

CHILLER PIPE INSULATION REPLACEMENT

BARNSTABLE UNITED ELEMENTARY

OF PAGES

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TECHNICAL SPECIFICATIONS

Barnstable United Elementary
Chiller Pipe Insulation Replacement
Barnstable, Massachusetts
CBI JOB NO.: 13165-B

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

SECTION 00 85 10

DRAWING LIST

GENERAL

SIZE:

G0-01 COVER SHEET

24" X 36"

ARCHITECTURAL

A1-01 FIRST FLOOR PLAN

24" X 36"

A1-02 FIRST FLOOR RCP

24" X 36"

A2-02 PHOTO SHEET AND DETAILS

24" X 36"

MECHANICAL

M1-01 HVAC PARTIAL FIRST FLOOR PLAN,
LEGEND, NOTES AND DETAILS

24" X 36"

M1-02 HVAC PARTIAL FIRST FLOOR PLAN

24" X 36"

M1-03 HVAC PARTIAL FIRST FLOOR PLAN

24" X 36"

M1-04 HVAC PARTIAL FIRST FLOOR PLAN

24" X 36"

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 10 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 DESCRIPTION OF WORK - GENERAL

- A. In general, the Contractor shall supply all material, labor, equipment, insurance, temporary protection, tools and appliances necessary for the proper completion of the work as described in the Plans and Specifications, in accordance with good construction practice, and as required by the materials manufacturers.
- B. Supply all shoring and protection necessary to protect the occupants, building area, building systems, and landscape areas. All means and methods are the responsibility of the contractor. The Contractor is solely responsible for safety on the job site.
- C. This property is listed in the State Register of Historic Places or is a contributing property within an historic district listed in the National/State Registers of Historic Places. All work performed must comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties.
- D. The work includes, but is not limited to:

1. Immediately upon signed contract, submit project schedule for review and approval. The work shall not take place during school hours. All work shall occur during scheduled off-hours, evenings, weekends and school vacations while facilities staff are present. Coordinate all work with the School Department in advance of scheduling the work. The work shall be Substantially Complete by July 3, 2015
2. Carefully remove and store suspended acoustical ceiling tiles and grids from the Limit of Work areas in order to access the supply and return pipes above the ceiling and complete the work. Re-install all ceilings upon completion of the work. Any damage to existing materials and finishes to remain shall be repaired or replaced to the complete satisfaction of the Owner, and at no additional cost to the Owner.
3. Remove and dispose of all existing pipe insulation and hangers.
4. Vertical threaded rods shall be cleaned and scraped with a wire brush to receive new hangers.
5. Provide and install new hangers and insulation shields at all existing hanger locations, properly sized and fitted for the new pipe insulation.
6. Provide and install new heavy-density self-wicking fiberglass insulation with vapor barrier at all hot/cold water supply and return piping between the First Floor suspended ceilings and the Second Floor slab in the Limit of Work areas noted on the Drawings.
7. At all CMU partitions (except at full-height fire rated Corridor and Shaft wall locations), carefully cut the existing block to create larger penetrations to accommodate scheduled new insulation thicknesses. Refer to Photo #3 / A1-03 for typical existing CMU partition Photo.
8. Provide and install Firestopping Sealant at all full-height Corridor and Shaft Wall pipe penetrations and all slab penetrations receiving new insulation.
9. Provide and install low-rise spray foam insulation on vertical rise hot/cold supply and return pipes above the Second Floor slab inside the Second Floor fan coil unit ventilators.
10. ADD ALTERNATE #1: Provide the same scope of work noted in Items 1.02-D.1 through D.9 above and as indicated in all other sections of the Specifications and on the Drawings at the West wing from the Entrance Lobby to the Boys and Girls' rooms at the Southwest corner on the First Floor, as indicated on the Drawings. Note: All work occurring above the

SUMMARY OF WORK

Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

11. ADD ALTERNATE #2: Provide the same scope of work noted in Items 1.02-D.1 through D.9 above and as indicated in all other sections of the Specifications and on the Drawings at the North wing including the Entrance Lobby and Vestibule at the Northwest corner to the Cooking Classroom across from the Faculty Dining and Kitchen on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.
12. ADD ALTERNATE #3: Provide the same scope of work noted in Items 1.02-D.1 through D.9 above and as indicated in all other sections of the Specifications and on the Drawings inside the Gymnasium and inside the adjacent corridors to the Gymnasium and in the Boys and Girls' Locker, Shower and Toilet Rooms on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

1.03 INTENT OF THE PROJECT MANUAL

- A. Whenever "Furnish", "Install", or "Provide" is used in the Contract Documents, it shall mean to erect, install, connect, make operative, and supply all labor and materials, including miscellaneous fittings, hardware, and accessories necessary to complete the installation of the specified item.
- B. The scope of work is indicated in the Project Manual. Areas of required work indicated on the drawings are for illustration and are not to be interpreted as representing quantities, exact locations, and/or the extent of work required. The Owner makes no representation of the exact quantities of work required. It shall be the responsibility of the Contractor to do all work to the complete fulfillment of the requirements of the Project Manual.

1.04 ERRORS, OMISSIONS, AND CONFLICTS IN THE PROJECT MANUAL

- A. In the case of conflicts in the Drawings and the Specifications or between Specification Sections noticed by the Contractor, the Architect shall be notified immediately in writing of such errors and/or omissions. In no case shall the Contractor proceed without written authorization from the Architect. The more stringent requirement shall govern.

1.05 UNFORESEEN FIELD CONDITIONS

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- A. In the case of unforeseen field conditions, the Contractor shall notify the Owner and Architect immediately in writing of such conditions. In no case shall the Contractor proceed without written authorization from the Architect. If such unforeseen conditions result in additional expense, the Contractor shall not proceed without the written approval of the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 23 00

ALTERNATES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 ALTERNATE SCOPE

- A. This Section lists the Alternates which appear in the Contract Documents. Consult the individual sections of the detailed requirements of each Alternate.
- B. Bid prices for each Alternate shall include overhead, profit, and all other expenses incidental to the Work under each Alternate.
- C. The Contractor and Subcontractors shall be responsible for examining the scope of each Alternate generally defined herein and for recognizing modifications to the Work caused by the Alternates and including the cost thereof in the bid price.
 - 1) ADD ALTERNATE #1: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the West wing from the Entrance Lobby to the Boys' and Girls' rooms at the Southwest corner on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not

exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

2) ADD ALTERNATE #2: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the North wing including the Entrance Lobby and Vestibule at the Northwest corner to the Cooking Classroom across from the Faculty Dining and Kitchen on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

3) ADD ALTERNATE #3: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings inside the Gymnasium and inside the adjacent corridors to the Gymnasium and in the Boys' and Girls' Locker, Shower and Toilet Rooms on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 24 00

SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

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- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 BIDDERS EXAMINATION AND INSPECTION OF EXISTING BUILDING AND SITE

- A. All bidders must inspect the existing site and make their own assessment of the work required to achieve the complete, finished conditions specified in the Contract Documents.
- B. Failure to adequately inspect the site and/or correctly assess existing conditions shall not be cause for additional payment.
- C. Every contractor will be bound by the scope of work of the Contract Documents and shall make the inspections necessary to assure that the bid price includes the complete scope.

1.03 HOURS OF WORK

- A. The Owner prefers that all Work is completed between 6 am – 6 pm over Winter Break (February 16 – 20, 2015), Spring Break (April 20 – 24,

2015), and the first two weeks of Summer Vacation (July 22 – July 3, 2015). Contractor may request approval from Owner in advance to work on School Days in the evenings only, commencing at 4:00 P.M. and continuing until 10:00 P.M., Monday through Friday. If work is to be performed on Saturday and/or Sunday (with advance approval of the Owner), the General Contractor shall make arrangements and shall pay time and a half for a Barnstable Public Schools employee to be on site.

- B. The contractor shall be completely and fully responsible for the security and safety of the job site at all times.

1.04 CONTRACTOR USE OF THE BUILDINGS, ACCESSIBILITY AND SCHEDULES FOR WORK

- A. The work of the Contractor and all Subcontractors shall be performed during the hours of operation as specified herein and in and around areas of the building and site used while occupied by the Owner and the public. The building will remain occupied during the entire duration of the project. The Contractor shall execute the Work with the least possible disturbance to the use and continuous functioning of the site and building. The Contractor and each Subcontractor take all necessary measures to assure the safety of the staff, visitors, and the general public. The General Contractor is solely responsible for safety on the job site including securing and making safe all construction areas during construction hours as well as during non-construction hours.

- B. Schedule of Work and Site Use

1. The Contractor shall schedule the work of this Contract so as to perform and complete the Work of the Contract according to the following schedule. The Contractor shall within seven (7) days of the Notice of Contract Award, submit a schedule to the Owner and Architect for review.
2. It is expected that the Contractor utilize the time period between the Notice of Award and construction start date to schedule and coordinate the work and work sequence with their own forces and their subcontractors, prepare shop drawings and submittals for approval and order materials. The Owner shall issue a Notice to Proceed.
3. The Contractor shall be responsible for providing any and all measures and/or temporary construction required to control the transmission of dust, particles, and fumes from construction activities.

4. The Contractor shall be responsible on a daily basis for informing the designated Owner's representative of all persons on-site that day associated with the Work. The Contractor shall establish a daily reporting system of all activities which is acceptable to the Owner.
5. The Construction schedule shall indicate the dates for start and completion of each work item or task required with all milestones using a Bar Chart subject to approval by the Architect.
6. The Awarding Authority's review of the project construction schedule shall not extend to the accuracy or other matters dealt with in the schedule, including but not limited to whether work is omitted, whether duration of activity is reasonable, the level of labor, materials or equipment, the Contractor's means, methods, techniques, procedures or sequence of construction, or whether the sequence and timing for work remaining are practical. The accuracy, correctness of all work, sequencing, and schedules shall remain the sole responsibility of the Contractor. Neither the Awarding Authority's review of a schedule nor a statement of resubmittal not required shall relieve the Contractor for the responsibility for complying with the contract schedule, adhering to sequences of work, or from completing any omitted work with the Contract Time.
7. The Contractor shall provide, erect and maintain barricades with any required egress, access doors, lighting, ventilation, guard rails and all other appurtenances required to protect the general public, visitors, staff, and workers while construction is in progress. Safety is the sole responsibility of the Contractor on the job site.

1.05 HOUSEKEEPING AND PROTECTION OF EXISTING CONDITIONS

- A. Maintain the premises in a safe, orderly condition at all times. Protect construction, furnishings, equipment and other items.
- B. Property Protection: The General Contractor shall take all measures necessary to protect the Owner's property.
- C. Security: The General Contractor shall take every possible precaution to maintain the security of the buildings and site. The Contractor shall cooperate with the Owner fully and follow the Owner's directions as issued. The Contractor shall control and restrict access to areas of work to prevent injury to persons and property.

- D. The Contractor shall properly cover, protect and maintain floor and finished surfaces to prevent damage. Replace protective coverings which become wet, torn or ineffective.
 - E. Finished Surfaces Protection:
 - 1. The Contractor shall restrict traffic on finished surfaces to that required to perform the work of this Contract and permit traffic only required to properly complete the Work.
 - 2. Effectively protect surfaces to prevent damages to existing substrates, new finishes, and to finished roofing work. Provide temporary walkways and work platforms as needed.
 - 3. Load distribution: The Contractor and any Subcontractor shall not load or permit any part of the structure to be loaded in any manner that will damage the existing structure or endanger the safety of persons or property. Such loads shall include live and dead loads and all moving, vibratory, temporary, and impact loads.
 - F. Correction by the Contractor
 - 1. At no additional cost to the Owner, the General Contractor shall immediately correct all deficiencies, including damages to the building, site and site surfaces, damages to furnishings, damages to equipment or systems, damage to adjacent properties, and all other damage caused by the General Contractor or its Subcontractors during the execution of the Work of this Contract. Any and all damages resulting from inadequate, insufficient or defective temporary protections installed by the Contractor during the work of this Contract, shall be corrected by the General Contractor at no additional cost to the Owner.
- 1.06 REQUIREMENTS RELATED TO BUILDING USERS' FURNISHINGS, EQUIPMENT AND OTHER ITEMS
- A. The General Contractor is responsible for protecting all furnishings, equipment and items from damage (including construction generated dust) during the entire construction period.
 - B. The General Contractor shall be responsible for moving and re-setting up all furniture, fixed and movable equipment, file and storage cabinets, recreation equipment, boxes, and all other items to accomplish the work of both the General Contractor and the Subcontractors in its entirety.

1.07 DUST, DIRT, AND FUME CONTROL

- A. The Contractor shall take all necessary precautions and provide all necessary temporary construction to effectively contain dust, dirt and fumes within the areas of work and within the work limits. Temporary construction shall be provided to effectively prevent dust and dirt from entering areas of the buildings or adjacent buildings, satisfying all Municipal, State and Federal laws, codes, and requirements.

1.08 RUBBISH REMOVAL

- A. The Contractor shall remove all rubbish, waste, tools, equipment and appurtenances caused by and used in the execution of the Work; but this shall in no way be construed to relieve the Contractor of his primary responsibility for maintaining the building and Project site clean and free of debris, leaving all work in a clean condition and satisfactory to the Official.
- B. Immediately after unpacking, the Contractor shall collect and remove from the building and Project site all packing materials, case lumber, excelsior, wrapping and other rubbish.
- C. Rubbish removal shall occur so that trash and debris are contained in closed and secured waste containers.

1.09 CLEANING

- A. The Contractor shall at all times keep the building and Project site free from accumulation of waste materials or rubbish.
- B. Immediately prior to final inspection, the entire building and surrounding Project areas shall be thoroughly cleaned by the Contractor including, without limitation:
 - 1. All construction facilities, tools, equipment, surplus materials, debris and rubbish shall be removed from the Project site and the entire Work shall be left broom clean.
 - 2. All finished surfaces shall be left in perfect condition, free of stains, spots, marks, dirt, and other defects. The Contractor shall be responsible for the cleaning of the Work of all trades, whether or not cleaning by such trades is included in their respective Selection of the Specifications.
 - 3. Plenums, duct spaces and furred spaces shall be protected at all times from fumes, particles and other air-borne construction

effects. These building spaces shall be left clean of debris and decayable materials.

4. Equipment and building systems located in areas of construction shall be cleaned and tested and made perfectly operational to the satisfaction of the Owner prior to Substantial Completion or partial Substantial Completion of that area of work.
- C. In cleaning items having manufacturer's finish, or items previously finished by a Subcontractor, care shall be taken not to damage such finish. In cleaning glass and finish surfaces, care shall be taken not to use cleaning agents which may stain or damage any finish materials. Any damage to finishes caused by cleaning operations shall be corrected and repaired by the Contractor at no increase in Contract Price.

1.10 OR-EQUAL

- A. Where materials, equipment, apparatus, or other products are specified by Manufacturer, brand name, type or catalog number, such designation is to establish standards or performance, quality, type and style.
- B. If the General or Subcontractor wishes to use materials or equipment other than these specifically designated herein, as being equal to those so specifically designated, he shall submit the proposed substitution before purchasing and/or fabrication in accordance with the requirement of the General Conditions for approval.
- C. It is the responsibility of the Contractor to submit all back-up material and data needed to prove that the proposed product is an "or-equal". The Architect will not review an alternative product without proper documentation. Alternative products and assemblies will be rejected immediately without proper documentation.
- D. The schedule of the project is not subject to the availability of products submitted as "or approved equal" or the review needed to certify an "or approved equal" product.

1.11 PERMITS AND POLICE DETAILS

- A. The contractor is responsible for procuring and paying for all applicable permits and police details throughout the entire project.
- B. The Contractor is responsible for all Town permit fees. Please note that the Town will NOT waive permit fees for this project.

1.12 COORDINATION

- A. The Contractor shall coordinate locations of all items to be installed with the Architect. If an item is not dimensioned, for height or location, contact the Architect for the installation information. Installation of items without the proper dimensional information may result in reinstallation at no additional charge by the contractor.

1.13 GENERAL NOTES

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND COORDINATING ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS. IN CASE OF CONFLICT, THE ARCHITECT SHALL BE NOTIFIED AND SHALL RESOLVE THE CONFLICT.
- B. IN ANY CASE OF CONFLICT BETWEEN OR WITHIN THE DRAWINGS AND THE PROJECT SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.
- C. THE CONTRACTOR SHALL MAKE NO DEVIATION FROM DESIGN DRAWINGS WITHOUT PRIOR REVIEW BY THE ARCHITECT.
- D. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE REPEATED.
- E. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND LOCAL LAWS AND REGULATIONS.
- F. GENERAL CONTRACTOR SHALL COORDINATE LOCATIONS OF OPENINGS, PITS, BOXES, SUMPS, TRENCHES, SLEEVES, DEPRESSIONS, GROOVES, AND CHAMFERS, WITH MECHANICAL, ELECTRICAL AND PLUMBING TRADES.
- G. THE STRUCTURAL DESIGN OF THE BUILDING IS BASED ON THE FULL INTERACTION OF ALL ITS COMPONENT PARTS. NO PROVISIONS HAVE BEEN MADE FOR CONDITIONS OCCURRING DURING CONSTRUCTION. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAKE PROPER AND ADEQUATE PROVISIONS FOR STABILITY OF, AND ALL STRESSES TO THE STRUCTURE DUE TO ANY CAUSE DURING CONSTRUCTION.
- H. CONTRACTOR SHALL NOT SCALE DRAWINGS. CONTRACTOR SHALL REQUEST ALL DIMENSIONS OR INFORMATION REQUIRED TO PERFORM THE WORK FROM THE ARCHITECT.

WORK COMPLETED BY THE CONTRACTOR WITHOUT DIMENSIONS OR INFORMATION SHALL BE DONE AT THEIR OWN RISK AND, IF DEEMED INCORRECT BY THE ARCHITECT, SHALL BE REMOVED AND REINSTALLED TO THE SPECIFICATIONS OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

- I. CODES: THE PROJECT IS BASED ON THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE - EIGHTH EDITION.
- J. THE PLANS WERE COMPILED FROM VARIOUS SOURCES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS AND DIMENSIONS.

1.19 INSURANCE

- A. Barnstable Public Schools, The Town of Barnstable, and CBI Consulting Inc. shall be listed as Additional Insured with a Waiver of Subrogation on the insurance policy for this project.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 25 00

COORDINATION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 COORDINATION WITH THE BARNSTABLE UNITED ELEMENTARY SCHOOL BUILDING AND SCHOOL BUILDING PROCEDURES

- A. The safety and welfare of the employees and guests are the utmost concern of the project. All work by the Contractor, his Sub-Contractors, Sub-Bidders, suppliers, and employees shall be performed in a way that will safeguard this concern. Safety is the sole responsibility of the Contractor on the jobsite. Extraordinary care must be taken throughout the project to coordinate work activities with the Coastguard Heritage Museum schedules, procedures, and activities.
- B. All construction activities, including, but not exclusive of scheduling and deliveries to the school are to be coordinated with the Owner's Project Manager.
- C. Pre-construction meetings shall be held with the Owner's Project Manager, the Contractor and Architect, to coordinate locations for dumpsters and chutes, deliveries, worker parking, material storage, as well as to discuss safety, and scheduling, procedures.

COORDINATION

- D. Contractor shall restrict hazardous items and activities to locations that will have the least impact on the daily operations of the school activities. All material storage, locations of cranes, dumpsters, workers access, etc. will be only in areas approved by the Barnstable Public Schools.
- E. Install, at a minimum, when work is performed overhead, covered walkway protection at all entrance and exit doors, at areas of construction, to the facility during construction activities, (10'-0") minimum length, of pipe scaffolding, plywood, planking, orange plastic fencing, and yellow safety tape. Safety is the sole responsibility of the contractor, regardless of the information in this specification.
- F. Contractor shall cover all interior spaces where work will occur, with minimum 6-mil poly tarps before operations commence above to protect interior surfaces and equipment from debris and dust. All protections shall be removed immediately upon completion of the work. Dust and debris not contained by the tarps shall be immediately vacuumed to the satisfaction of the Owner's Project Manager. Damage as a result of the work will be repaired to the satisfaction of and at no additional cost to the owner.
- G. Contractor shall provide signage and other safety barriers at the site adequate to support their safety program and to properly identify building entrances and exits.
- H. Contractor shall update the Construction schedule monthly. Requisitions for payment must be accompanied by an updated schedule. The on-site superintendent shall meet with the Owner's Project Manager daily at to inform them of the daily progress and review the schedule for the next three (3) days.

1.03 SCHEDULING

- A. Time is of the essence in this project.
- B. Temperature is a critical factor in the construction work. Adhere to manufacturer's specifications.
- C. Within five (5) days after the Contractor has received the Owner's Notice to Proceed, and before the commencement of any work, the Contractor shall transmit the proposed construction schedule to the Owner and Architect for review. If any change in the work will alter agreed upon schedules, the Contractor shall immediately notify the Owner and Architect in writing.
- D. The Contractor shall confine his/her apparatus, storage of materials, and operation of his/her workmen to limits as required by the Owner, and shall not unreasonably encumber the premises with these materials. He/she shall keep all access roads and walks clear of construction equipment, materials, and debris of any kind. He/she shall repair any and all damage to access roads, walks, the building facade

and roof caused by construction operations, and leave them in at least as good condition as originally found. All operations shall be confined within the property. All delivery and construction operations shall be conducted so as to avoid all possible obstruction of the work and building operations. The Contractor shall meet regularly with the Owner to coordinate the use of the Site.

- E. The Contractor must request approval from the Barnstable Public Schools to work after hours, or on Saturdays or Sundays with paid Barnstable Public Schools staff, at no additional expense to the Owner.

1.04 SUBCONTRACTORS

- A. Subcontractors are subject to approval by the Owner.

1.05 CONSTRUCTION REVIEW

- A. All materials and workmanship shall be subject to review by the Architect and all designated representatives of the Owner. Such review may take place at any time during the construction, and wherever work relating to this project is underway. The Contractor shall notify the Architect of any approaching stage of the work likely to require his/her attention, and the Architect shall have the right to reject all defective or non-conforming workmanship and material, and to require its replacement.
- B. If any un-reviewed work is covered up without approval, the Contractor shall bear the costs of uncovering it upon request.

1.06 CODES

- A. Codes, standards, and publications of private and public bodies mentioned in these specifications, and other such standards and specifications, refer to the latest edition thereof at the time of taking bids unless a specific edition is designated, and shall be considered and integral part of the Contract Documents.

1.07 COORDINATION OF WORK

- A. Contractor shall coordinate all construction work with David Kanyock, Director of Facilities for the Barnstable Public Schools.
- B. Contractor is responsible for all building and sidewalk permits, police details as required as well as any other requirements that may be imposed by the Town of Barnstable.
- C. The Contractor shall be responsible for maintaining required building egress at all existing building egress locations simultaneously during the work.

1.08 SPECIFICATION DISTRIBUTION TO WORKMEN

- A. A complete copy of the Project Manual, including Plans and Specifications shall be kept at the construction site at all times.
- B. At the direction of the Architect, the Contractor shall photocopy various parts of pertinent Sections of the Project Manual to be handed out to each tradesman.

1.09 DELIVERY AND STORAGE

- A. Materials shall be delivered dry, in their original, unopened containers, clearly labeled with manufacturer's name, brand name, and such identifying numbers as are appropriate. Materials shall be stored as required by the Manufacturer's specifications.
 - 1. All materials shall be stored flat, or in the case of rolls, standing on end, elevated from the ground or deck, and protected with approved waterproof covers to keep the materials dry and protected from sunlight and moisture, and ventilated to prevent excessive temperature.
 - 2. Flammable materials shall be stored in a cool, dry area away from sparks and open flames.
 - 3. Damaged or deteriorated materials shall not be used and shall be removed from the job site.
 - 4. All cardboard containers shall be stored in dry areas or on pallets. Packing materials shall be collected so as not to blow around the site.
 - 5. All materials shall be stored in temperatures specified by the manufacturer. Submit proposed storage arrangements regarding temperature to the Architect and the materials manufacturer for review.
 - 6. All fire stopping shall be performed by each respective trade.

1.10 JOB CONDITIONS

- A. Do not deliver to site or install any material or system that has not been approved. Materials installed without approval may be required to be removed and replaced at no additional cost to the Owner.
- B. Materials which have a temperature other than the application temperature of the manufacturer shall not be applied.
- C. All materials shall be installed according to manufacturer's specifications and shall be compatible with the existing materials used on site.

1.11 FIELD MEASUREMENTS

- A. Before ordering any materials or performing any work, the Contractor or his/her subcontractors shall inspect all existing conditions and perform all measurements at the building. No extra charge or compensation will be allowed because of differences between the drawings and the actual dimensions. Any differences between the Project Manual and the actual conditions found shall be submitted to the Architect for his/her decision before proceeding with the work.

1.12 CONDITIONS, DIMENSIONS AND QUANTITIES

- A. All conditions, dimensions and quantities shall be determined or verified by the Contractor. The Plans and details have been compiled from various sources and may not reflect the actual condition at the moment of construction. The Contractor is cautioned to take all precautions and make all investigations necessary to install the proposed work. The Owner will not consider unfamiliarity with the job conditions as a basis for additional compensation.

1.13 CUTTING AND PATCHING

- A. The work to be performed under this Contract shall include all cutting and patching necessary to accommodate new work.

1.14 PERMITS

- A. All fees and procurement of building permits shall be the responsibility of the Contractor. Requests for inspections by the Building Inspector and the obtaining of required signatures by Inspection on permits, is the responsibility of the Contractor. Permit fees will not be waived.

1.15 DUMPING

- A. The contractor shall submit an affidavit certifying legal and proper dumping and disposal (including locations) of all materials from the project.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 30 00

SUBMITTALS

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.
- E. Consult the individual sections of the specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

- A. Timeliness - The Contractor shall transmit each submittal to the Designer sufficiently in advance of performing related Work or other applicable activities so that the installation is not delayed by processing times, including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect in advance of the Work.
- B. Sequence - The Contractor shall transmit each submittal in a sequence which will not result in the Architect's approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.

- C. The Contractor's Review - Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Architect. Submittals shall be accompanied by a transmittal notice stating name of Project, date of submittal, "To", "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section, or Drawing No. to which the submittal refers, purpose (first submittal, resubmittal), description, remarks, distribution record, and signature of transmitter.
- D. Architect's Action - The Architect will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
1. Final Unrestricted Release: Where marked "Approved" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
 2. Final-But-Restricted Release: When marked "Approved as Noted" the Work may proceed provided it complies with the Architect's notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend on these compliances.
 3. Returned for Resubmittal: When marked "Revise and Resubmit" or "Disapproved" the Work covered by the submittal (such as purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay (no limit to number of resubmissions), in accordance with the Designer's notations stating the reasons for returning the submittal.
- E. Processing - All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this contract shall be included in the Contract Sum.

1.03 OR EQUALS

- A. Definition - Whenever a specification section names one or more brands for a given item, and the Contractor wishes to submit, for consideration, another brand, the submission shall be considered an "or-equal" or a "material substitution". For the purposes of this Contract, the terms "or-equal" and "material substitution" shall be considered synonymous.
- B. In no case may an item be provided on the Work other than the item named or described, unless the Architect, with the Owner's written concurrence, shall consider the item equal to the item so named or described, as provided by M.G.L. c.149.

- C. The equality of items offered as "equal" to items named or described shall be proved to the satisfaction of the Architect, including all research and full documentation, at the expense of the Contractor submitting the substitution.
- D. The Designer and/or the Owner may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor shall bear full cost for providing, delivering, and disposal of all such samples.
- E. The Contractor shall assume full responsibility for the performance of any item submitted as an "Or-Equal" and assume the costs of any changes in any Work which may be caused by such substitution.
- F. Or Equal Approval Process - On the transmittal or on a separate sheet attached to the submission, the Contractor shall direct attention to any deviations, including minor limitations and variations, from the Contract Documents.
 - 1. The Contractor shall submit to the Architect for consideration of any or-equal substitution a written point-by-point comparison containing the name and full particulars of the proposed product and the product named or described in the Contract Documents.
 - 2. Such submittal shall in no event be made later than ten (10) calendar days prior to the incorporation of the item into the Work. In any case in which the time period specified in the Contract Documents from the Notice to Proceed to Substantial Completion is less than thirty (30) days, this requirement can be waived by the Architect.
 - 3. Upon receipt of a written request for approval of an or-equal substitution, the Architect shall investigate whether the proposed item shall be considered equal to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Architect shall promptly advise the Contractor that the item is, or is not, considered acceptable as on Or-Equal substitution. Such written notice must have the concurrence of the Owner.

1.04 SUBMISSION OF SHOP DRAWINGS

- A. Shop Drawings shall be complete, giving all information necessary or requested in the individual section of the specifications. They shall also show all adjoining Work, other work affected, and details of connection thereto, including hardware, flashing, waterproofing, and all utilities.
- B. Shop Drawings shall be for whole systems. Partial submissions will not be accepted.

- C. The Architect reserves the right to review and approve shop drawings only after approval of related product data and samples.
 - D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Architect's stamp.
 - E. The Contractor shall submit to the Architect seven (7) black line prints of each shop drawing. Transparency and prints shall be mailed or delivered in roll form. Each submittal shall be accompanied by a transmittal notice.
 - F. When the transparency is returned by the Architect with the stamp "Revise and Resubmit" or "Disapproved", the Contractor shall correct the original drawing or prepare a new drawing and resubmit seven (7) prints thereof to the Architect for approval. This procedure shall be repeated until the Architect's approval is obtained. No limit.
 - G. The Contractor shall maintain one (1) full set of approved shop drawings at the site.
 - H. Photo copies of the bid documents are not acceptable as shop drawings.
 - I. Provide shop drawings for every item to be installed or repaired in the entire project, whether or not indicated in the spec section.
- 1.05 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES (SUBMITTALS AND DISTRIBUTION)
- A. The General Contractor, within ten (10) working days after the commencement of work shall prepare and submit for the Architect's approval a schedule of Shop Drawings, Product Data and Samples required to be submitted for the work. The schedule shall indicate by trade the date by which final approval of each item must be obtained, and shall be revised as required by conditions of the work, subject to Architect's approval. The schedule of Shop Drawings shall correspond to the Construction Schedule so that the submissions relate to the time when the products and/or systems will be required on the site. The Architect will not approve a Schedule which calls for out of sequence submittals.
 - B. General Contractor shall submit Shop Drawing, product data, and samples accompanied by the General Contractor's Shop Drawing, Product Data and Sample Transmittals form.
 - C. Preparation of Submittal Form: Fill out transmittal form in the following manner using a typewriter or word processor, and retain one (1) copy – General Contractor's first file:

- | | | |
|-----|---------------------------|---|
| 1. | General Contr.
Job No. | General Contractor's name and job number. |
| 2. | Spec. Section | The Specification Section number where item is specified – do not submit items from more than one Specification Section on the same form. |
| 3. | Submitted by | Name of General Contractor's employee responsible for the General Contractor's review. |
| 4. | Project/No. | Project name and Architect's project number. |
| 5. | Transmittal No. | Transmittal numbers shall be consecutive for the project. |
| 6. | Date Submitted | Date leaving General Contractor's office. |
| 7. | Subcontractor | Name of firm preparing original documents (shop drawings or sample). |
| 8. | Submission No. | 1 st , 2 nd , 3 rd , etc. depending on previous submission for same item (see Resubmittal procedure). |
| 9. | Spec. Sec. Para. | Specific paragraph number which item as Specified. |
| 10. | Copies & Type | Number of copies submitted and type of material submitted (sepia, print, brochure or sample, etc.). |
| 11. | Contr.'s Remarks | Note exceptions or deviations from the Contract Documents and reasons for them. |

D. Resubmissions: Resubmittal shall follow the same procedures as the initial submittal with the following exceptions:

1. Transmittal shall contain the same information as the first transmittal except that transmittal numbers shall run consecutively and the submission number shall indicate 2nd, 3rd, etc. submission. The drawing number/description shall be identical to the initial submission and the date shall be the revised date for that submission.

2. Unless otherwise approved by the Architect, no new material shall be included on the same transmittal for a resubmission.
 3. Where Resubmittal has not been required by the Architect, but corrections have been noted on a shop drawing, seven (7) prints of the drawings after the noted corrections have been made shall be submitted to the Architect for record purposes but not for action. Shop Drawings reviewed by the Designer's Architects will have three (3) prints returned.
- E. Submittal Procedures by General Contractor for Approval
1. General: All submittals shall be made to Architect's office.
 2. Shop Drawings: Seven (7) black line prints (maximum sheet size shall be 30" x 42").
- F. Architect's Review Procedures:
1. The Architect's review, including Architect's review period will not exceed fourteen (14) calendar days from the established date of each submission indicated on the Schedule of Shop Drawings, Product Data, and Samples plus the additional time, if any, for distribution by the General Contractor and receipt of submissions by the Architect. The General Contractor is required to strictly adhere to the established Schedule dates.
 2. The Architect will process the submission and indicate the appropriate action on the submission and the transmittal. Incomplete or erroneous transmittals will be returned without action.
 3. The Architect will fill out transmittal in the following sequence:
 - a. Date Received Date arriving in the Architect's office.
 - b. Date Return Date leaving the Architect's office to the General Contractor.
 - c. To/Date Name of architect to whom submission is sent for review and date leaving the Architect's office.
 - d. From/Date Name of architect reviewing submission and date arriving in the Architect's office.
 - e. Action Indicate action taken on submission.

- | | | |
|----|---------------------|--|
| f. | Distribution | Number of copies distributed and type of material distributed (sepia, print, brochure or samples, etc.). |
| g. | Architect's Remarks | Note major deviations from the Contract Documents. |
4. The Architect will return two (2) copies of Shop Drawings, one (1) Sample or two (2) brochures with copies of transmittal forms to the General Contractor.
5. The Architect will keep a copy and send one (1) copy to the Owner.

1.06 SUBMISSION OF PRODUCT DATA

- A. The Contractor shall submit seven (7) copies of Product Data to the Architect. All such data shall be specific and identification of material or equipment submitted shall be clearly marked in ink. Data of general nature will not be accepted.
- B. Product Data shall be accompanied by a transmittal notice. The Contractor's stamp of approval shall appear on the printed information itself, in a location which will not impair legibility.
- C. Product Data returned by the Designer as "Disapproved" shall be resubmitted in seven (7) days until the Architect's approval is obtained.
- D. When the Product Data are acceptable, the Architect will stamp them "Approved" or "Approved as Corrected", distribute to the team three (3) copies, and return two (2) copies to the Contractor. The Contractor shall provide and distribute additional copies as may be required to complete the Work.
- E. The Contractor shall maintain one (1) full set of approved, original, Product Data at the site.
- F. Provide product data for all items to be installed whether or not noted in the specification section.

1.07 SUBMISSION OF SAMPLES

- A. Unless otherwise specified in the individual section, the Contractor shall submit three (3) specimens of each sample.
- B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall

show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.

- C. Samples of items of interior finishes shall be submitted all at once to permit a coordinated selection of colors and finishes.
- D. Samples which can be conveniently mailed shall be sent directly to the Designer, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- E. All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of samples so delivered with the Contractor's stamp of approval shall be mailed to the Architect.
- F. If a sample is rejected by the Architect, a new sample shall be resubmitted in the manner specified hereinabove. This procedure shall be repeated until the sample is approved by the Architect.
- G. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications, at no additional cost to DCAMM.
- H. Samples shall not be installed as part of the work.
- I. Provide color and finish samples of every item to be installed.

1.08 CONSTRUCTION SCHEDULE

- A. The Proposed Construction Schedule shall be based on an orderly progression of the work, allowing adequate time for each operation, and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The Proposed Construction Schedule will be reviewed by the Owner/Architect for compliance with the requirements of this Article and will be accepted or returned to the Contractor for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the Proposed Construction Schedule has been approved by the Owner/Architect.
- B. The Proposed Construction Schedule in **critical path method form** which shall include the following with such other details as Owner/Architect may require:
 - 1. Indicate complete sequence of construction by activity, with dates for beginning and completion of each element and stage of construction.
 - 2. Identify each item by major Specification Section number.

3. Submittal and Approval Dates for all Shop Drawings and Samples.
 4. A chart showing Critical Delivery Dates for Material and Equipment to be incorporated into the Work.
 5. Provide sub-schedules to define critical portions of entire Schedule.
 6. Coordinate content with Schedule of Values and provide the cost of each activity as identified in the Construction Schedule.
- B. During the progress of the Work, any changes in the original schedule desired by the General Contractor, which affect Contract completion dates, shall be approved by the Owner before being put into effect.
- C. When changes in the Work are required, the original Proposed Construction Schedule shall be revised without delay to incorporate such changes or new work and indicate the effect hereof on the Project as a whole.
- D. Provide updated critical path method (CPM) chart each month. Submit chart for review with Contractor's Application for Payment.

1.09 SCHEDULE OF VALUES

- A. Prior to the first request for payment, the General Contractor shall submit to the Architect and Owner, a Schedule of Values of the various portions of the work in sufficient detail to reflect various major components of each trade, including quantities when requested, aggregating the total contract sum, and divided so as to facilitate payments for work under each Section in accordance with Article VII of the Contract Form. The Schedule shall be prepared in such form as specified or as the Architect or Owner may approve, and it shall include data to substantial its accuracy. Each item in the Schedule of Values shall include its proper share of overhead and profit in this schedule, including breakdown of values, requires the approval of the Architect and Owner and shall be used only as a basis for the Contractor's request for payment.

1.10 MANUFACTURER'S INSTRUCTIONS

- A. Submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for all products.

1.11 CERTIFICATES OF COMPLIANCE

- A. Submit certificates of compliance together with the associated Shop Drawings, Product Data and Samples required for the Product.

- B. Submit on (8 ½ in. x 11 in.) white paper.
- C. Submit one (1) copy.
- D. The Architect will retain the certificates of compliance; no approval reply is intended.

1.12 PATTERNS AND COLORS

- A. Submit accurate color charts and pattern charts to the Architect for his/her review and selection whenever a choice of color or pattern is available in a specified product, unless the exact color and pattern of a product are indicated in the Contract Documents. Submit actual cured samples of all materials for color approval.

1.13 RECORD DRAWINGS

- A. At the completion of the project, the Contractor shall prepare a complete set of reproducible record drawings and AutoCAD Files, latest version on compact discs showing all systems as actually installed, and PDF files submitted on a CD.

1.14 SUBMITTAL TRANSMITTAL FORM

- A. All submittals shall be presented with the submittal transmittal form attached, completely filled out. Submittals without the attached form will be returned without review.

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 40 00

QUALITY CONTROL

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 PULL-OUT TESTS

- A. The Contractor shall perform pull-out tests to determine the length and type of fastener required to provide adequate withdrawal resistance from every substrate.
- B. A minimum of two (2) pull out tests shall be performed per section to be fastened. More tests shall be performed if required by the structural engineer or the material manufacturer.
- C. Submit a report from the fastener supplier and the product manufacturer describing the pull out tests, the recommend fasteners, and that they are covered under the warranty.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

QUALITY CONTROL

01 40 00 - 1

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 42 16

DEFINITIONS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.05 DEFINITION OF "ARCHITECT"

- A. Any reference to "Architect," "Engineer" or "Designer" in this Project Manual, Specification or on the drawings shall refer to CBI Consulting Inc., 250 Dorchester Avenue., Boston, Massachusetts 02127, (617) 268-8977, Steven Watchorn, Project Manager.

1.06 DEFINITION OF "OWNER"

- A. Any reference to the "Owner" shall be Barnstable Public Schools as represented by David Kanyock, Director of Facilities.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 UTILITIES

- A. The contractor will be able to use without charge, electrical power and water. It is the responsibility of the Contractor to make provisions to extend the utility from the nearest service outlet designated by the Owner to the point of use. Any misuse will be cause for discontinuance of the utility whereupon the Contractor shall provide the service at his/her own expense. Electrical energy shall not be used for temporary heating purposes. Do not include any cost for use of electric power or water that may be supplied by the Owner in the Basic Construction Proposal.
 - 1. Where heavy duty electric equipment drawing current in excess of fifteen (15) amperes is involved, the Contractor shall provide temporary service to supply the power.
 - 2. The temporary electric service shall include, but not be limited to labor, materials, and equipment necessary to supply temporary power of adequate capacity for the project.

TEMPORARY FACILITIES

3. Transformers and meters, when required by the power company, will be furnished by the power company and the contractor shall pay the costs thereof.
- B. Temporary electrical Work shall be performed under the direct supervision of at least one master electrician, who will be present on the project at all times when such work is being performed.
- C. The Contractor shall furnish, install, and maintain lamps in operating condition. The Contractor, and each Subcontractor, shall furnish their own extension cords and additional lamps as may be required for their work. Temporary work of a special nature, not otherwise specified hereunder, shall be provided, maintained, and paid for the trade requiring same.
- D. All lamps installed in permanent lighting fixtures and used as temporary lights during the construction period shall be removed and replaced shortly before Substantial Completion by the set of lamps required to be provided under the Electrical section of the specifications.
- E. All temporary work shall be provided in conformity with the National Electric Code, State laws, and requirements of the power company. Particular attention is called to Commonwealth of Massachusetts, Department of Labor and Industries Regulation, 454 CMR.

1.03 SANITARY FACILITIES

- A. The Contractor will be allowed to have use of sanitary toilet facilities within the building.
- B. The Contractor:
 1. Assumes full responsibility for the use of the toilets.
 2. Pays all costs for cleaning the toilets on a daily basis.

1.04 TEMPORARY SCAFFOLDING

- A. The General Bidder is responsible for erecting and maintaining, in safe condition, all scaffolding or staging required on the job, as well as all hoisting, to perform all the work in their scope, for the use of all Sub-Contractors, and for use by the Architect who will need to review the work or mark or verify quantities on the project.
- B. Provide any and all additional protection required to keep the building from being damaged by the staging, hoisting, or any construction work.

1.05 WEATHER PROTECTION

- A. "Weather Protection" means the temporary protection of that Work adversely affected by moisture, wind, and cold by covering, enclosing, and/or heating. This protection shall provide adequate working conditions during high humidity and consistent with the construction schedule to permit the continuous progress of all Work necessary to maintain an orderly and efficient sequence of construction operations. The Contractor shall furnish and install "Weather Protection" material and be responsible for all costs, including heating and/or cooling required to maintain a minimum of 40 degrees F. at the working surface and humidity levels to allow proper installation. This provision does not supersede any specific requirements for methods of construction, curing of materials, or the applicable conditions set forth in the Contract Documents with added regard to performance obligations of the Contractor.
- B. Within thirty (30) calendar days after award of the Contract, the Contractor shall submit in writing, to the Architect for approval, three (3) copies of the proposed methods for "Weather Protection".
- C. The Contractor shall assume the entire responsibility for weather protection during construction (until Substantial Completion), and shall be liable for any damage to any Work caused by failure to supply proper weather protection and proper ventilation.
- E. It is to be specifically understood that the Contractor shall do no work under any conditions deemed unsuitable by the Contractor to the execution of the Work. This provision shall not constitute any waiver, release, or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Contract Documents.

1.06 PROTECTION

- A. Weather protection shall be provided for; weather conditions occurring or anticipated, the extent of the existing structure exposed, or any other possible hazard.
- B. Dust control, pedestrian protection, and traffic control measures shall be provided during the course of the work.
- C. Schedule and execute all work without exposing the sensitive building areas to the effects of inclement weather. Protect the existing structure and its contents against all risks, and repair or replace all damage to the Owner's satisfaction. Protect all exterior building surfaces, roofing, lighting, landscape areas, and pavement from damage.

- D. All new and temporary construction, including equipment and accessories, shall be secured from wind damage or blow-off.
- E. The Contractor shall provide all necessary temporary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Also provide plywood protection for roofing adjacent to construction. Areas damaged because of inadequate protection will be repaired at no additional cost to the Owner, as per these specifications and the recommendations of the Architect.
- F. Provide temporary barricades and other forms of protection as required to protect Owner's personnel, students, and general public from injury due to the work.
- G. Any deteriorated substrate which is discovered shall be promptly reported to the Architect.
- H. Safety on the job site is the sole responsibility of the contractor. The Contractor shall ensure that all Local, State, Federal, OSHA or other applicable safety requirements are strictly accorded to. All OSHA safety requirements regarding items such as scaffolding, temporary protections, lift trucks, cranes, removal of debris, dust control, cleaning solvents, and high pressure water washing, sandblasting and equipment shall be ensured by the Contractor.

1.07 DEBRIS

- A. The Contractor will be responsible for the removal of all construction debris from the job site.
- B. Upon completion of each day and each phase of the work the Contractor shall leave the premises free of all debris and waste, in broom-clean condition. Overnight storage of material on site will be as approved by the Owner. The Contractor shall be responsible for keeping the site free of rubbish and debris, and in a neat and orderly condition at all times. The Contractor shall clean up and remove all accumulated rubbish and debris daily.
- C. The Owner's representative shall inspect the site daily. If it is determined that the site has not been cleaned of construction debris on a particular day the Contractor may be assessed \$100.00 for that day to be used to have the site cleaned by in house personnel. This shall be prepared by the Architect as a deduct Change Order to the Contract.
- D. Debris resulting from the new work shall be placed in covered containers provided by the Contractor and legally disposed of. Burning will not be permitted on site. Dumpster locations shall be approved by the Owner.

1.08 TEMPORARY NOISE AND POLLUTION CONTROL

- A. All work performed under the Contract shall conform to the requirements of Chapter 111, Sections 31C and 142D of the General Laws, Commonwealth of Massachusetts and Department of Public Health.

1.09 CONSTRUCTION PARKING CONTROL

- A. The Contractor shall control trucks and worker's vehicles to prevent unnecessary congestion in the neighborhood of the project.
- B. The schedule and location of all deliveries of materials must be coordinated and approved by the Owner.
- C. All on-site parking will be at the direction of the Owner.

1.10 TEMPORARY SITE STORAGE

- A. The Owner shall designate an area for temporary site storage on the site. All materials shall be stored in locked storage trailers or container boxes.
- B. Storage of materials will not be permitted within any building in the scope of work.

1.12 FIELD OFFICES AND SHEDS

- A. No Field Office is required, however the Contractor is responsible for the safe storage of Contract-related Documents on-site during the work.
- B. The Owner will designate a space within the building for weekly job meetings. The Contractor's Project Manager, Project Superintendent, and sub-contractor's representatives are required at weekly job meetings held at the job site.

1.12 TELEPHONES

- A. No telephone service will be provided by the Owner.
- B. A site telephone shall be provided by the Contractor and may be a cellular type for each site under construction. All telephone numbers shall be available to the project team. Provide pager for the project superintendent at the job site.
- C. Provide twenty-four (24) hour emergency phone numbers for the Contractor's Project Manager and Superintendent.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TEMPORARY FACILITIES

01 50 00 - 5

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 51 00

PROTECTION

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 PROTECTION OF PERSONS & PROPERTIES

- A. The site will be occupied during construction. The contractor shall have complete control of the job site. The Contractor shall take all necessary precautions to ensure the public safety and convenience of visitors during construction. Safety is the sole responsibility of the contractor, regardless of what is set forth in this document. The architect does not have control of the job site, or means and methods, in any way.
- B. Any damage to buildings, roads, (public and private), concrete walks, bituminous concrete areas, fences, rails, lawn areas, trees, shrubbery, poles, underground utilities, etc. shall be made good by and at the Contractor's own expense, all to the satisfaction of the Owner.
- C. The Contractor shall patch, repair and/or replace all adjacent materials and surfaces damaged after the installation of new work to the complete satisfaction and at no expense to the Owner. All repair and replacement work shall match the existing in kind and appearance.

1.03 TEMPORARY PROTECTION

A. The Contractor shall:

1. Protect excavations, trenches, buildings, and materials at all times from rain water, ground water, backing-up, or leakage of sewers, drains, or other piping, or from water damage of any origin. Provide all pumps, piping, coverings, and other materials and equipment as required by job conditions to accomplish this requirement.
2. In addition to the weather protection specified elsewhere, provide temporary watertight enclosures for openings in exterior walls and in roof decks when and as required to protect the Work from damage by inclement weather. Temporary enclosures shall be provided with adequate means of ventilation to prevent accumulation of moisture in the buildings.
3. Protect sills, jambs, and heads of openings through which materials are handled.
4. Protect decks and slabs to receive work by other trades from any soiling which will prevent proper adhesion of subsequent Work. Decks and slabs shall be left clean and free of blemishes at the time other trades begin the application of their work.
5. Protect concrete slabs to remain exposed and finished floors against mechanical damage, plaster droppings, oil, grease, paint, or other material which will stain the floor finish. Install and maintain adequate strips of building paper or other protection on finished floors in rooms where future Work will be done by other trades.
6. Protect all surfaces to receive work by other trades from any soiling which will prevent proper execution of subsequent work
7. Protect other areas, furniture, and private property of the resident and the Owner. Any areas damaged by the Contractor shall be restored to the original condition or compensated at the Contractor's expense.

- C. After the installation of the Work by any Subcontractor is completed, the Contractor shall be responsible for its protection and for repairing, replacing, or cleaning any such Work which has been damaged by other trades or by any other cause, so that all Work is in first class condition at the time of Substantial Completion.

1.04 ACCESS

- A. The Contractor shall, at all times, leave an unobstructed way along walks and

roadways, and shall maintain barriers and lights for the protection of all persons and property in all locations where materials are stored or work is in progress.

1.05 SECURITY

- A. The Contractor shall be responsible for providing all security precautions necessary to protect the Contractor's and Owner's interests.
- B. Where excavation is involved, the Contractor shall be responsible for providing continuous watchmen service as necessary, to insure adequate protection of the general public.

1.06 NOISE AND DUST CONTROL

- A. The Contractor shall take special measures to protect the residents, neighbors, and general public from noise, dust, and other disturbances by:
 - 1. Keeping common pedestrian and vehicular circulation areas clean and unobstructed;
 - 2. Insulating work area from occupied portions as far as possible; and
 - 3. Sealing dust and fumes from contaminating occupied spaces.

1.07 FIRE PROTECTION

- A. The Contractor shall take necessary precautions to insure against fire during construction. The Contractor shall be responsible to insure that the area within contract limits is kept orderly and clean and that combustible rubbish and construction debris is promptly removed from the site.
- B. Installation of equipment suitable for fire protection shall be done as soon as possible after commencement of the Work. The Contractor's attention is directed to the requirements of the Commonwealth of Massachusetts, Department of Labor and Workforce Development Regulation 454 CMR.

1.08 WEATHER PROTECTION

- A. The Contractor shall provide Weather Protection as required by Specification Section 01 50 00 Temporary Facilities and any other specific requirements of the Contract Documents.

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 52 00

CLEANING UP

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.
- E. This section supplements the General Conditions.
- F. Consult the individual sections of the specifications for cleaning of Work installed under those sections.

1.02 CLEANING DURING CONSTRUCTION

- A. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on the site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

- C. Do not allow materials and rubbish to drop free or be thrown from upper floors, but remove by use of a material hoist or rubbish chutes.
- D. Maintain the Site free from accumulations of waste, debris, and rubbish.
- E. Provide on-site containers for collection of waste materials and rubbish.
- F. At the end of each day, remove and legally dispose waste materials and rubbish from site.
- G. Disposal of materials shall be in compliance with all applicable laws, ordinances, codes, and by-laws.

1.03 FINAL CLEANING

- A. Prior to submitting a request to the Architect to certify Substantial Completion of the Work, the Contractor shall inspect all interior and exterior spaces and verify that all waste materials, rubbish, tools, equipment, machinery, and surplus materials have been removed, and that all sight-exposed surfaces are clean. Leave the Project clean and ready for occupancy.
- B. Unless otherwise specified under other sections of the Specifications, the Contractor shall perform final cleaning operations as herein specified prior to final inspection.
- C. Cleaning shall include all surfaces, interior and exterior, which the Contractor has had access to, whether new or existing.
- D. Employ experienced workmen or professional cleaners for final cleaning.
- E. Use only cleaning materials recommended by the manufacturer of the surface to be cleaned.
- F. Use cleaning materials which will not create a hazard to health or property and which will not damage surfaces.
- G. Remove grease, mastic, adhesive, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior surfaces. This includes cleaning of the Work of all finishing trades where needed, whether or not cleaning by such trades is included in their respective specifications.
- H. Repair, patch, and touch up marred surfaces to the specified finish, to match adjacent surfaces.
- I. Leave pipe and duct spaces, plenums, furred spaces and the like, clean of debris and decayable materials.

- J. In cleaning items with manufacturer's finish or items previously finished by a Subcontractor, care shall be taken not to damage such manufacturer's or Subcontractor's finish. In cleaning glass and finish surfaces, care shall be taken not to use detergents or other cleaning agents which may stain adjoining finish surfaces. Any damage to finishes caused by cleaning operations shall be repaired at the Contractor's expense.
- O. Broom clean exposed concrete surfaces and paved surfaces. Rake clean other surfaces of grounds.
- P. Ventilating systems - Replace filters and clean ducts, blowers, and coils if units were operated during construction.
- Q. Owner's responsibility for cleaning commences at Substantial Completion.

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 70 00

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 COMPLETION OF WORK

- A. The site shall be cleaned of all debris resulting from the work and areas damaged during the course of the work restored to the satisfaction of the architect and the Owner.
- B. The Contractor shall notify the Architect and Owner that the work is completed and Project Manual requirements have been met. The Architect shall review the completed work with the Contractor within seven (7) calendar days of notification. Any deficiencies observed at the time will be conveyed directly to the Contractor with a written confirmation, after which the Contractor shall correct the stated deficiencies to the satisfaction of the Architect within fourteen (14) calendar days prior to demobilization from the site.
- C. After satisfactory completion of the above, the work shall be considered complete with notification by the Architect to the Owner.
- D. The Contractor shall submit all lien waivers and warranties at this time of final payment.
- E. All guarantees, as required in any Section of the Project Manual shall be submitted for approval prior to final payment.

Barnstable United Elementary
Chiller Pipe Insulation Replacement
Barnstable, Massachusetts
CBI JOB NO.: 13165-B

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

- F. Contractor shall maintain and record all changes to the plans throughout the entire project and shall submit as-built drawings of the entire project, in electronic AutoCAD and PDF format, prior to final payment. The Town and the Architect will provide existing AutoCAD base files for the sole purpose of the Contractor to generate the as-built drawings from.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 72 00

SURVEYS AND RECORD DRAWINGS

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.01 RECORD DRAWINGS

- A. Record Drawings shall consist of all the Contract Drawings.
- B. From the sets of drawings furnished by the Owner, the Contractor shall reserve one set for record purposes. From this set, the Contractor shall detach and furnish, at no charge to the Subcontractors the drawings of their portion of the Work for the same purpose.
- C. The Contractor and the above Subcontractors shall keep their marked up As Built set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work, and any architectural, mechanical, or electrical variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order, or instructions by the Architect shall be recorded. Marked up As Built drawings shall be prepared for the entire project and include all Work, including but not limited to:
 - 1. The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically at ten (10) foot intervals and at all changes of direction.

2. The location of all internal utilities and appurtunces, concealed by finish materials, including but not limited to valves, coils, dampers, vents, cleanouts, strainers, pipes, junction boxes, turning vanes, variable and constant volume boxes, ducts, traps, and maintenance devices.
 - a. The location of these, items shall be shown by offsets to structure and drawing grid lines.
 - b. The tolerance for the actual location of these items on the marked up As Built Drawings shall be plus or minus two (2) inches.
 - c. Each item shall be referenced by showing a tag number, areas served, and function on the marked up As Built drawing
- D. The Architect may periodically inspect the marked up As Built drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly applications for payment.
- E. At Substantial Completion the Contractor shall submit the complete set of marked up As Built drawings in electronic AutoCAD and PDF format to the Architect. The Town and the Architect will provide existing AutoCAD base files for the sole purpose of the Contractor to generate the as-built drawings from. The Contractor shall check all marked up As-Builts prepared by subcontractors and certify in writing on the title sheet of the drawings that they are complete and correct, prior to submission to the Architect.
- F. The Architect shall review the marked up As Built drawings and verify by letter to the Owner that the Work is complete. The Architect shall incorporate all changes onto original drawings.
- G. The Contractor may make a written request for copies of the completed Record Drawings. The Contractor shall reimburse the Owner directly for the cost of printing of any requested Record Drawings.
- H. Contractor shall maintain and record all changes to the plans throughout the entire project and shall submit as-built drawings of the entire project prior to final payment.

END OF SECTION

DIVISION 02

EXISTING CONDITIONS

SECTION 02 07 00

SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 SCOPE OF WORK

- A. Provide all the Selective Demolition Work required to complete the Work of the contract including all the Selective Demolition Work shown on the plans, listed in the Specification, and needed to install a complete assembly in every way, with all reinforcing, pinning, and finishes. Coordinate the Selective Demolition Work with all the other trades for the project. Provide all demolition and disposal Work to complete the Selective Demolition Work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All Work of the contract is related. It is the General Contractor's responsibility to review all the Work of each section, each Subcontractor, and each file sub-bidder for the entire project so that all the Work can be properly and completely performed.
- B. Selective Demolition Work includes, but is not limited to:
 - 1. Remove and Dispose of all existing pipe insulation at all insulated hot/cold supply and return pipes in the Limit of Work area as indicated on the Drawings.

SELECTIVE DEMOLITION

2. Remove and dispose of all pipe hangers to be replaced. Prepare existing pipe hangers to receive new hangers.
3. Carefully cut existing CMU block walls at all pipe penetrations to accommodate the thicker insulation as scheduled. Coordinate with insulation thicknesses listed in Section 23 00 00 and on the Mechanical Drawings. All existing pipe sizes and wall conditions shall be verified in the field by the Contractor.
4. Perform all Selective Demolition work necessary to complete the work whether or not described herein.
5. ADD ALTERNATE #1: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the West wing from the Entrance Lobby to the Boys' and Girls' rooms at the Southwest corner on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.
6. ADD ALTERNATE #2: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the North wing including the Entrance Lobby and Vestibule at the Northwest corner to the Cooking Classroom across from the Faculty Dining and Kitchen on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.
7. ADD ALTERNATE #3: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings inside the Gymnasium and inside the adjacent corridors to the Gymnasium and in the Boys' and Girls' Locker, Shower and Toilet Rooms on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

1.03 QUALITY ASSURANCE

A. Supervision:

1. Engage and assign supervision of shoring and bracing Work to qualified personnel.

B. Regulations:

1. Comply with local codes and ordinances of governing authorities having jurisdiction.

1.04 SUBMITTALS

A. Schedule:

1. Submit schedule indicating proposed methods and sequence of operations for selective demolition.
2. Include coordination for shut-off, capping, and continuation of utility services in scope area, if anticipated.

1.05 JOB CONDITIONS

A. Condition of Structures:

1. Owner assumes no responsibility for actual condition of items to be demolished.
2. Conditions existing at time of commencement of contract will be maintained by Owner insofar as practicable.

B. Protections:

1. Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition Work. Safety is the sole responsibility of the Contractor.
2. Provide protective measures to provide free and safe passage of Owner's personnel and general public to and from area of selective demolition.
3. Erect temporary covered passageways as required by authorities have in jurisdiction.
4. Take measures to protect against windblown dust, obtain Owner's approval of means used for dust control.
5. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or Work to remain.
6. Protect from damage existing finish Work that is to remain in place and becomes exposed during demolition operations.

7. Protect adjacent materials and finishes with suitable coverings when necessary including, but not limited to, automobiles in parking lot adjacent to building which will remain in use during Work to be performed.
 8. Remove protections at completion of Work.
- C. Damages: Promptly repair damages caused to building or property, including cars, by demolition Work at no cost to Owner.
- D. Traffic:
1. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
 2. Do not close, block, or otherwise obstruct streets, walks, parking areas, or other occupied or used facilities without written permission from the authorities having jurisdiction.
 3. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- E. Utility services:
1. Maintain existing utilities, keep in service, and protect against damage during demolition operations.
 2. Do not interrupt existing utilities service occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide 48 hours' notice if service must be interrupted.
 3. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
- F. Environmental Controls:
1. Comply with governing regulations pertaining to environmental protection.
 2. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 INSPECTION

- A. Before start of Selective Demolition Work, inspect areas in which Work will be performed.

3.02 PREPARATION

- A. Structure Safety:
 - 1. Provide shoring, bracing, or support to prevent movement, settlement, or collapse of structures to be demolished and adjacent facilities to remain.
 - 2. Cease operations and notify the Owner's Representative immediately if safety of structure appears to be endangered.
 - 3. Take precautions to support structure until determination is made for continuing operations.
- B. Shoring and Bracing
 - 1. If shoring and bracing is required, locate the system to clear permanent construction and to permit the completion of the Work.
 - 2. Provide shoring and bracing system adequately anchored and braced to resist natural forces.
 - 3. No shoring and bracing system shall remain at the completion of the Work.

3.03 DEMOLITION

- A. General:
 - 1. Perform Selective Demolition Work in a systematic manner.
 - 2. Use such methods as required to complete Work indicated on Drawings in accordance with Demolition Schedule and governing regulations.
 - 3. If unanticipated mechanical, electrical, or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict with Engineer.

B. Disposal of Demolished Materials:

1. Remove debris, rubbish, and other materials resulting from demolition operations from site.
2. Transport and legally dispose of materials off site.
3. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Present receipts from certified waste disposal firms confirming hazardous waste disposal.
4. Burning of removed materials is not permitted on project site.

3.04 CLEANING AND REPAIR

- A. On completion of demolition Work, remove tools, equipment, and demolished materials from site. Remove debris on a daily basis.
- B. Remove protection and leave areas broom clean.
- C. Repair demolition performed in excess of that required.
- D. Repair adjacent construction or surfaces soiled or damaged by selective demolition Work.

END OF SECTION

DIVISION 07

THERMAL AND MOISTURE PROTECTION

SECTION 07 84 00

FIRESTOPPING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

- A. Provide all the Firestopping Work required to complete the Work of the contract including all the Firestopping Work shown on the plans, listed in the specification, and needed to install a complete assembly in every way. Coordinate the Firestopping Work with all the other trades for the project. Provide all demolition and disposal Work to complete the Firestopping Work. Patch to match all adjacent surfaces that are disturbed left exposed, or unfinished. All Work of the contract is related. It is the General Contractor's responsibility to review all the Work of each section, each Subcontractor, and each file sub-bidder for the entire project so that all the Work can be properly and completely performed.
- B. Firestopping Work includes, but is not limited to:
 - 1. Firestopping systems.

2. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated, including all full-height masonry walls, all corridor walls, and all floor slabs.
3. ADD ALTERNATE #1: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the West wing from the Entrance Lobby to the Boys' and Girls' rooms at the Southwest corner on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid. Firestopping of pipe penetrations through the Second Floor slab in the areas of work over the Add Alternate shall occur as part of the Base Bid work from above.
4. ADD ALTERNATE #2: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the North wing including the Entrance Lobby and Vestibule at the Northwest corner to the Cooking Classroom across from the Faculty Dining and Kitchen on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid. Firestopping of pipe penetrations through the Second Floor slab in the areas of work over the Add Alternate shall occur as part of the Base Bid work from above.
5. ADD ALTERNATE #3: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings inside the Gymnasium and inside the adjacent corridors to the Gymnasium and in the Boys' and Girls' Locker, Shower and Toilet Rooms on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid. Firestopping of pipe penetrations through the Second Floor slab in the areas of work over the Add Alternate shall occur as part of the Base Bid work from above.

1.03 REFERENCE STANDARDS

- A. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a.
- B. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2009.
- C. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

- D. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance ratings, and limitations.

1.05 MOCK-UP

- A. Install one firestopping assembly representative of each fire rating design required on project.
 - 1. Where one design may be used for different penetrating items or in different wall constructions, install one assembly for each different combination.
- B. Obtain approval of authority having jurisdiction before proceeding.
- C. If accepted, mock-up will represent minimum standard for the Work.
- D. If accepted, mock-up may remain as part of the Work. Remove and replace mock-ups not accepted.

1.05 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 – PRODUCTS

2.01 FIRESTOPPING - GENERAL REQUIREMENTS

- A. Firestopping: Any material meeting requirements.
- B. Firestopping Materials with Volatile Content: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- C. Mold Resistance: Provide firestopping materials with mold and mildew resistance rating of 0 as determined by ASTM G21.

- D. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

2.02 FIRESTOPPING ASSEMBLY REQUIREMENTS

- A. Through Penetration Firestopping: Use any system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
 - 1. Temperature Rise: In addition, provide systems that have been tested to show T Rating as indicated.
 - 2. Air Leakage: In addition, provide systems that have been tested to show L Rating as indicated.

2.03 FIRESTOPPING PENETRATIONS THROUGH CONCRETE AND CONCRETE MASONRY CONSTRUCTION

- A. Penetrations Through Floors or Walls By:
 - 1. Insulated Pipes:
 - a. 2 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE Intumescent Firestop Sealant.
- B. Penetrations Through Floors By:
 - 1. Insulated Pipes:
 - a. 2 Hour Construction: UL System F-A-5015; Hilti CP 680-P/M Cast-In Device.

2.04 FIRESTOPPING SYSTEMS

- A. Firestopping: Any material meeting requirements.
 - 1. Fire Ratings: Use any system listed by UL or tested in accordance with ASTM E814 that has F Rating equal to fire rating of penetrated assembly and T Rating Equal to F Rating and that meets all other specified requirements.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.
- C. Install backing materials to arrest liquid material leakage.

3.03 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

3.04 PROTECTION

- A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

DIVISION 23 HEATING, VENTILATING AND AIR CONDITIONING

SECTION 23 00 00 HVAC

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- 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 Contract.
- D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 SCOPE OF WORK

- A. Provide all the HVAC Work required to complete the Work of the contract including all the HVAC Work shown on the plans, listed in the Specification, and needed to install a complete assembly in every way, with all reinforcing, pinning, and finishes. Coordinate the HVAC Work with all the other trades for the project. Provide all demolition and disposal Work to complete the HVAC Work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All Work of the contract is related. It is the General Contractor's responsibility to review all the Work of each section, and each Subcontractor for the entire project so that all the Work can be properly and completely performed.
- B. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section and related work of this Contract, including but not limited to the following:
 - 1. All Work of Section 23 00 00 HVAC

- C. Reference Drawings: G0-00, A1-01, A1-02, A1-03, M1-00, M1-01, M1-02, M1-03 & M1-04.
- D. The listing of the Contract Drawings above shall not limit responsibility to determine full extent of work of this Section as required by: all Contract Drawings noted on the Title Sheet Drawing List on the Contract Drawings, the Project Manual, and Addenda. Carefully examine all of the Contract Documents for requirements which effect the Work of this Section.
- E. Without limiting the generality thereof, the work to be performed under this section includes providing new vaporwick piping insulation on an existing dual temperature piping system with the following major sub systems:
 - 1. Piping insulation and accessories
 - 2. Pipe hangers
 - 3. Pipe identification labels
- F. Firestop systems in accordance with section 07 84 00 – Firestopping.
- G. Cutting through masonry and non-masonry existing construction in accordance with section 01 25 00; 1.13 – Cutting and Patching, as indicated in this section, and as shown on the Drawings.
- H. Include the following work as needed to perform the work of this section.
 - 1. Core drilling
 - 2. Temporary facilities, including but not limited to stairs and ladders, staging, scaffolding, chutes and hoisting in accordance with SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS.
- I. ADD ALTERNATE #1: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the West wing from the Entrance Lobby to the Boys’ and Girls’ rooms at the Southwest corner on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.
- J. ADD ALTERNATE #2: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings at the North wing including the Entrance Lobby and Vestibule at the Northwest corner to the Cooking Classroom across from the Faculty Dining and Kitchen on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add

Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

- K. ADD ALTERNATE #3: Provide the same scope of work indicated in this and all other sections of the Specifications and on the Drawings inside the Gymnasium and inside the adjacent corridors to the Gymnasium and in the Boys' and Girls' Locker, Shower and Toilet Rooms on the First Floor, as indicated on the Drawings. Note: All work occurring above the Add Alternate area on the Second Floor, including (but not exclusive of) insulating risers within the Unit Vents shall be included in the Base Bid.

1.03 RELATED SECTIONS

- A. For firestopping not called for in this Section refer to Section 07 84 00.

1.04 CODES, ORDINANCES, AND PERMITS

- A. Perform all work in accordance with the requirements of Barnstable Building Department, State of Massachusetts Building Code, 8th Edition, and applicable State and Federal Laws. Give all requisite notices, file all requisite plans, and obtain all permits required to perform HVAC Work.
- B. Permits: Be responsible for filing documents, and securing of inspection and approvals. Pay all local connection and permit fees.

1.05 QUALITY ASSURANCE

- A. Codes and Standards:
1. ANSI Standards: Comply with ANSI A13.1 for pipe, valve, and equipment identification.
 2. ASTM Standards: Comply with ASTM C547, C585, C1338, and E84.
 3. UL Testing: Comply with UL 723.

1.06 DISCREPANCIES IN DOCUMENTS

- A. Where Drawings or Specifications conflict or are unclear, advise Architect in writing before Award of Contract. Otherwise, Architect's interpretation of Contract Documents shall be final, and no additional compensation shall be permitted.
- B. Where Drawings or Specifications do not coincide with manufacturers recommendations, or with applicable codes and standards, alert Architect in writing before installation.

- C. If the required material, installation, or work can be interpreted differently from drawing to drawing, or between drawings and specs, this contractor shall provide that material, installation, or work which is of the more stringent.
- D. It is the intent of these contract documents to have the contractor provide systems and components that are fully complete and operational and fully suitable for the intended use. There may be situations in the documents where insufficient information exists to precisely describe a certain component or subsystem, or the routing of a system. In cases such as this, where the contractor has failed to notify the Architect of the situation in accordance with Paragraph (A) above, the contractor shall provide the specific component or subsystem with all parts necessary for the intended use, fully complete and operational, and installed in workmanlike manner.

1.07 CONTRACT DRAWINGS

- A. All work shown on the drawings is intended to be approximately correct to scale, but shall be taken in a sense as diagrammatic. Sizes of ductwork and pipes and general method of running them are shown, but it is not intended to show every offset and fitting. To carry out the true intent and purpose of the plans, furnish all necessary parts to make complete working systems ready for use.
- B. The HVAC Drawings and Specifications are intended to supplement each other so that any details shown on the Drawings and not mentioned in the Specifications, or vice-versa, shall be executed the same as if mentioned in the Specifications and shown on the Drawings.
- C. Refer to the Architectural and Mechanical drawings which indicate the construction in which this work shall be installed. Locations shown on the plans shall be field checked against the general and detailed Drawings of the construction documents. All measurements must be taken at the building.

1.08 ACCESSIBILITY

- A. Install materials to provide required access for servicing and maintenance to existing components.

1.09 ROUGH IN

- A. Verify final insulation lengths with field measurements and with the requirements of the existing components and equipment.

1.10 PHASING

- A. The mechanical contractor shall conduct all work on this project in phases as directed by the Architect to suit the project progress schedule, as well as the completion date of each phase.
- B. For additional information related to phasing, review the General Conditions and Supplementary Conditions and the Architectural drawings.

1.11 MECHANICAL INSTALLATIONS

- A. Coordinate mechanical materials installation with other building components before installing.
- B. Verify all dimensions by field measurements.
- C. Enlarge openings in building components to allow for thicker piping insulation.
- D. Provide the required supporting devices including hangers to accommodate thicker piping insulation.
- E. Sequence, coordinate, and integrate installations of mechanical materials for efficient flow of the work. Give particular attention to large components requiring positioning prior to closing in the ceiling.
- F. Coordinate the cutting and patching of building components to accommodate the installation of mechanical materials.

1.12 CUTTING AND PATCHING

- A. Penetrations through construction as required for the work of this Section:
 - 1. Coring: Perform all coring for required work.
 - 2. Enlarge existing openings in new and existing non-masonry and masonry construction as required for new insulation. All cutting shall conform to the requirements of Section 01 25 00; 1.13 – CUTTING AND PATCHING.
- B. Throughout the performance of the cutting and coring work, ensure that the structural integrity of the existing walls, floors, overhead structure, and other structural components, which are to remain, is maintained until permanent work is installed. All cutting or coring of structural members/walls must receive approval of the Architect prior to proceeding.

- C. No additional compensation will be authorized for cutting and patching work that is necessitated by ill-timed, defective, or non-conforming installations.
- D. All patching of surfaces shall be by this contractor. Match adjacent surface for color and material.
- E. Refer to related architectural sections including Section 01 31 00 for additional reference.

1.13 SUBMITTALS

- A. General: Refer to Section 01 30 00 – SUBMITTAL PROCEDURES for general requirements for submittal of product data, shop drawings and other materials for review by the Architect and their Consultants. The following paragraphs supplement the requirements of Section 01 30 00.
- B. Submittal of Shop Drawings, product data, and samples will be accepted only when submitted by the Construction Manager. Data submitted by Sub-contractors and material suppliers directly to the Architect/Engineer will not be processed.
- C. Submittal requirements specific to the Work of this Section include the following:
 - 1. Hangers and Attachments
 - 2. Mechanical Identification
 - 3. Mechanical Insulation
 - 4. Firestopping Material
- D. If a Shop Drawing is not accepted after two submissions, a third submission from the same manufacturer will not be considered.
- E. Check Shop Drawings and other submittals to assure compliance with contract documents before submittal to A/E.
- F. Review of Shop Drawings is final and no further changes shall be considered without written application. Shop Drawings review does not apply to quantities, nor relieve this Contractor of his responsibility for furnishing materials or performing his work in full compliance with these Contract Drawings and Specifications. Review of these shop drawings shall not be considered a guarantee of the measurements of this building or the conditions encountered.

1.14 SUBSTITUTIONS

- A. Refer to, Section 01 30 00 for requirements in requesting substitutions. The following paragraphs supplement the requirements of Section 01 30 00.
- B. If materials or equipment are substituted for basis of design specified items that alter the systems shown or its physical characteristics, or which have different operating characteristics, clearly note the alterations or difference and call it to the attention of the Architect/Engineer. Contractor shall be responsible for coordinating dimensional fit of equipment that varies from basis of design equipment. Under no circumstances shall substitutions be made unless material or equipment has been successfully operated for at least three consecutive years.
- C. Any modifications to the design, as a result of approving a substitution from the basis of design equipment, shall be the responsibility of this contractor. Any additional cost to this contractor or any other contractor, directly or indirectly, as a result of such substitutions, shall be the responsibility of this contractor.

1.15 DELIVERY, STORAGE AND HANDLING

- A. Refer to Section General Conditions for delivery, storage, and handling of equipment. The following paragraphs supplement the requirements of Section General Conditions.
- B. Deliver products to project properly identified with names, model numbers, types, grades, compliance labels, and similar information needed for distinct identifications; adequately packaged and protected to prevent damage during shipment, storage, and handling.
- C. Store equipment and materials at the site, unless off-site storage is authorized in writing. Protect stored equipment and materials from damage.
- D. Coordinate deliveries of mechanical materials and equipment to minimize construction site congestion. Limit each shipment of materials and equipment to the items and quantities needed for the smooth and efficient flow of installations.

1.16 WARRANTIES

- A. The contractor shall provide a one year minimum warrantee on all product (unless otherwise stated in the product specification for a specific product) and labor for work under this section.
- B. Refer to Section General Conditions and Section 01 70 00 Closeout Procedures for additional procedures and submittal requirements for warranties.

1.17 HOISTING EQUIPMENT AND MACHINERY

- A. Unless otherwise specified, all hoisting and rigging equipment and machinery required for the proper and expeditious prosecution and progress of the Work of this Section shall be furnished, installed, operated and maintained in safe condition by each sub-contractor, as specified under Section 01 50 00, TEMPORARY FACILITIES.

1.18 STAGING AND SCAFFOLDING

- A. Unless otherwise specified, each sub-contractor shall provide all lifts and man-lifts, and furnish, erect and maintain in safe condition, all staging and scaffolding as specified under Section 01 50 00 Temporary Facilities, as needed for proper execution of the work of this Section. Staging and scaffolding shall be of adequate design, erected and removed by experienced stage builders having all accident prevention devices required by Federal, state and local laws.

1.19 WELDING QUALIFICATIONS

- A. Piping shall be welded in accordance with qualifications procedures using performance qualified welders and welding operators. Procedures and welders shall be qualified in accordance with ASME BPV IX. Welding procedures qualified by others, and welders and welding operations qualified by another employer may be accepted as permitted by ASME B31.1. The Owner's Representative shall be notified 24 hours in advance of tests and the tests shall be performed at the work site if practicable. The welder or welding operator shall apply his assigned symbol near each weld he makes as a permanent record. Structural members shall be welded in accordance with Division 01.
- B. When open-flame or spark producing tools such as welding equipment, and the like are required in the process of executing the work, the Construction Manager shall be notified not less than twenty four hours in advance of the time that the work is to begin and the location where work is to be performed. Provide fire protective covering and maintain constant fire watch/fire detail (by the Arlington Fire Department) where work is being performed and until it is completed. This Contractor shall be responsible for obtaining required permit and paying all permit fees and Firewatch detail expenses.

PART 2 - PRODUCTS

2.01 HANGERS & ATTACHMENTS

- A. Horizontal-Piping Hangers and Supports:
 - 1. General: Except as otherwise indicated, provide factory-fabricated horizontal piping hangers and supports complying with MSS SP-58, of

one of the following MSS types listed, selected by Installer to suit horizontal-piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to insulated piping. Provide copper-plated hangers and supports for copper-piping systems.

- a. Adjustable Heavy Duty Steel Clevises Hangers: MSS Type 1.
 - b. Steel Pipe Clamps: MSS Type 4.
 - c. Pipe Slides and Slide Plates: MSS Type 35, including one of the following plate types:
 - 1) Plate: Unguided type.
 - 2) Plate: Guided type.
 - 3) Plate: Hold-down clamp type.
 - d. Pipe Saddle Supports: MSS Type 36, including steel pipe base-support and cast-iron floor flange.
 - e. Pipe Stanchion Saddles: MSS Tube 37, including steel pipe base support and cast-iron floor flange.
 - f. Adjustable Pipe Saddle Supports: MSS Type 38, including steel pipe base support and cast-iron floor flange.
 - g. Single Pipe Rolls: MSS Type 41.
 - h. Adjustable Roller Hangers: MSS Type 43.
 - i. Pipe Roll Stands: MSS Type 44.
 - j. Pipe Rolls and Plates: MSS Type 45.
 - k. Adjustable Pipe Roll Stands: MSS Type 46.
2. Manufacturer: Subject to compliance with requirements, provide hangers and supports of one of the following:
- a. Carpenter and Patterson, Inc.
 - b. Corner & Lada Co., Inc.
 - c. Elcen Metal Products Co.

- d. Fee & Mason Mfg. Co.; Div. Figgie International
- e. ITT Grinnel Corp.
- f. Or Equal.

B. Vertical-Piping Clamps:

1. General: Except as otherwise indicated, provide factory-fabricated vertical-piping clamps, complying with MSS SP-58, of one of the following types listed, selected by Installer to suit vertical piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe. Provide copper-plated clamps for copper-piping systems.
 - a. Two-Bolt Riser Clamps: MSS Type 8.
 - b. Four-Bolt Riser Clamps: MSS Type 42.
2. Manufacturer: Subject to compliance with requirements, provide hangers and supports of one of the following:
 - a. Carpenter and Patterson, Inc.
 - b. Corner & Lada Co., Inc.
 - c. Elcen Metal Products Co.
 - d. Fee & Mason Mfg. Co.; Div. Figgie International
 - e. ITT Grinnel Corp.
 - f. Or Equal.

C. Saddles and Shields:

1. General: Except as otherwise indicated, provide saddles or shields under piping hangers and supports, factory-fabricated, for all insulated piping. Size saddles and shields for exact fit to mate with pipe insulation.
2. Protection Saddles: MSS Type 39; fill interior voids with segments of insulation matching adjoining insulation.
3. Protection Shields: MSS Type 40; of length recommended by manufacturer to prevent crushing of insulation.

4. Manufacturer: Subject to compliance with requirements, provide thermal hanger shields of one of the following:
 - a. Elcen Metal Products Co.
 - b. Pipe Shields, Inc.
 - c. Carpenter Patterson, Inc.
 - d. ITT Grinnel Corp.
 - e. Or Equal.

D. Miscellaneous Materials:

1. Metal Framing: Provide products complying with NEMA STD ML 1.
2. Steel Plates, Shapes, and Bars: Provide products complying with ASTM A 36.
3. Cement Grout: Portland cement (ASTM C 150, Type I or Type III) and clean uniformly graded, natural sand (ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand, by volume, with minimum amount of water required for placement and hydration.
4. Heavy Duty Steel Trapezes: Fabricate from steel shapes selected for loads required; weld steel in accordance with AWS standards.
5. Pipe Guides: Provide factory-fabricated guides, of cast semi-steel or heavy fabricated steel, consisting of bolted two-section outer cylinder and base with two-section guiding spider bolted tight to pipe. Size guide and spiders to clear pipe and insulation (if any), and cylinder. Provide guides of length recommended by manufacturer to allow indicated travel.

2.02 MECHANICAL IDENTIFICATION

A. Plastic Pipe Markers:

1. Snap-On Type: Provide manufacturer's standard pre-printed, semi-rigid snap-on, color-coded pipe markers, complying with ANSI A13.1
2. Pressure-Sensitive Type: Provide manufacturer's standard pre-printed, permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers, complying with ANSI A13.1

3. Insulation: Furnish 1 in. thick molded fiberglass insulation with jacket for each plastic pipe marker to be installed on uninsulated pipes subjected to fluid temperatures of 125 degrees F (52 degrees C) or greater. Cut length to extend 2 in. beyond each end of plastic pipe marker.
4. Small Pipes: For external diameters less than 6 in. (including insulation if any), provide full-band pipe markers, extending 360 degrees around pipe at each location, fastened by one of the following methods:
 - a. Snap-on application of pre-tensioned semi-rigid plastic pipe marker.
 - b. Adhesive lap joint in pipe marker overlap.
 - c. Laminated or bonded application of pipe marker to pipe (or insulation).

B. Application: Provide pipe labels for the following piping system:

1. Dual temperature supply and return.

2.03 MECHANICAL INSULATION

A. Piping Insulation Materials:

1. Manufacturer: Owens Corning Insulating Systems, LLC. Contact info: www.owenscorning.com, 1-800-438-7465.
2. Pipe Insulation
 - a. General: Owens Corning™ VaporWick® Pipe Insulation or approved equal. **Note: The Town of Barnstable has approved this product as proprietary.**
 - b. Certifications:
 - 1) VaporWick® Pipe Insulation is GREENGUARD Indoor Air Quality Certified® and GREENGUARD Gold Certified.
 - 2) VaporWick® Pipe Insulation is certified by Scientific Certification Systems (SCS) to contain a minimum of 57% recycled glass content.
 - 3) VaporWick® Pipe Insulation is UL listed and labeled.

- c. Molded Fibrous Glass Pipe Insulation: ASTM C 547 and ASTM C 585, self-drying type with vapor retarder.
 - 1) Acceptable Product: Owens Corning™ VaporWick® Pipe Insulation.
 - 2) Vapor Retarder: Factory-applied integral vapor retarder, extending under the evaporator area of the wick, and covering not less than 98% of the circumference of the product. Exposed evaporator area shall be not less than 0.1 sq. ft./linear ft. of product.
 - a) Fungi Resistant: ASTM C 1338.
 3. Accessory Materials
 - a. Accessories: Provide accessories per insulating system manufacturer's recommendations, including the following:
 - 1) Wrapping Materials: Owens Corning™ VaporWick® Pipe Insulation, wick material for wrapping valves and fittings.
 - 2) Closure Materials: Owens Corning™ VaporWick® Pipe Insulation Sealing Tape, and mastics.
 - 3) Support Materials: Hanger straps, hanger rods, saddles, support high-density blocks, and support rings.
 - b. Adhesives for Indoor Applications: VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 4. Staples, Bands, Wires and Cement: As recommended by insulation manufacturer for applications indicated.
 5. Adhesives, Sealants and Protective Finishes: As recommended by insulation manufacturer for applications indicated.
- B. Piping Insulation Application and Thickness:
1. Application: Dual Temperature Piping Systems
 - a. Insulate the following cold/hot piping systems:
 - 1) Heating Hot Water Piping

- 2) Chilled water piping.
- b. Insulate HVAC piping systems specified above and as noted on the Drawings with the following type and thickness of insulation:
 - 1) Vaporwick: 1-1/2" thick insulation for pipe sizes up to and including 1-1/4", 2" thick insulation for 1-1/2" pipe sizes up to and including 3" and 2" thick insulation for 4" through 6" pipe sizes.

Note: The existing Second Floor pipe penetrations may remain and do not need to be enlarged in order to accommodate the 1-1/2 inch thick Vaporwick insulation to pass through the opening. New piping insulation shall butt against the underside of the Concrete floor. Wicking material shall be continuous from unit ventilator, fan coil or fin tube located above, through the floor & continue to the horizontal piping branch within the first floor ceiling.
 - 2) Within the unit ventilator cabinets only, provide 1/2" Armaflex foam insulation over wicking material.
2. Application: Dual Temperature Piping within unit ventilator.
 - a. Insulate the following piping systems
 - 1) HVAC supply and return piping.
 - b. Insulate each piping system specified above with the following type and thickness of insulation:
 - 1) Flexible Unicellular 1/2" in. thick.
 - 2) Provide wicking material on all piping within equipment cabinet. For second floor units, install on piping within cabinet and all the way down and through floor penetration continuously to vapor wick insulation on the first floor. Insulate all existing equipment cabinet piping with insulation indicated above.
3. At second floor pipe penetrations, provide intermessant fire caulk within the holes around the pipes and insulation.

2.04 FIRESTOP SYSTEMS

- A. General: Provide firestopping at all new and existing fire-rated construction where penetrated by existing or new piping systems.
- B. Refer to Section 07 84 00 - Firestopping, for all product requirements for maintaining integrity of fire-rated construction at penetrations.

PART 3 - EXECUTION

3.01 CUTTING AND PATCHING:

- A. Penetrations through new and existing construction as required for the Work of this Section:
 - 1. Coring: Perform all coring for required work.
 - 2. Cut and/or enlarge existing openings in new and existing non-masonry and masonry construction where required for new thicker insulation. All cutting shall conform to the requirements of Section 01 25 00; 1.13 – Cutting and Patching, and 02 07 00 – Selective Demolition. Note: Existing Second Floor pipe penetrations may remain and do not need to be enlarged in order to accommodate the 1-1/2” insulation to pass through the opening.
 - 3. Patching – Refer to 23 00 00; 1.14. D.

3.02 INSTALLATION OF HANGERS & ATTACHMENTS

- A. Examine areas and conditions under which supports and anchors are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
- B. Prior to installation of hangers, verify supports and anchors are properly secured and fastened to building structure. If additional hangers, building attachments, or supports are required, provide necessary components to ensure industry standards are achieved and existing piping is hung safely.
- C. Install new hangers as required to accommodate thicker piping insulation.
 - 1. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories. Except as otherwise indicated for exposed continuous pipe runs, install hangers and supports of same type and style as installed for adjacent similar piping.
 - 2. Prevent electrolysis in support of copper tubing by the use of hangers and supports which are copper plated, or by other recognized industry methods.

3. Install hangers to allow controlled movement of piping systems and to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
 4. Insulated Piping: Comply with the following installation requirements:
 - a. Clamps: Attach clamps, including spacers (if any), to piping with clamps projecting through insulation; do not exceed pipe stresses allowed by ANSI B31.
 - b. Shields: For pipe sizes up to and including 4 in. provide heavy gage shield at each hanger point.
 - c. Saddles: For all pipe sizes over 4 in. provide saddle at each hanger point. Completely fill void in saddle with loose insulation.
- D. Adjusting and Cleaning:
1. Hanger Adjustment: Adjust hangers so as to distribute loads equally on attachments.
 2. Support Adjustment: Provide grout under supports so as to bring piping and equipment to proper level and elevations.
 3. Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

3.03 INSTALLATION OF MECHANICAL IDENTIFICATION

- A. Coordination: Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, install identification after completion of covering and painting. Install identification prior to installation of acoustical ceilings and similar removable concealment.
- B. General: Install pipe markers of the following type on each system indicated to receive identification, and include arrows to show normal direction of flow:
 1. Plastic pipe markers, with application system as indicated. Install on pipe insulation segment where required for hot non-insulated pipes.
- C. Locate pipe markers and color bands as follows wherever piping is in or above occupied spaces or corridors, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums) and exterior non-concealed locations.
 1. Near each branch, excluding short take-offs for fixtures and terminal units; mark each pipe at branch, where there could be question of flow pattern.

2. Near locations where pipes pass through walls or floors/ceilings, or enter non-accessible enclosures.
3. At access doors, manholes and similar access points which permit view of concealed piping.
4. Near major equipment items and other points of origination and termination.
5. Spaced intermediately at maximum spacing of 50 ft. along each piping run, except reduce spacing to 25 ft. in congested areas of piping and equipment.
6. On piping above removable acoustical ceilings.

D. Adjusting and Cleaning:

1. Adjusting: Relocate any mechanical identification which has become visually blocked by work of this division or other divisions.
2. Cleaning: Clean face of identification devices.

3.04 INSTALLATION OF MECHANICAL INSULATION

A. Installation of Piping Insulation:

1. Examination
 - a. Verify that materials and accessories can be installed in accordance with Contract Documents and material manufacturers' recommendations.
 - b. Verify, by inspecting product labeling, submittal data, and/or certifications which may accompany the shipments, that materials and accessories to be installed on the project comply with applicable specifications and standards and meet specified thermal and physical properties.
 - c. Before starting work under this section, carefully inspect the site and installed work of other trades and verify that such work is complete to the point where installation of materials and accessories under this section can begin.
2. Preparation
 - a. Ensure that surfaces over which insulation is to be installed are clean and dry.

- b. Ensure that insulation is clean, dry, and in good mechanical condition with factory-applied vapor or weather barriers intact and undamaged. Wet, dirty, or damaged insulation shall not be acceptable for installation.
 - c. Ensure that pressure testing of piping and fittings has been completed prior to installing insulation.
3. Safety Precautions
- a. Insulation contractor's employees shall be properly protected during installation of insulation. Protection shall include proper attire when handling and applying insulation materials, and shall include, but not be limited to, disposable dust respirators, gloves, hard hats, and eye protection.
4. Installation
- a. Installation needs to be performed by an Owens Corning trained installer.
 - b. Install insulation materials and accessories in accordance with Contract Documents and manufacturer's published instructions to ensure that it will serve its intended purpose.
 - 1) Install insulation on piping subsequent to painting and acceptance tests.
 - 2) Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scraps abutting each other. Butt insulation joints firmly to ensure complete, tight fit over piping surfaces.
 - c. Support piping so that the insulation is not compromised by the hanger or the effects of the hanger. Cut and modify manufactured insulation lengths so that the circumferential joint may be made outside the existing hanger location. Cover the evaporating holes with sealing tape for the length of the metal saddle.
 - 1) Piping systems 3 in (75 mm) in diameter or less, insulated with fiberglass pipe insulation, may be supported by placing saddles of the proper length and spacing under the insulation.

- 2) For hot or cold piping systems larger than 3 in (75 mm) in diameter, operating at temperatures less than +200°F (93°C) and insulated with fiberglass, provide inserts such as foam or high-density fiberglass with sufficient compressive strength to support the weight of the piping system.
 - 3) At vertical runs, provide insulation support rings. Tape all vertical evaporating holes using two overlapping strips of vapor wick sealing tape.
- d. Fittings:
- 1) Wrap valves, fittings, and similar items in each piping system with wicking material to ensure a continuous path (100% coverage) for the removal of condensation, prior to installing insulation.
 - 2) Cover valves, fittings, and similar items in each piping system using one of the following:
 - a) Mitered sections of insulation equivalent in thickness and composition to that installed on straight pipe runs.
 - b) PVC Fitting Covers insulated with material equal in thickness and composition to adjoining insulation.
 - 3) Seal fitting joints with vapor retarder sealing tapes or mastics.
 - 4) Use standard oversizing practices for valves and flanges.
- e. Penetrations: Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise specified.
5. Field Quality Assurance
- a. Upon completion of insulation work, visually inspect the work and verify that it has been correctly installed. This may be done while work is in progress, to assure compliance with requirements herein to cover and protect insulation materials during installation.

6. Protection

- a. Replace damaged insulation, which cannot be satisfactorily repaired, including insulation with vapor barrier damage and moisture-saturated insulation.
- b. The insulation contractor shall advise the general and the mechanical contractor as to requirements for protection of the insulation work during the remainder of the construction period, to avoid damage and deterioration of the finished insulation work.

B. Protection and Replacement:

1. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.
2. Protection; Insulation Installer shall advise Contractor of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

3.05 INSTALLATION OF FIRESTOP SYSTEMS

- A. General: Install firestop systems at all new and existing fire-rated construction where penetrated by the Work of this Section.
- B. Refer to Section 07 84 00 - Firestopping, for all installation requirements for maintaining integrity of fire-rated construction at penetrations.

END OF SECTION

