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| **Revision History** |
| **Revision Date** | **Section/Nature of Revision** |
| **3/1/17** | **Document Issued** |
| **9/17/24** | 1.4 L 1: removed equipment warranties and added final equipment list with warranties.1.28 1 a: added final equipment list with…1.28 2: removed floppy disk added thumb drive.1.29 B: removed School Board Architect (SBA) Inspector and added Pinellas County Schools’ Inspector.1.31 New section. |

PART 1 GENERAL

1.1 SECTION INCLUDES

This Division of the specifications applies to Division 22, Plumbing and Division 23, Heating, Ventilating and Air Conditioning.

1.2 INTENT

A. It is the intention of these specifications and drawings to call for finished work, tested and ready for operation. Wherever the word "provide" is used, it shall mean "furnish and install complete and ready for use."

B. Minor details not usually shown or specified, but necessary for the proper installation and operation, shall be included in the work, the same as if herein specified or shown.

C. The term “Basis of Design” used throughout this document shall be understood to mean a particular manufacturer’s equipment (as scheduled specifically on the drawings or specifications) has been used as the basis by the Design Engineer to establish physical dimensions, quality and performance required, in addition to providing a basis for interaction with other ancillary components and/or other trades. Therefore, it shall be understood that use of a piece of equipment other than that identified as the Basis of Design may impact performance of an overall engineered system or may require revisions to ancillary interfacing equipment and thus any manufacturer’s equipment other than that listed as Basis of Design shall require written approval via Addendum prior to bid except where the manufacturer’s name is specifically listed in these specifications as a pre-approved substitute or an accepted manufacturer. All substitutes, pre-approved substitutes, accepted manufacturers and/or Basis of Design are subject to all requirements of quality, physical characteristics (i.e., dimension, sound, etc.) and performance, etc., as set forth in these specifications and Contract Documents.

1.3 SURVEYS AND MEASUREMENTS

Base all measurements, both horizontal and vertical, from established benchmarks. All work shall agree with these established lines and levels. Verify all measurements at site and check the correctness of same as related to the work. All material take-offs for the site shall be field measured prior to bids.

1.4 DRAWINGS

1. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the contract. Drawings are not to be scaled. The architectural drawings and details shall be examined for exact location of fixtures and equipment. Where they are not definitely located, this information shall be obtained from the Architect.

B. If directed by the Architect or Engineer, the Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with the work of other trades or for proper execution of the work.

C. At the time of each shop drawing submission, the Contractor shall call the Engineer's attention (in writing) to and plainly mark on shop drawings, any deviations from the Contract Documents (see Paragraph 1.6 B).

D. Samples, drawings, specifications and catalogs submitted for approval shall be properly labeled indicating specific service for which material or equipment is to be used, location, section and article number of specifications governing, Contractor's name and name of job. All equipment shall be labeled to match labeling on the Contract Documents.

E. Control Systems: submit description of operation and schematic drawings of the entire control system. Include bulletins describing each item of control equipment or component.

F. Catalogs, pamphlets, or other documents submitted to describe items on which approval is being requested, shall be specific and identification in catalog, pamphlet, etc. of item submitted shall be clearly made in ink. Data of a general nature will not be accepted.

G. Approval rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. Where drawings are approved, said approval does not mean that drawings have been checked in detail; said approval does not in any way relieve the Contractor from his responsibility or necessity of furnishing material or performing work as required by the contract drawings and specifications.

H. All shop drawings shall be submitted to the Architect/Engineer by the Contractor no later than 30 days from the day of the contract award.

I. Failure of the Contractor to submit shop drawings in ample time for checking shall not entitle him to an extension of contract time and no claim for extension by reason of such default will be allowed.

J. Submit all Division 22 submittals at one time in one integral group. Piece-by-piece submission of individual items will not be acceptable. Engineer may check contents of each submittal set upon initial delivery; if not complete as set forth herein, submittal sets may be returned to Contractor without review and approval and will not be accepted until made complete.

K. Routing and methods of support of piping shall be shown on shop drawings and shall have the review of the Engineer prior to fabrication and installation. Spacing of supports shall be as specified in Sections 22 00 29 and 23 05 29 Plumbing and HVAC Piping, Supports and Anchors, or if not specified, shall not exceed the suggested maximum spacing recommended in ANSI B31.1 for each type of line. Supports shall be fabricated as detailed on reviewed shop drawings. Provide supports so located that temporary supports are not required during removal of valves or equipment. Insofar as possible, support lines directly from building structure.

L. At the close of the job, prior to final review, three (3) bound copies of the following shall be submitted by transmittal letter to the Engineer for review and acceptance:

1. Final equipment list with warranties.
2. Contractor's warranty.
3. Parts list and manuals for all equipment.
4. Test and balance readings.
5. Operating instructions (in writing).
6. Written instructions on maintenance and care of the system.

1.5 SUBMITTALS

A. Submit Manufacturer's published technical data, catalog cuts, wiring diagrams, shop drawings, samples and testing and balancing logs for all elements of the HVAC work. Submit under provisions of General Conditions and Supplementary General Conditions.

B. No equipment, piping, ductwork or components shall be fabricated, delivered, erected, or connected other than from shop drawings reviewed and approved by the Engineer.

C. It shall be understood that review of shop drawings by the Engineer does not supersede the requirement to provide a complete and functioning system in compliance with the Contract Documents.

D. Equipment supports: submit detailed shop drawings indicating equipment weight and dimensions, support material, connections, anchoring and vibration isolation.

E. Submittals shall include, but not be limited to the following:

1. All equipment such as cooling, heating, plumbing, electrical motors, starters, controls, etc.
2. Voltage, phase and amps of each electrical item, such as motors, etc.
3. All auxiliary equipment.
4. Pipe, ductwork, valves, insulation, etc.

1.6 SUBSTITUTIONS

A. Materials and equipment are specified herein by a single or by multiple Manufacturers to indicate the quality and performance required. The drawings are based upon equipment scheduled on drawings and specified. If another Manufacturer is considered for substitution during the bidding process, the Mechanical Contractor shall be responsible for coordinating all electrical, mechanical, structural, or architectural changes. Comparable equipment Manufacturers which are listed below equipment indicated as “Basis of Design” shall be considered as substitutes. Manufacturers other than the Basis of Design shall submit catalog information and 1/4" scale plan and section drawings showing proper fit and all clearances for maintenance items.

B. Substitutions of other Manufacturer's will be considered for use if, in the Engineers opinion, the item requested for substitution is equal to that specified. The Contractor shall provide to the Engineer a typed comparative list of the basis of design and the proposed substitute. The comparative shall list capacities, pressure drops, horsepower, electrical requirements, etc. (refer to Paragraphs 1.4 C and 1.6 C). Request for approval of substitutions shall be made in writing in accordance with Division 01 and at least ten (10) days prior to bid. Substitutions shall not be considered approved unless the approval appears in an Addendum or unless so named in the specifications as a pre-approved substitute. The approval of any substitutions or equals prior to bid shall not be construed as shop drawing approval. The substitute or equal must be submitted as described in the specifications and meet all the requirements of the specifications and drawings and have Owner’s written approval.

C. All requests for substitutions shall be submitted as described in paragraph 1.6 B and specifically indicate any and all differences or omissions between the product specified as basis of design and the product proposed for substitution. Differences shall include, but shall not be limited to, data as follows for both the specified and substituted products:

1. Principle of operation.
2. Materials of construction or finishes.
3. Thickness or gauge of materials.
4. Weight of item.
5. Deleted features or items.
6. Added features or items.
7. Changes in other Contractor's work caused by the substitution.
8. Physical dimensions.
9. Electrical requirements.

D. Where the Contractor proposes to use an item of equipment other than that specified or detailed on the drawing, which requires any redesign of the structure, partitions, foundations, piping, wiring, or any other part of the mechanical or electrical, all such redesign and all new drawings and detailing required therefore, shall be prepared by the Subcontractor at his own expense and submitted to the Architect/Engineer and Owner for approval.

E. Where such approved deviation requires quantity and arrangement of ductwork, piping, wiring, conduit and equipment from that specified or indicated on the drawings, the Contractor shall furnish and install any such ductwork, piping, structural supports, insulation, controllers, motors, starters, electrical wiring and conduit and any other additional equipment required by the system, at no additional cost to the Owner.

1.7 COOPERATION WITH OTHER TRADES

A. Give full cooperation to other trades and furnish in writing to the General Contractor, with copies to the Architect, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.

B. When work installed under this Division will be in close proximity to, or will interfere with the work of other trades, assist in working out space conditions to make a satisfactory adjustment. If so directed by the Engineer/Architect, prepare composite working drawings and sections at a suitable scale not less than 1/4" = 1'0", clearly showing how work is to be installed in relation to the work of other trades. If the work is installed before coordinating with other trades, or so as to cause any interference with the work of other trades, make all the necessary changes in work to correct the condition without extra charge.

C. Furnish to other trades, as required, all necessary templates, patterns, setting plans and shop details for the proper installation of work and for the purpose of coordinating adjacent work.

1.8 PROTECTION

A. Protect all work and material provided under this Division from damage. All damaged equipment work or material provided under this Division shall be replaced with new. Re-builts are not acceptable.

B. Protect all work and equipment until inspected, tested and accepted. Protect work against theft, injury, or damage as well as carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during storage and construction to prevent entry of obstructing material.

1.9 SCAFFOLDING, RIGGING and HOISTING

A. Provide all scaffolding, rigging, hoisting and services necessary for erection and delivery into the premises of any equipment and apparatus furnished. Remove same from premises when no longer required.

1.10 REMOVAL OF RUBBISH

A. This Contractor shall at all times keep premises free from accumulations of waste materials or rubbish caused by his employees or work. At completion of the work, he/she shall remove all tools, scaffolding, materials and rubbish from the building and site. He/She shall leave the premises and the work area in a clean, orderly and acceptable condition.

B. All plaster, concrete, cement, etc. shall be removed from all pipes, hangers and equipment prior to painting and/or concealment.

1.11 SAFETY

A. This Contractor shall comply with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.333), Title 29 - Labor, Chapter XIII, Bureau of Standards, Department of Labor, Part 1518—Safety and Health Regulations for Construction and that the housekeeping and equipment be maintained in such a manner that they comply with the Florida Industrial Commission Safety Code and Regulations of the Federal Williams- Steiger Occupational Safety and Health Act of 1970 (OSHA), wherein it states that the Contractor shall not require any laborer or mechanic employed in the performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to a person’s health and safety.

1.12 SUPERVISION

A. This Contractor shall provide a competent, experienced, full-time superintendent who is acceptable to the Architect/Engineer and Owner and who is authorized to make decisions on behalf of the Contractor.

1.13 LUBRICATION

A. Where necessary, provide means for lubricating all bearings and other machine parts. If a part requiring lubrication is concealed or inaccessible, extend a lubrication tube with suitable fitting to an accessible location and suitably identify it.

B. After installation, properly lubricate all parts requiring lubrication and keep them adequately lubricated until final acceptance by the Owner.

1.14 VALVE CHARTS, TAGS AND NAMEPLATES

A. Provide at a location designated by the Engineer and the Owner, a valve chart enclosed in an aluminum frame with clear plastic shield. Chart shall show the designated number of each valve, its location and service. Valve numbers shall be same as those shown on the "As-Built" drawings.

B. Each valve shown on the chart shall have a 1-1/2" diameter, 18-gauge brass tag with clearly visible stamped numbers, securely fastened to the valve stem or handle with a heavy brass hook or chain.

C. Each panel mounted switch, thermometer, gauge, or controller for fans, pumps, or other electrically operated equipment shall be clearly designated by a black plastic nameplate of size approved by the Engineer securely fastened with metal pins or screws to the panel directly under the item designated.

D. Refer to Identification requirements in applicable design Sections for additional information.

1.15 WIRING DIAGRAMS

1. Furnish for use under Division 26 00 00, Electrical, all wiring diagrams as may be required for the installation of the wiring to ensure proper operation and control of the equipment provided under this Division. Provide the diagrams in time to avoid delays.

1.16 MATERIAL AND WORKMANSHIP

A. All materials and apparatus required for the work, except as specifically specified otherwise, shall be new, of first-class quality and shall be furnished, delivered, erected, connected and finished in every detail and shall be so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of material is given, a first-class standard article as approved by the Engineer shall be furnished. Refer to substitutions in this section.

B. Unless otherwise specifically indicated on the plans or specifications, all equipment and materials shall be installed with the approval of the Architect and Engineer in accordance with the recommendations of the Manufacturer. This includes the performance of such tests as the Manufacturer recommends.

1.17 QUIET OPERATION AND VIBRATION

A. All work shall operate under all conditions of load without any sound or vibration, which is objectionable in the opinion of the Engineer and the Owner. In case of moving machinery, sound, or vibration noticeable outside of room in which it is installed, or annoyingly noticeable inside its own room, will be considered objectionable. Sound or vibration conditions considered objectionable by the Engineer and the Owner shall be corrected in an approved manner at no additional expense to the Owner. Vibration control shall be by means of approved vibration eliminators in a manner as specified in the applicable design specifications for vibration.

1.18 ACCESSIBILITY

A. This Contractor shall be responsible for the sufficiency of the size of shafts and chases, the adequate clearance in double partitions and hung ceilings for the proper installation of his work. He shall cooperate with all other Contractors whose work is in the same space and shall advise them of his requirements. Such spaces and clearances shall, however, be kept to the minimum size required.

B. This Contractor shall locate all equipment which must be serviced, operated, or maintained in fully accessible positions. Equipment shall include but not be limited to valves, traps, clean-outs, motors, controllers, switchgear and drain points. If required for better accessibility, furnish access doors for this purpose. Minor deviations from drawings may be made to allow for better accessibility.

C. This Contractor shall provide the access panels for concealed mechanical equipment, valves, controls, dampers, or other devices requiring service (refer to Paragraph 1.20).

1.19 FOUNDATIONS, SUPPORTS, PIERS and ATTACHMENTS

A. This Contractor shall furnish and install all necessary foundations, supports, pads, bases and piers required for all air conditioning equipment, piping, pumps, tanks, compressors and for all other equipment furnished under this Division and shall submit drawings to the Architect and Engineer for approval before purchase, fabrication or construction of same.

B. For pumps, compressors and other rotating machinery and for all equipment where foundations are indicated, provide concrete pads as shown. All pads shall be extended six inches (6") beyond machine base in all directions with top edge chamfered. Inset six-inch (6") steel dowel rods into floors to anchor pads. All pads shall have a minimum of 6 x 6 W2.9/W2.9 WWF unless otherwise noted. Shop drawings of all foundations and pads shall be submitted to the Architect and Engineer for approval before they are constructed.

C. Construction of foundations, supports, pads, bases and piers, where mounted on the floor, shall be the same materials and same quality of finish as the adjacent and surrounding flooring material.

D. All equipment, unless shown otherwise, shall be securely attached to the building structure in an approved manner. Attachments shall be of a strong and durable nature and any attachments that are, in the opinion of the Architect and the Engineer, not strong enough shall be replaced as directed.

1.20 ACCESS DOORS FOR WALLS AND CEILINGS

A. Provide flush panel access doors with a 16-gauge steel frame and a 14-gauge steel door panel.

B. Finish is to be primed painted steel.

C. Provide concealed hinges which allow the door to open at 175 degrees and have a removable pin.

D. Provide access doors with a locked flush mounted vandal proof spanner head operated steel cams.

E. Provide 1-1/2 hour "B" label door for rated chase walls.

F. Furnish masonry anchors for installation in masonry walls and metal lath wings with casing bead for plaster installation.

G. Provide a minimum 2'-0" by 2'-0" access doors unless shown or noted otherwise on the drawings.

H. Access doors for chase walls shall be mounted 16" off the finish floor.

I. Access doors for mechanical equipment shall be a minimum of 12" larger than equipment all around.

1.21 VALVE BOXES

1. All exterior underground valves shall be provided with exterior valve boxes equipped with removable covers appropriately labeled.
	* 1. Valve boxes at 18 inches or less below grade shall be manufactured of reinforced fiberglass plastic or heavy-duty PVC as approved by the Architect/Engineer, unless otherwise noted on the drawings.
		2. Valve boxes at more than 18 inches below grade shall be two-piece cast iron adjustable.

1.22 WELDING

A. Welded pipe joints shall be made by oxyacetylene or electric process in accordance with the Code of Pressure Piping ASA B31.1.

B. Welding shall be done with good quality modern welding equipment, by competent operators and in a thorough, first-class manner, conforming to AWS Standards.

C. The Contractor shall be required to furnish proof of the competency of each welding operator for both field and shop welds and shall at the request of the Architect/Engineer have all or any of such welding operators pass a standard qualification test such as ASME, AWS, or Hartford Insurance Company procedure and tests.

D. Filler-metal for the welding process shall conform to ASTM A233 "Specification for Mild Steel Arc-Welding Electrodes". Classification of electrodes shall be one of the following: E6010, E6015, E7016, E7018.

E. When welding is to be performed, precautionary measures must be taken to prevent fire. Remove flammable materials and debris from the area. Provide an appropriate extinguisher nearby.

F. Pipes shall be cut short and cold sprung into place before welding or fabricating to compensate for expansion of lines when hot.

G. Welds shall be of the single vee butt type. The pipe end shall be shop beveled to 45 degrees to within 1/16 inch of the inside wall surface.

H. The abutting ends of the joints shall be separated before welding to permit complete fusion, tacked in two or more points to maintain alignment and welded. Welding shall be continuous around the pipe.

I. Welds shall be of sound weld metal, thoroughly fused into the ends of the pipe and to the bottom of the vee and shall be built up in excess of the pipe wall to give a reinforcement of one-quar1/4) the pipe wall thickness and in such a manner that one weld metal will present a gradual increase in thickness from the surface of the pipe to the center of the weld. The minimum width of the weld shall be 2-1/2 times the pipe wall thickness.

J. The fillet welds from the flanges of fittings shall be fused into the pipe and plate for minimum distance of 1-1/2 times the pipe wall thickness and shall be built up to present a minimum throat thickness of depth of weld of 1-1/4 times the pipe wall thickness.

K. Branch connections shall be fabricated by welding. Openings cut into pipe for welded connections shall be accurately made to give carefully matched intersections and welding fittings shall be carefully welded into the pipe system.

L. Welding ells shall be used at all turns in welded pipelines; no mitered ells will be approved.

M. Where branch piping is three times smaller than the main, branch connections shall be made up with the appropriate manufactured weld-on fitting. Welded tees shall be used for all other branch connections, unless otherwise approved by the Architect/Engineer for a specific case.

1. Approved Manufacturers:
2. Allied Piping Products
3. Bonney Forge
4. Branch Connections
5. Branchlets
6. Tube Turn
7. Thread-O-Lets

N. Welds in piping shall be annealed after welding to remove the welding strains. The temperature need not exceed that causing a dull red and shall be uniform around the pipe. Welds made in place shall be annealed, but the pipe shall be free to expand and shall be properly supported so as to avoid stress. Annealing shall always be followed by slow cooling.

1.23 REGULATORY REQUIREMENTS

1. Conform to applicable codes and standards as follows:
2. Standard: certain standard materials and installation requirements are described by reference to standard specifications. These standards are as follows:
3. ASA………. American Standards Association.
4. ASTM………. American Society for Testing Materials.
5. ASME………. American Society of Mechanical Engineers Code of Unfired Pressure Vessels.
6. NEMA………. National Electrical Manufacturers Association.
7. UL………. Underwriters Laboratories.
8. ANSI………. American National Standards Institute.
9. ASHRAE………. American Society of Heating, Refrigerating and Air Conditioning Engineers.
10. SMACNA………. Sheet Metal and Air Conditioning Contractor's National Association.
11. AMCA………. Air Moving and Conditioning Association.
12. ARI………. Air Conditioning and Refrigeration Institute.
13. AMA………. Acoustical Materials Association.

\*For additional standards and requirements see other sections of the specifications.

\*\*Whenever a reference is made to a standard, installation and materials shall comply with the latest published edition at the time project is bid unless otherwise specified herein.

1. Codes and rules: all material furnished and all work installed shall comply with the following codes as they apply to this project:
2. National Electric Code.
3. Applicable County, State and Local Building Codes.
4. Local and State Fire Marshal Rules and Regulations.
5. Occupational Safety and Health Agency Standards (OSHA).
6. Florida State Board of Health Rules and Regulations.
7. Florida Building Code (most current version).
8. Chapter 4A-47, Florida Administrative Code - Uniform Fire Safety Standards for Elevators.
9. State Requirements for Educational Facilities (SREF), Chapter 4, Section 453, of the Florida Building Code.

\*Applicable codes shall be those adopted by the Authority Having Jurisdiction (AHJ) at the time project is bid.

1. Permits, fees and inspections:
2. The Contractor shall give all necessary notices, obtain all permits and pay all government fees, sales taxes and other costs, including utility connections or extensions, in connection with this work; file all necessary approvals of all governmental departments having jurisdiction.
3. Obtain all required certificates of inspection for his work and deliver to the Owner/Engineer the same certificates before request for acceptance and final payment for the work.
4. The Contractor shall include in the work, without extra cost to the Owner, any labor, materials, services, apparatus and drawings required to comply with all applicable laws, ordinances, rules and regulations.
5. The Contractor shall inform the Engineer of any work or materials which conflict with any of the applicable codes, standards, laws and regulations before submitting his bid.

1.24 SCOPE OF WORK

A. The scope of the work included under this Division of the specifications shall include complete mechanical systems as shown on the plans and as specified herein. The General Conditions and Special Conditions of these specifications shall form a part and be included under this section of the specifications. Provide all supervision, labor, material, equipment, machinery, plant and any and all other items necessary to complete the mechanical systems. All items of equipment are specified in the singular; however, provide and install the number of items of equipment as indicated on the drawings and as required for complete systems.

B. Systems shall include all appurtenances as required to achieve the operating conditions as shown and specified and shall result in a superior installation.

C. Scope of work shall include, but not be limited to, the following:

1. Demolition:
2. Remove air handling units, fan coil units and exhaust fans in the renovated areas and their respective chilled water piping, valves, controls, supports, pads, ductwork, etc. Heating hot water pipes, valves, etc., shall be removed and modified to accommodate new equipment ductwork, new chilled water pipes, etc.
3. Remove all existing supply, return and exhaust ductwork within renovated areas (refer to drawing for extent of renovated areas).
4. Remove existing control system as directed in renovated areas.
5. New work:
6. Provide one (1) new waste heat recovery (water to water) chiller, one (1) new water-cooled chiller and one (1) air cooled chiller, complete with starters, disconnects, piping, controls, supports, pumps, cooling towers, etc.
7. Provide air handling systems and split system DX units, complete with coils, filters, variable volume boxes with heating coils, ductwork, controls, etc.
8. Provide a new building management and automatic temperature control system.
9. Insulate all new chilled water, heating and domestic hot water piping. Replace all insulation on the existing piping system where it has been removed or damaged. Insulate all new and existing equipment with exposed hot and cold surfaces.
10. Provide a new primary-secondary pumping system.
11. Provide rough balancing of air and water systems.
12. Modify the existing sanitary and roof drainage systems as shown on the drawings.
13. Modify existing gas, domestic hot and cold-water system as shown on the drawings. Provide new water heaters where indicated on drawings.
14. Provide new plumbing fixtures where indicated on drawings.
15. Provide fume hood supply and exhaust air systems complete with ductwork, supply and exhaust fans, controls, etc.
16. Final connections of ductwork and piping (domestic, chilled, make-up and hot) to equipment and plumbing fixtures.
17. Complete water chemical treatment system.

D. All electrical work required to support mechanical equipment or is otherwise necessary to operate mechanical equipment, shall be the responsibility of the Mechanical Contractor (including, but not limited to) electrical motors for all motor-operated equipment required under this Division, motor controllers, all starters not provided by the Electrical Contractor (coordinate with Electrical Contractor), pilot lights and relays, line and low voltage control wiring, raceways, connections to switches and other electrical devices furnished with temperature control systems except as otherwise provided for in other Divisions of this specification.

E. All starters furnished by the Mechanical Contractor shall meet all requirements specified.

F. Any equipment submitted for prior approval shall be submitted with the following written information specifically for the submitted project application: specific model numbers, dimensional data, performance data and other data as requested by the Engineer. General or ambiguous submittals will not be considered for prior approval.

1.25 REMOVALS, RELOCATIONS, RECONNECTIONS AND RESTORATIONS

A. Demolition of existing piping, equipment, etc., shall be done as indicated on the Drawings. Existing piping and/or equipment to be removed shall be offered to the Owner. If the Owner wishes to utilize the existing equipment elsewhere, this Contractor shall move the equipment to a site designated by the Owner. All material to be removed shall be discarded by the Contractor and they shall not be used again.

B. All demolition work shall be completely coordinated with the Owner. Demolition and reconnections requiring shutdown of existing systems shall be scheduled with the Owner/Engineer. If shutdown can only be accommodated on the weekend, or after normal working hours, such work shall be done at no additional cost to the Owner. If it is not possible to schedule sufficient Owner coordinated and approved downtime to complete the entire demolition and reconnection scope such that all or a part of the facility’s service(s) will be disrupted, affecting the normal business operation of the facility (i.e., loss of HVAC or plumbing), the Contractor shall provide temporary accommodations (i.e., temporary HVAC or portable toilets, etc.), for the duration of the shutdown at no additional cost to the Owner.

C. Location, capacity, size, etc. of existing equipment, piping, etc., was obtained from field survey and as built drawings. Verify all conditions at site prior to commencing with work. Notify Engineer of any discrepancies prior to starting work or ordering material.

D. Survey existing facilities and utilities as necessary to determine location of shut-off or disconnect devices, drains, vents, etc. Drain, refill and purge existing water piping circuits to make new piping connections. It is the Contractor’s responsibility to verify the existing piping and identify which is supply and return, chilled water and hot water, prior to starting demolition for new piping connections.

E. Temporarily store all items to be relocated, if required. The Contractor shall be responsible for safe storage of all such items and shall replace any items lost or damaged during storage removal or reinstallation.

1.26 PROJECT/SITE CONDITIONS

A. Install work in locations shown on the drawings, unless prevented by Project conditions.

B. Prepare drawings showing proposed rearrangement of work to meet Project conditions, including changes to work specified in other sections. Obtain permission of Owner/Engineer before proceeding.

1.27 TRENCHING AND BACKFILLING

1. For requirements for trenching and backfilling, refer to Division 2.

1.28 CLOSEOUT DOCUMENTS

1. This Contractor shall furnish Operating and Maintenance (O&M) manuals and As-built drawings before final payment will be issued.
2. O&M manuals shall be submitted in accordance with Division 01, General Requirements and shall consist of the following (at a minimum):
3. Final equipment list with all Contractor and Manufacturer warranties.
4. List of Contractors and Parts and Equipment Suppliers complete with contact person, proper company name, address and telephone numbers.
5. Parts list for supplied equipment, including a checklist of recommended components to be stocked onsite.
6. Maintenance and replacement parts manuals.
7. Startup and shutdown operating instructions.
8. Manufacturer’s literature describing the equipment, which shall include wiring diagrams and operating specifications.
9. Control system sequence of operation, system diagram and backup disks of the system configuration.
10. Copies of final test and balance reports.
11. As-built drawings shall consist of AutoCAD drawings and copies of each AutoCAD file on a thumb drive.

1.29 EXISTING CONDITIONS - EQUIPMENT AND SYSTEMS

A. For purposes of this Contract, the assumption during bidding is that any and all existing fire alarm, intercom, security, lighting, electrical systems, etc. are complete and operating properly.

B. Before commencing any work on fire alarm, security alarm, energy management, intercom, lighting, or electrical systems, or any work which affects them, the Specialty Contractor shall examine such systems thoroughly. If this Contractor finds any portion of any system not functioning fully and properly, he shall notify the Architect/Engineer and the Pinellas County Schools’ Inspector in writing exactly and precisely which item(s) are not working (this paragraph does not require diagnosis as to why such item(s) are not working nor the repair of such).

C. Upon notification to the Owner, the Architect/Engineer and the Facilities Design and Construction Department’s Inspector shall verify whether such report is accurate. If found not accurate, the Architect/Engineer and the Pinellas County Schools’ Inspector shall demonstrate such to this Contractor. If the report is found accurate, the Owner may either:

1. Correct such deficiencies with his own maintenance forces or by employing another Specialty Contractor.
2. Require of the Contractor for this construction project a proposal sum to thoroughly diagnose the cause of such deficiencies and the specifying of precise corrective action needed.
3. Upon receipt of such proposal sum, the Owner may elect to employ the Contractor, by Change Order, to correct the deficiencies or, with the Contractor’s approval, employ the Contractor’s appropriate Specialty Contractor directly by Purchase Order, to correct the deficiencies; or the Owner may achieve corrections to the system by other means.

D. However, upon commencing any work under this Contract on the fire alarm, security alarm, energy management, lighting, intercom, or electrical systems under this construction Contract, this Contractor has accepted the systems as complete and functioning properly. From the time of commencing work on such systems, they become the responsibility of this Contractor to maintain and keep functional through the date of Final Substantial Completion. If, at the time of Final Substantial Completion, such a system or portion of such system is found not to be functioning properly, such an item shall be listed on the “punchlist” and shall be corrected by this Contractor. Once corrected, inspected by the Architect/Engineer and the Pinellas County Schools’ Inspector and found to be functioning properly, the item shall be removed from the “punchlist” as satisfied.

E. The guarantees, warranties and obligations of this Contractor for this work under this Contract shall not be extended to include the existing fire alarm, security alarm, other alarm systems, intercom, lighting, energy management and electrical systems beyond the date of final acceptance of the work under this Contract.

* 1. PAINTING
1. Refer to Specification 09 90 00, Painting and Coating. The use of any other painting products shall be approved in writing by the Architect/Engineer and Owner.
	1. SUBSTANTIAL COMPLETION
2. Prior to Substantial Completion inspection for each phase, Contractor shall provide the Equipment List of all mechanical equipment that is complete (see Appendix A Equipment Warranty and Appendix B Equipment Replacement/New Warranty Sheet).
3. The Contractor shall also provide startup reports of all equipment in that phase that is complete.
4. Upon completion of the last phase, Contractor shall provide the complete list of all equipment from each phase. The list shall clearly mark the date each piece of equipment was installed.

**\*\*\*END OF SECTION\*\*\***