Electrical Subcontractor will present a complete set of "As- Built" Fire Alarm/Life Safety system Drawings, and the factory supplied Operator's Manual to the Building Owner's Representative and the local AHJ.

4. The Electrical Subcontractor shall provide the on-site services of an Authorized, Factory Trained technical representative to supervise all connections and fully test all devices and components of the system during installation phase.

5. The Electrical Subcontractor shall provide comprehensive Training on the operation, proper use, and testing of the installed Fire Alarm System to the Building Owner's Representative, and the local AHJ

U. Warranty:

1. The Electrical Subcontractor shall warrant the completed fire alarm system, wiring and equipment, to be free from inherent mechanical and electrical defects for a period of one (1) year from the date of the completed and certified test or from the date of the first beneficial use.

2.10 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.

C. Access panels shall be prime-painted and equipped with screwdriver operated cam locks.

D. Acceptable Manufacturers:

1. Inland Steel Products Company – Milcor
2. Miami Carey
3. Walsh-Hannon-Gladwin, Inc. – Way Locator

4. Specific Types:
   a. Acoustical Tile Ceiling “Milcor Type AT”
   b. Plastered Surfaces “Milcor Type K”
   c. Masonry Construction “Milcor Type M”
   d. Drywall Construction “Milcor Type DW”

E. Furnish access panel Shop Drawings.

PART 3 EXECUTION

3.1 BASIC REQUIREMENTS

A. Adhere to best industry practice and the following:

1. All work shall be concealed.

2. Route circuitry runs embedded in concrete to coordinate with structural requirements.

3. Equip each raceway intended for the future installation of wire or cable with a nylon pulling cord 3/16” in diameter and clearly identify both ends of the raceway.

4. Provide all outlet boxes, junction boxes, and pull boxes for proper wire pulling and device installation. Include those omitted from the Contract Drawings due to symbolic methods of notation.

5. Provide all sleeves through fireproof and waterproof slabs, walls, etc., required for electric work.
   a. Provide waterproof sealing for the sleeves through waterproof slabs, walls, etc.
   b. Provide fireproof sealing for the sleeves through fireproof walls, slabs, etc.
   c. Provide fireproof sealing for the openings in fireproof walls, slabs, etc., resulting from removal of existing electrical sleeves, conduits, poke-thru’s etc.

6. No splicing of wires will be permitted in Fire Alarm System.

7. Bundle wiring passing through pull boxes and panelboards in a neat and orderly manner.

8. Turn branch circuits and auxiliary system wiring out of wiring gutters at 90 degrees to circuit breakers and terminal lugs.

9. In electric rooms with equipment rated 800 amps or more and over 6 feet wide that contains overcurrent devices, the Electrical Contractor shall provide a powered Exit sign at 18" AFF at each door.

10. All building mounted photovoltaic equipment shall be installed, tested and maintained in accordance with NFPA 1 Section 11.12.

11. All panelboards shall be labeled in accordance with NFPA 70 Article 408.

3.2 TESTING REQUIREMENTS & INSTRUCTIONS

A. The following systems shall adhere to the general requirements of this section in addition to complying with the specific test requirements outlined in the respective sections listed:

1. Fire Alarm System.

B. Operating Instructions: Furnish operating instructions to Owner's designated representative with respect to operations, functions and maintenance procedures for equipment and systems installed. Cost of such instruction up to a full five (5) days of Electrical Subcontractor's time shall be included in contract. Cost of providing a Manufacturer's Representative at site for instructional purposes shall also be included.

3.3 BRANCH CIRCUITRY

A. For all lighting and appliance branch circuitry, raceway sizes shall conform to industry standard maximum permissible occupancy requirements except where these are exceeded by other requirements specified elsewhere.

B. Circuits shall be balanced on phases at their supply as evenly as possible.

C. For circuitry indicated as being protected at 20 Amps or less, abide by the following:

1. Minimum conductor size shall be No. 12 AWG copper.

2. Conductors operating at 120 volts extending in excess of 100 ft. or the last outlet or fixture tap shall be No. 10 AWG copper throughout.

3. Lighting fixtures and receptacles shall not be connected to the same circuit.

4. Circuits shall be balanced on phases at their supply point as evenly as possible.

D. Type MC Cable Installation:

1. Where cable is permitted under the products section, the installation of same shall be done in accordance with code and the following:
   a. Cable shall be supported in accordance with code. Tie wire is not an acceptable means of support. Cable supports such as Caddy WMX-6, MX-3, and clamps such as Caddy 449 shall be used. Where cables are supported by the structure and only need securing in place, then ty-raps will be acceptable. Ty-raps are not acceptable as a means of

support. All fittings, hangers, and clamps for support and termination of cables shall be of type specifically designed for use with cable, i.e., romex connectors not acceptable.

b. Armor of cable shall be removed with rotary cutter device equal to roto-split by Seatek Co.; not with a hacksaw.
c. Use split “Insuliner” sleeves at terminations.

3.4 REQUIREMENTS GOVERNING ELECTRICAL WORK IN DAMP OR WET LOCATIONS

A. Outlets and outlet size boxes shall be of galvanized cast ferrous metal only.

B. The finish of threaded steel conduit shall be galvanized only.

C. Wires for pulling into raceways for lighting and appliance branch circuitry shall be limited to “THWN”.

D. Wires for pulling into raceways for feeders shall be limited to “THWN”.

E. Plates for toggle switches and receptacles shall have gasketed snap shut covers suitable for wet locations while in use.

F. Final connections of flexible conduit shall be neoprene sheathed.

G. Apply one (1) layer of half looped plastic electric insulating tape over wire nuts used for joining the conductors of wires.

H. Enclosures, junction boxes, pull boxes, cabinets, cabinet trims, wiring troughs and the like, shall be fabricated of galvanized sheet metal, shall conform to the following:

1. They shall be constructed with continuously welded joints and seams.

2. Their edges and weld spots shall be factory treated with cold galvanizing compound.

3. Their connection to circuitry shall be by means of watertight hub connectors with sealing rings.

I. Enclosures for individually mounted switching and overcurrent devices shall be NEMA Class IV weatherproof construction.

J. The covers, doors and plates and trims used in conjunction with all enclosures, pull boxes, outlet boxes, junction boxes, cabinets and the like shall be equipped with gaskets.

K. Panels shall be equipped with doors without exception.

L. The following shall be interpreted as damp or wet locations within building confines:

1. Spaces where any designations indicating weatherproof (WP) or vapor proof appear on the Contract Drawings.

2. Below waterproofing in slabs applied directly on grade.

3. Spaces defined as wet or damp locations by Article 100 of the National Electric Code.

3.5 REQUIREMENTS GOVERNING ELECTRIC WORK IN AIR HANDLING SPACES

A. Within air handling plenums:

1. Abide by the requirements specified for electric work in damp locations within building confines.

2. All cabling and electrical equipment installed within plenums shall be listed for plenum use.

3. Exclude the installation of type NM or NMC cable.

B. In spaces within suspended ceilings used for air handling purposes, abide by the requirements specified for normal electric work conditions except:

1. Lighting fixtures recessed into the ceilings shall be certified as being suitable for this purpose.

3.6 IDENTIFICATION AND TAGGING

A. Identification for wires and cables shall be by means of wrap around “brady” type labels.

B. Device plates for local toggle switches, toggle switch type motor starters, pilot lights and the like, whose function is not readily apparent shall be engraved with 1/8” high letters suitably describing the equipment controlled or indicated.

3.7 LIMITING NOISE PRODUCED BY ELECTRICAL INSTALLATION

A. Perform the following work in accordance with field instructions issued by the Architect to assure that minimal noise is produced by electrical installations due to equipment furnished as part of the Electrical work.

B. Check and tighten the fastenings of sheet metal plates, covers, doors and trims used in the enclosures of electrical equipment.

C. Remove and replace any individual device containing one or more magnetic flux path metallic cores (e.g., discharge lamp ballast, transformer, reactor, dimmer, solenoid) which is found to have a noise output exceeding that of other identical devices installed at the project.

3.8 SUPPORTS AND FASTENINGS

A. Support work in accordance with best industry standards, Local Electric Code and the following:

1. Include supporting frames or racks for equipment, intended for vertical surface mounting, which is required in a freestanding position.

2. Supporting frames or racks shall be of standard angle, standard channel or specialty support system steel members. They shall be rigidly bolted or welded together and adequately braces to form a substantial structure. Racks shall be of ample size to assure a workmanlike arrangement of all equipment mounted on them.

3. No work intended for exposed installation shall be mounted directly on any building surface. In such locations, flat bar members or spaces shall be used to create a minimum of ¼” air space between the building surfaces and the work. Provide ¾” thick exterior grade plywood painted with two (2) coats of fire-retardant gray paint for mounting of panelboards.

4. Nothing (including outlet, pull and junction boxes and fittings) shall depend on electric conduits, raceways or cables for support.

5. Nothing shall rest on, or depend for support on, suspended ceiling media.

6. Support less than 2” trade size, vertically run, conduits at intervals no greater than 8’. Support such conduits, 2-1/2” trade size or larger, at intervals no greater than they story height, or 15’, whichever is smaller.

7. Where they are not embedded in concrete, support less than 1" trade size, horizontally run, conduits at intervals no greater than 7'. Support such conduits, 1" trade size or larger, at intervals no greater than 10'.

8. Support all lighting fixtures directly from structural slab, intermediate decking or framing member as directed by the Architect. No light fixtures shall be supported directly from the roof deck.

9. Where fixtures and ceilings are such as to require fixture support from ceiling openings frames, include in the electric work the members necessary to tie back the ceiling opening frames to ceiling suspension members or slabs so as to provide actual support for the fixtures noted above.

10. Support all runs of conduit and/or circuitry directly from structural slabs, intermediate decking or framing members.

11. Fasten electric work to building structure in accordance with the best industry practice.

12. Floor mounted equipment shall not be held in place solely by its own dead weight. Include floor anchor fastenings in all cases.

13. For items which are shown as being ceiling mounted at locations where fastenings to the building construction element above is not possible, provide suitably auxiliary channel or angle iron bridging tying to building structural elements.

14. As a minimum procedure, where weight applied to the attachment points is 100 lbs. or less, fasten to concrete and solid masonry with bolts and expansion shields.

15. As a minimum procedure, where weight applied to building attachment points exceed 100 lbs., but is 300 lbs. or less, conform to the following:
    a. At field poured concrete slabs, utilize inserts with 20' minimum length slip-through steel rods, set transverse to reinforcing steel.

3.9 SPLICING AND TERMINATING WIRES AND CABLES

A. Maintain all splices and joints in removable cover boxes or cabinets where they may be easily inspected.

B. Locate each completed conductor splice or joint in the outlet box, junction box, or pull box containing it, so that it is accessible from the removal cover side of the box.

C. Join solid conductors No. 8 AWG and smaller by securely twisting them together and soldering, or by using insulated coiled steel spring "wire nut" type connectors. Exclude "wire nuts" employing non-expandable springs. Terminate conductors No. 8 AWG and smaller by means of a neat and fast holding application of the conductors directly to the binding screws or terminals of the equipment or devices to be connected.

D. Join, tap and terminate standard conductors No. 6 AWG and larger by means of solder sleeves, taps, and lugs with applied solder or by means of bolted saddle type or pressure indent type connectors, taps and lugs. Exclude connectors and lugs of the types which apply set screws directly to conductors. Where equipment or devices are equipped with set screw type terminals which are impossible to change, replace the factory supplied set screws with a type having a ball bearing tip. Apply pressure indent type connectors, taps and lugs utilizing tools manufactured specifically for the purpose and having features preventing their release until the full pressure has been exerted on the lug or connector.

E. Except where wire nuts are used, build up insulation over conductor joints to a value, equal both in thickness and dielectric strength, to that of the factory applied conductor insulation. Insulation of conductor taps and joints shall be by means of half-lapped layers of rubber tape, with an outer layer of friction tape; by means of half-lapped layers of approved plastic electric insulating tape; or by a means of split insulating casings manufactured specifically to insulate the particular connector and conductor, and fastened with stainless steel or non-metallic snaps or clips.

F. Exclude splicing procedures for neutral conductors in lighting and appliance branch circuitry which utilize device terminals as the splicing points.

G. Exclude joints or terminations utilizing solder in any conductors used for grounding or bonding purposes.

H. Exclude all but solder or pressure indent type joints in conductors used for signaling or communication purposes.

I. Lugs for conductors used to make phase leg connections on the line side of the main service overcurrent and switching device shall be of the limiter type.

3.10 PULLING WIRES INTO CONDUITS AND RACEWAYS

A. Delay pulling wires or cables in until the project has progressed to a point when general construction procedures are not liable to injure wires and cables, and when moisture is excluded from raceways.

B. Utilize nylon snakes or metallic fish tapes with ball type heads to set up for pulling. In raceways 2” trade size and larger, utilize a pulling assembly ahead of wires consisting of a suitable brush followed by a 3-1/2” diameter ball mandrel.

C. Leave sufficient slack on all runs of wire and cable to permit the secure connection of devices and equipment.

D. Include circular wedge-type cable supports for wires and cables at the top of any vertical raceway longer than 20 feet. Also include additional supports spaced at intervals which are no greater than 10’. Supports shall be located in accessible pull boxes. Supports shall be of a non-deteriorating insulating material manufactured specifically for the purpose.

E. Pulling lubricants shall be used. They shall be products manufactured specifically for the purpose.

F. Slack on wires and cables located in cabinets and pull boxes shall be formed and set in place in groupings corresponding to their occupancy of raceways. They shall also be arranged, with insulators and supports provided where necessary, such that cable shims or other such temporary expedients do not have to be left permanently in place to prevent the wires and cables from shifting when covers or trims are removed.

3.11 REQUIREMENTS FOR THE INSTALLATION OF JUNCTION BOXES, OUTLET BOXES AND PULL BOXES

A. Flush wall-mounted outlet boxes shall not be set back to back but shall be offset at least 12” horizontally regardless of any indication on the Contract Drawings.

B. Locate all boxes so that their removable covers are accessible without necessitating the removal of parts of permanent building structure, including piping, ductwork, and other permanent mechanical elements.

C. In conjunction with concealed circuitry, abide by one of the following instructions (as may be applicable to the conditions) in order to assure the aforementioned accessibility. (Not required for circuitry concealed by removable suspended ceiling tiles.)

1. For a small (outlet size) box on circuitry concealed in a partition or wall, locate box or fitting so that its removable cover side, (or the face of any applied raised cover) penetrates through to within 1/8" of the exposed surface of the building materials concealing the circuitry and apply a blank or device plate to suit the functional requirements.

2. For a large box on circuitry concealed in a partition, suspended ceiling, or wall, locate box totally hidden but with its removable cover directly behind an architectural access door or panel (included for the purpose, separate from the electric work) in the building construction which conceals the circuitry.

3. For a small (outlet size) box on circuitry concealed above and intended as an outlet for a surface mounted lighting fixture or other such electrical item, locate box so that its removable cover side penetrates through to the exposed surface of the building materials concealing the circuitry. Arrange the mounting of the lighting fixture or other item so that it completely covers the opening in the building construction caused by the box.

4. For a small (outlet size) box on circuitry concealed in a suspended ceiling, and intended as an outlet for a non-demountable type of recessed lighting fixtures or other such electrical items, locate box totally hidden but with its removable cover not more than 1' away from the building construction opening occupied by the demountable items.

D. Apply junction and pull boxes in accordance with the following:

1. Include all pull boxes in long straight runs of raceway to assure that cables are not damaged when they are pulled in.

2. Include junction and pull boxes to assure a neat and workmanlike installation of raceways.

3. Include junction and pull boxes to fulfill requirements pertaining to the limitations to the number of bends permitted in raceway between cable access points, the accessibility of cable joints and splices, and the application of cable supports.

4. Include all required junction and pull boxes regardless of indications on the Contract Drawings (which, due to symbolic methods of notation, may omit to show some of them).

E. Apply outlet boxes in accordance with the following:

1. Unless noted below or otherwise specifically indicated, include a separate outlet box for each individual wiring device, lighting fixture and signal or communication system outlet component. Outlet boxes supplied attached to lighting fixtures shall not be used as replacements for the boxes specified herein.

2. A continuous row of fixtures of the end-to-end channel type, designed for "through wiring", and wired in accordance with the specification hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.

3. A series of separate fixtures, designed for "through wiring", spaced not more than 4' apart, and inter-connected with conduit or raceway and circuitry which is in accordance with the Specifications hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.

4. Connection to recessed ceiling fixtures supplied with pigtails may be arranged so that more than one (1), but not more than four (4) such fixtures are connected into a single outlet box. When adopting this procedure:

a. Utilize an outlet box no smaller than 5” square by 2-1/2” deep.
b. Allow no fixture to be supplied from an outlet box in another room.

5. Multiple local switches indicated at a single location shall be gang-mounted in a single outlet box.

6. Include all required outlet boxes regardless of indications on the Contract Drawings (which due to symbolic methods of notation, may omit to show some of them).

F. Install junction boxes, pull boxes and outlet boxes in conjunction with concealed circuitry.

1. Exclude surface-mounted outlet boxes in conjunction with concealed circuitry.

2. Exclude unused circuitry openings in junction and pull boxes. In larger boxes each such opening shall be closed with a galvanized sheet steel plate fastened with a continuous weld all around. In small outlet type boxes, utilize plugs as specified for such boxes.

3. Close up all unused circuitry openings in outlet boxes. Unused openings in cast boxes shall be closed with approved cast metal threaded plugs. Unused openings in sheet metal boxes shall be closed with sheet metal knock-out plugs.

4. Outlet boxes for switches shall be located at the strike side of doors. Indicate door swings are subject to field change. Outlet boxes shall be located on the basis of final door swing arrangements.

5. Boxes and plaster covers for duplex receptacles shall be arranged for vertical mounting of the receptacle.

6. Equip outlet boxes used for devices which are connected to wires of systems supplied by more than one set of voltage characteristics with barriers to separate the different systems.

G. Barriers in junction and pull boxes of outlet size shall be of the same metal as the box.

1. Barriers in junction and pull boxes which are larger than outlet size shall be of the polyester resin fiberglass of adequate thickness for mechanical strength, but in no case less than 1/4" thick. Each barrier shall be mounted, without fastenings, between angle iron guides so that they may be readily removed.

3.12 LOCATING AND ROUTING OF CIRCUITRY

A. In general, all circuitry shall be run concealed except that it shall be run exposed where the following conditions occur:

1. Horizontally at the ceiling of permanently unfinished spaces which are not assigned to mechanical or electrical equipment.

2. Horizontally and vertically in mechanical equipment spaces.

3. Horizontally and vertically in electric equipment rooms.

B. Concealed circuitry shall be so located that building construction materials can be applied over its thickest elements without being subject to spalling or cracking.

C. All circuitry and raceways shall not be run within slabs. If field conditions requires raceways to be embedded in field-poured structural building construction concrete fill or slab shall conform to the following:

1. All proposed embedded raceways shall be indicated on plan and elevation and submitted to the Architect and Structural Engineer for review and written approval prior to installation. Any costs associated with the review and approval shall be borne by the Electrical Subcontractor.

2. They shall be run “single layer” with their outside surface no closer than 1” to any surface of the structural concrete.

3. They shall not be located in any configuration which places the outside surface of one closer than 3” to outside surface of another, except at tees, crosses or other single level wide angle junction points.

4. Where crossovers or close grouping are unavoidable, circuitry shall be carefully field coordinated so as not to cause structural weakness.

5. Where turned up or down into a wall or partition they shall, before entering same, be routed parallel for a long enough distance to assure that no relocation of the wall or partition will be necessary to conceal the required bend.

6. They shall be routed in such a manner as to coordinate with the structural requirements of the building.

7. They shall be routed in accordance with field instructions issued by the Architect where such instructions differ from Specifications set forth herein.

D. Circuitry run exposed shall be routed parallel to building walls and column lines.

E. Exposed circuitry located overhead shall be run in a completely accessible manner on the underside of all piping and ductwork.

F. Circuitry run in suspended ceilings shall be routed parallel to building walls, column lines, etc.

G. Circuitry shall be routed so as to prevent electric conductors from being subject to high ambient temperature. Minimum clearances from heated lines or surfaces shall be maintained as follows:

1. Crossing where uninsulated: 3”.
2. Crossing where insulated: 1”
3. Running parallel where uninsulated: 36”.
4. Running parallel where insulated: 6”.

H. Circuitry shall not be run in elevator shafts, hoistways, and the like. Where outlets for trail cables, pit lights, run be level lights, and the like, are involved, only the “final connection” outlet boxes themselves shall be located within or open into, the confines of the shaft.

I. Circuitry for miscellaneous systems indicated without notation as to location and routing shall be run as per the requirements and notations governing the adjacent light and power circuitry.

3.13 INSTALLING CIRCUITRY

A. The outside surface of circuitry, which is to be embedded in cinder concrete, shall be coated with asphaltum paint.

B. In runs of conduit or raceway including flexible limit the number of bends between cable access points to a total which does not exceed the maximum specified for the particular system. Where no such maximum is specified, limit the number to four (4) right angle bends or the equivalent thereof.

C. In each conduit or raceway assigned for the future pulling in of wires, include a nylon drag cord. In raceways 2" trade size and larger, the cord shall be pulled in utilizing a suitable brush, followed by an 85% diameter ball mandrel ahead of the cord in the pulling assembly. In the event that obstructions are encountered, which will not permit the drag cord to be installed, the blocked section of raceway shall be replaced and any cutting and patching of the structure involved in such replacement shall be included as part of the electric work.

D. Circuitry shall be arranged such that conductors of one feeder or circuitry carrying "going" current are not separated from conductors of the same feeder or circuitry carrying "return" current by any ferrous or other metal. Where not within raceways, all "going" and "return" current conductors of one feeder or circuit shall be laced together so as to minimize induction heating of adjacent metal components.

E. Sleeves used where circuitry is to penetrate waterproof slabs, decks and walls, shall be of a type selected to suit the water condition encountered in the field.

3.14 PHYSICAL SEPARATION OF NORMAL, OPTIONAL STANDBY, AND EMERGENCY SYSTEMS

A. Emergency system shall be kept entirely independent of all other wiring, devices and equipment, and shall not enter the same raceways, boxes or cabinets with each other or other wiring, except in transfer switches.

END OF SECTION 26 00 00