



Schenectady County
Purchasing Department

620 State St.-2nd Floor
Schenectady, NY 12305
Purchasing@schenectadycounty.com
518.388.4240

ADDENDUM

RFB-2023-52
SUNY SCCC STUDENT CENTER RENOVATIONS
C2 DESIGN GROUP

ADDENDUM #3

Issued Date: 09/12/2023

The purpose of this addendum is to provide detailed information to all Bidders. This addendum is hereby included in and made part of the Contract Documents, whether or not attached thereto. Receipt of this Addendum must be acknowledged on the bid form.

CONTENTS/RESPONSE TO QUESTIONS/REFERENCE TO ATTACHMENTS

General:

1. This addendum changes the documents for Bid #RFB-2023-52.
2. Project will contain Four prime contracts:
 - a. Contract No. 1: General Construction (GC)
 - b. Contract No. 2: Plumbing and Fire protection (P&FP)
 - c. Contract No. 3: HVAC (M)
 - d. Contract No. 4: Electrical (E)
3. Addendum #1 issued 08/31/2023
4. Addendum #2 issued 09/07/2023
5. The bid due date is September 14, 2023 at 2:00pm



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Revised/New Contract Drawings and Specifications

1. Specification 096813 – MODULAR FLOORING FOR COMMERCIAL APPLICATION
 - a. Description: Add Specification 096813 to bid set.
2. Specification 232113 – PIPING SYSTEMS AND ACCESSORIES
 - a. Description: Add Specification 232113 to bid set.
3. Drawing RFB 2023-52_ SK-01-Addendum #3
 - a. Description – Project Staging and Laydown site map.

General Bid RFI's

1. Please provide a spec for the HVAC / Mechanical piping.
 - a. Response: See attached Specification 232113 – PIPING SYSTEMS AND ACCESSORIES.
2. Drawing E401 doesn't show circuit numbers for the Boiler Room, what panels feeds the new boilers and pumps if this is an alternate?
 - a. Response: Refer to "Electrical equipment and control schedule" on E002 with Panel to energize all mechanical equipment form. See revised Specification 01 23 00 - Alternates (Addendum #1).
3. Drawing E401 shows Alternate for new access controls for the door between the corridor and check-in room 102. This is not shown on the bid form, is this an additional alternate?
 - a. Response: This is an additional alternate. See revised BID Form (Addendum #1)
4. Drawings E401 & E201 shows Alternate 3 for disconnections of HVAC equipment and new power feeds for new HVAC equipment. Since the new equipment is an alternate for the Mechanical Contract, will this be an alternate for the Electrical Contract for Power?
 - a. Response: This is an additional alternate. See revised Specification 01 23 00 - Alternates (Addendum #1).



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5. Can this project this project be completed during normal business hours?
 - a. Response: Yes, Hours between 7:00am – 5:00pm. Work hours, before and/or after normal hours may be requested from the County (by E-mail) 48 hours prior to start of work. DO NOT start work until receipt of approval.
6. What is depicted in Success Coaching Room 100? – Millwork?
 - a. Response: No, this is furniture (N.I.C.). Millwork in Check-in area 102 is noted and detailed on drawing A600.
7. Has the space been tested for Lead Paint/Asbestos containing material?
 - a. Response: No, the construction of the Stockade Building was completed post 2000. Note: If the contractor suspects the presents of lead or asbestos on the Job site during construction, stop work in that area and contact the County immediately for further instructions.
8. Is the M/WBE 5% or 5% for MBE and 5% for WBE?
 - a. Response: See specification Division 0 – Bidding Requirements
9. Alternate #1, is a temporary wall going to be required if alternate is accepted?
 - a. Response: Yes
10. Provide specifications for the film required under Alternate 2 & Workshop 104.
 - a. Response: Basis of design shall be: Oracal 8810 frosted glass cast film (3 mil PVC by "Orafol", www.orafol.com). Color to be selected by Owner.
11. Provide specifications for Carpet Tile.
 - a. Response: See attached Specification 096813 – MODULAR FLOORING FOR COMMERCIAL APPLICATION
12. Description mentions boiler room work and AHU1/2 RHC work/piping but there are new VAV's fed from new mains that come from boiler room and appear to be part of Alternate.
 - a. Response: As clarified in Addendum #1

Please acknowledge this addendum on your bid form.

END OF ADDENDUM #3

SECTION 096813 - MODULAR FLOORING FOR COMMERCIAL APPLICATION

PART 1 GENERAL

1.01 THIS SECTION INCLUDES

A. Textile composite flooring modules as shown on the drawings and schedules and as indicated by the requirements of this section.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work in this section only.

1.03 RELATED SECTIONS

- A. Other Division 9 sections for floor finishes related to this section but not the work of this section.
- B. Division 3 Concrete - not included work this section.
- C. Division 6 Wood and Plastics - not included work this section.
- D. Division 7 Thermal and Moisture Protection - not included work this section.

1.04 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS

A. Qualifications of flooring installation contractor: All work shall be done by installation firms specializing in commercial flooring and carpet installation. It is required, that the firm or individual shall be a member of the Floor Covering Installation Contractors Association (FCICA) and/or certified by the Certified Floorcovering Installers Association (CFI). Flooring contractor to be specialty contractor normally engaged in this type of work and shall have three (3) years minimum documented experience in commercial installation of similar flooring materials and participation in manufacturer's environmental program including responsible flooring removal, recycling, and installation.

B. Flooring contractor will be responsible for the proper product installation, including floor preparation in all the areas indicated in the drawings to receive Kinetex modules. The installation standard will be as listed in J+J Flooring Kinetex Installation Instructions.

C. Flooring contractor to provide owner a written warranty that guarantees the completed installation to be free from defects in materials and workmanship for a period of no less than two (2) years after job completion.

D. Manufacturer qualifications: Manufacturing facility to ISO 14001 certified and have a minimum of 20 years experience in the manufacture of commercial flooring.

E. Manufacturer to offer a reclamation program for the recycling of existing broadloom carpet, modular carpet tile and textile composite flooring.

F. All warranties must be issued by the manufacturer as standard published warranties on all types of

flooring modules within this document. Second source warranties that involve parties other than the textile composite flooring manufacturer are unacceptable. If the product fails to perform as warranted when installed according to the J+J Flooring's Kinetex installation instruction and maintained according to J+J Flooring's Kinetex maintenance instructions, the affected area will be repaired or replaced at the expense of the manufacturer. J+J Flooring will provide standard published written performance warranties for the following:

1. Lifetime product performance. Will not delaminate along seams or lose more than five (5%) percent by weight of fiber during its useful life.
 2. Lifetime static propensity, meaning built-in protection below 3.0 kv as tested under AATCC-134.
 3. Lifetime Stain Removal
 4. Lifetime Colorfastness (Light and Crocking)
- G. Manufacturer to provide field service experts to assist in project start-up as required by the job and will notify owner, architect, general contractor, or another designated contact if any installation instructions are not followed.
- H. Provide flooring material to meet the following test performance criteria as tested by a recognized independent testing laboratory. Certified test reports shall be submitted by the manufacturer for each test method. Requirements listed below must be met by all products being submitted for approval:
1. Pill Test / DOC-FF-1-70 (ASTM D-2859) - Requirement: Pass
 2. Flooring Radiant Panel / ASTM E-648 - Requirement: Class I (Above .45 w/cm)
 3. CRI VOC Chamber Test/Indoor Air Quality test (CRI-IAQ) Green Label Plus™ Test.
 4. Lightfastness: Rating of not less than 5 on International Grey Scale after 40 SFU's when tested in accordance with AATCC Test Method 16E.
 5. Crockfastness: Minimum stain rating on International Grey Scale of not less than 5 wet or dry when tested in accordance with AATCC Test Method 165.
 6. Atmospheric Fading: Burned Gas shall not be less than 5 on International Grey Scale after two cycles on each test as per AATCC Test Method 129 Ozone and AATCC Test Method 23.
 7. Noise Reduction Coefficient (ASTM C 423-02): NRC Rating of 0.30
 8. Impact Insulation Classification (ASTM E 492-09): IIC Rating of 64
 9. Slip Resistance (ASTM 1028-96): Complies with ADA Guidelines for level surface
 10. Thermal Insulation (ASTM C 518): R-4

1.05 SUBMITTALS

- A. Submit to architect and/or owner ten (10) days prior to bid, two (2) 6.5" x 6.5" (minimum size) finished samples of the exact type of flooring proposed, including quality, pattern, color and backing.
- B. Submit to architect and/or owner ten (10) days before bid, any proposed substitutions for consideration. Submit at least three (3) references of installations using the same flooring technology, as described within this text. Include contact names and telephone numbers.
- C. Submit manufacturer's warranties, installation instructions, and maintenance instructions before bid date.
- D. Submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required flammability tests as well as other testing requirements as listed under 1.04 F.

1.06 ENVIRONMENTAL/FIELD CONDITIONS

- A. Deliver all materials to the installation site in the manufacturer's original packaging and in good condition. Packaging to contain manufacturer's name and marks, identification number, shipping and handling instructions and related information.
- B. Delivered and stored materials must be available for inspection as required by the owner, architect, general contractor and/or the manufacturer.
- C. Sub-floor preparation is to include all required work to prepare the existing floor for installation of the product as specified in this document. Sub-floor preparation shall meet all conditions as specified in J+J Flooring's Kinetex textile composite flooring installation instructions.
- D. Sub-floor preparation will include, as required, the removal and repair of the existing floor surface. It is required that the floor of a renovation project be inspected before the bid date.
- E. All materials, including adhesives, are to be delivered to the site of installation at a minimum of 48 hours prior to the start of installation and stored in a clean and dry room that measures above 65°F and below 95°F and measures between 10% and 65% relative humidity (RH). To maintain temperature and relative humidity, permanent heating and air conditioning systems (HVAC) must be in operation. Place pallets of textile composite flooring modules on a flat surface (do not double stack pallets). After work is completed, the ambient room temperature should remain at 65°F and relative humidity between 10% and 65% for 48 hours. These materials and related adhesives shall be protected from the direct flow of heat from heating fixtures and appliances such as hot-air registers, radiators, or other. Site conditions shall include those specified in the flooring manufacturer's installation instructions and shall also include sufficient heat, light and power required for effective and efficient working condition.
- F. Once the temperature and relative humidity in area for installation have been stabilized, loose lay the modules within the installation area and allow them to precondition for 48 hours prior to installation. Module installation shall not commence until painting and finishing work is complete and ceiling and overhead work is tested, approved and completed. Traffic shall be closed during the installation of the textile composite flooring products. Verify concrete slabs are dry per the standards for bond and moisture tests listed in the manufacturer's installation instructions.

1.07 SUBSTITUTIONS

- A. All Bid submittals must conform to the specifications in this document.
- B. All test results to be in accordance with a certified independent testing laboratory.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Kinetex, a brand of J+J Flooring, P.O. Box 1287, Dalton, GA, 30722. (800) 241-4586. JJFLOORINGGROUP.COM. Please contact ROBERT FORTIER, (860) 881-1540, robert.fortier@jjflooringgroup.com

Any alternate manufacturer and/or product must meet or exceed those requirements specified under all sections of this document in pattern, color, and fiber. Any substitutions must be made in accordance with Section 1.00 of this document.

2.02 TEXTILE COMPOSITE FLOORING MATERIALS

- A. Kinetex flooring modules (tiles):

1. Product: Catalyst 1841
2. Color: Accelerator 2846
3. Backing: Polyester Felt Cushion
4. Dye Method: Solution Dyed
5. Wear Layer: 100% Polyester
6. Total Weight (Nominal Average): 4.5 oz - 5.2 oz / square foot
7. Pattern Repeat: N/A
8. Soil Release: Yes
9. Standard Size: 24" x 24" (approx. (60.96cm x 60.96 cm)
10. Warranties: Lifetime Product Performance, Colorfastness to Light & Crocking, Stain Removal, Static Protection, Protection from Edge Ravel and Delamination Failure; Lifetime Dimensional Stability.
11. Testing Specifications - Pill Test: Yes
12. Testing Specifications - Flooring Radiant Panel: Class 1
13. Testing Specifications - Smoke Density: Less than 450.0 flaming (ASTM E 662)
14. Testing Specifications - Static Test: Less than 3.0kv (AATCC-134)
15. Recycled content: Minimum of 45% recycled content
16. NSF/ANSI 140 Platinum Certified
17. Closed-loop recyclable

2.03 ADHESIVES

- A. Kinetex® Adhesive, an aggressive, pressure-sensitive adhesive designed for the installation of Kinetex textile composite flooring modules is required.
- B. Kinetex PreFix®, a quick installation for all Kinetex textile composite flooring products. The release liner easily peels away to reveal a series of pre-applied adhesive strips that securely anchor the Kinetex module in place, (PreFix Primer is required).

2.04 ACCESSORIES

- A. Kinetex requires protective transition 3/16-inch to other floor covering thickness. Provide transition/reducing strips tapered to meet abutting materials as indicated in the drawings.
- B. Provide aluminum edge with lip to protect Kinetex edge.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine and verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive installation of modules.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive installation of modules.
- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- D. Verify that concrete sub-floor surfaces are dry enough and ready for flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F 710; obtain instructions if test results

are not within limits recommended by J+J Flooring.

E. Verify that required floor-mounted utilities are in correct location.

F. J+J Flooring requires that Kinetex textile composite flooring be inspected prior to installation for proper style, color and potential defects. No claims will be honored if the modules are installed with visible defects. Should there be a problem, call J+J Flooring's Customer Relations Department at 800.241.4586.

3.02 PREPARATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. SURFACE PREPARATION- Dust, dirt, debris and non-compatible adhesive must be removed before the installation begins. Surfaces must be smooth and level with all holes and cracks filled with Portland cement-based patch reinforced with polymers. Kinetex Adhesive cannot be applied to any substrate where chemical or solvent-based cleaners have been used.

C. LATEX ADHESIVES - Old latex adhesives must be mechanically scraped down to a bare residue. Latex adhesive residues must be smooth and level with all holes and cracks filled with a Portland cement-based patch reinforced with polymers, or encapsulated with APAC ENCapSeal.

Note: Failure to remove or seal, old latex adhesive may cause installation failure, shifting, buckling or edge curling; these conditions will not be covered under warranty.

D. CUT BACK ADHESIVES - Must be wet mechanically scraped to a minimum residue and encapsulated with APAC ENCapSeal.

Note: Failure to remove or seal old cut back adhesive may cause installation failure, shifting, buckling or edge curling; these conditions will not be covered under warranty.

E. CONCRETE MOISTURE TESTING and pH TESTING - Substrate surfaces must be tested for moisture emission. It is the responsibility of the owner or owner's representative to perform moisture testing prior to starting the installation. ASTM-F 2170-2 relative humidity probe moisture testing is required. Acceptable relative humidity probe testing results are up to 100% RH when using Kinetex Adhesive or Kinetex PreFix. Alkalinity tests should also be performed per ASTM F 710. The maximum acceptable pH is 11.0 when using Kinetex Adhesive or Kinetex PreFix.

Note: pH readings of 9.0 - 11.00, Commercialon Premium Sealer is required.

SUBFLOORS

F. New Concrete - New concrete must be fully cured and free of moisture (see ASTM F 710). New concrete requires a curing period of approximately 90 days.

G. Old Concrete - Old concrete must be checked for moisture. Dry, dusty, porous floors must be primed.

Note: Primers will not correct a moisture problem. For complete information, refer to CRI-104 Installation Standard.

H. Wood - Wood floors must be APA flooring grade smooth and level, or CanPly Select Grade. If the floor is uneven, an approved underlayment will be required. Old finishes must be tested for compatibility with adhesives or removed and porous wood primed. Wood floors must receive a roll-on application of Commercialon® Premium Sealer. Follow instructions on the Commercialon® Premium Sealer label.

I. Terrazzo / Marble - Level all grout lines with Portland cement-based patch reinforced with polymers. Glossy surfaces must be sanded for proper adhesive bond. Waxes and similar finishes must be removed.

J. Other Hard Surfaces (VCT/VAT) - Tiles must be well secured to the floor or removed. Broken, damaged or loose tiles must be replaced. Waxes and similar finishes must be removed from VCT before

applying adhesive. Existing sheet vinyl is not a suitable substrate for modular installation and must be removed.

K. Raised Access Panel Floors - The panels must be flat, warped panels can result in the carpet modules being off grid. The panel joints must be tight and level. Screws are to be countersunk.

L. Gypcrete - Gypcrete subfloors must be fully cured and free of high moisture (see ASTM F 2170-2). Gypcrete requires a curing period of approximately 90 days. Additionally, Gypcrete must be treated using primer in advance of applying adhesive.

M. Carpet - Remove old carpet and carpet adhesives by scraping or other mechanical means. Any remaining adhesive residues may be covered with a Portland based patching compound or encapsulated with TriSeal Sealer.

3.03 INSTALLATION OF TEXTILE COMPOSITE FLOORING

A. Install flooring in strict accordance with the finish drawings and J+J Flooring's Kinetex installation instructions.

B. ADHESIVE SYSTEM - Kinetex requires use of Kinetex Adhesive or PreFix pre-applied adhesive for all Kinetex flooring modules.

1. Full Spread Kinetex Adhesive: The spread rate for Kinetex Adhesive is approximately 1080 square feet per four-gallon pail must be spread using a 1/16" x 1/32" x 1/32" U-notched trowel. Allow to dry until transparent or adhesive does not transfer to finger when touched. Drying time will vary with temperature, humidity and air velocity, however modules must be installed within two hours after adhesive has dried.

Note: Inadequate amounts of adhesive can cause modules to shift and move and will not be covered by warranty. J+J Flooring will not be responsible for the adhesive bond where other adhesives have been used.

2. PreFix Pre-Applied Adhesive

a. PreFix Primer Application (REQUIRED) *Note: Read all installation instructions thoroughly.*

- i. Pour the diluted primer onto the substrate and roll on using 3/8" nap or foam roller. Do not puddle. Additional coats may be required upon visual inspection over extremely porous concrete.
- ii. Allow the material to dry to the touch. Lower substrate temperatures and/ or higher humid conditions could extend the drying time

b. Installing PreFix Kinetex Modules

After the PreFix primer has dried, begin the installation at the intersection of the central module anchor lines. Peel off the release film and save it to be recycled. Complete the installation one quarter area at a time laying the modules firmly and accurately along the anchor lines. **Follow approved installation method(s) for each specific product.**

C. MODULE PLACEMENT - Arrows are printed on the module backing to show pile/machine direction. A tight installation without compression is mandatory for optimum performance and appearance of the modular installation. It is critical that each module uniformly touch each adjoining module without a gap. To ensure a clean tight fit, do not pull/tug or slid-in modules, but instead lay each module into its location against the adjoining module. Use your hands to press/form the module into place where the new module meets the previously installed module. **See specific product specifications for approved installation method(s).**

Note: To reposition a Kinetex module during installation, remove it by gently lifting all four sides of the

module with a spatula or putty knife, rotating around each side of the module doing a little at a time. The very center of the module should be the last part of the module touching the floor upon removal. Do not stretch a module while it is in the adhesive in order to align next to an adjoin modular. An attempt to stretch will likely result in the module pulling back to its original position. NEVER ATTEMPT TO REMOVE A MODULE ALL AT ONCE BY PULLING ONE OR ONLY TWO SIDES OF THE MODULAR. DOING SO MAY LEAD TO DISTORTING THE MODULE.

D. **PALLET AND BUNDLE SEQUENCING** - It is very important to install Kinetex modules in the order they were manufactured; this is easily accomplished by selecting pallets in sequential order and following the numbers located on each bundle of modules. Typically, an installation will begin with the lowest bundle numbers and progress through the highest numbers until the project is complete. Installing modules by bundle sequence will assure the most even uniform look possible. (For layout and installation instructions refer to J+J Flooring's Kinetex Installation Instructions.)

E. **STAIRS** - Use single or double undercut stair nosing and cut modules. Then, using full spread Kinetex Adhesive or SRT Tape, install modules on steps and risers, inserting the stair nosing edge and the top of the riser edge of each module into the vinyl undercut.

F. **COMPLETING INSTALLATION** - To avoid dislodging modules, do not walk on or move furniture onto modules until the area is completely anchored. Roll entire area with 75-100 lb. roller in both directions (north-south and east-west) after completion of installation. It is also required that sheets of plywood or hardboard be laid over the new modular surface when transporting heavy furniture on carts or dollies. As a final step, vacuum the entire area with an upright vacuum.

3.04 INSTALLATION OF ACCESSORIES

A. Install accessories as required by drawings and per manufacturer's specifications.

3.05 CLEANING AND PROTECTION

A. Use a moist cloth when wet; if dry, use a solvent based product applied to a towel then worked onto the Kinetex module for removal of contaminants such as adhesive, paint, oil and grease. Follow J+J Flooring's maintenance guidelines.

B. Clean and vacuum surfaces.

SECTION 23 21 13

PIPING SYSTEMS AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary conditions and Division 1 Specification Sections, apply to work of this section.

1.2 SUBMITTALS

- A. Schedule of pipe and fittings.
- B. Product data for all materials.
- C. Test reports.

1.3 REFERENCE STANDARDS AND CODES

- A. All installations and materials shall conform to applicable 2016 New York State Building code, and local building and plumbing codes.
- B. All piping shall be inspected and approved by Underwriters Laboratories and bear the UL label.
- C. All installations shall conform to requirements of Owner's Insurance carriers.
- D. Refer to the latest edition and applicable sections of the following:
 - 1. American Society of Testing and Materials (ASTM)
 - 2. American National Standards Institute (ANSI)
 - 3. American Society of Mechanical Engineering (ASME)
 - 4. Boiler and Pressure Vessel Code, Section IX, Welding and Brazing Qualifications.
 - 5. Boiler and Pressure Vessel Code, Section VIII, Division 1 - Pressure.
 - 6. Boiler and Pressure Vessel Code, Section IV, Heating Boilers.
 - 7. Code for Pressure Piping B31.9 - Building Services Piping.
 - 8. American Welding Society (AWS).
 - 9. National Fire Protection Association (NFPA)
 - 10. National Electrical Manufacturer's Association (NEMA)
 - 11. "Maximum allowable natural gas pressure: gas pressures within boiler rooms shall not exceed a maximum of 2 psig; gas pressures within buildings (other than boiler rooms) shall not exceed a maximum of 0.5 psig."

1.4 GENERAL REQUIREMENTS

- A. All materials furnished and all installations made under this specification shall conform with the applicable requirements of the codes and standards described herein.
- B. Layout of equipment, piping, etc. is diagrammatic, unless detailed. Check project drawings prior to making installations for interference's with other trades and services. Owner reserves the right to make reasonable changes prior to "rough-in" without added expense. All dimensions shown are subject to verification of exact site conditions.

- C. Have any required local or municipal inspection processed and present to Owner with certificate indicating approval of such governing body.
- D. Furnish and install all brackets, anchors, sleeves, seals and/or supports as required for the MECHANICAL installations. Where detail is not shown, submit shop drawings of intended construction for approval.
- E. All work to be performed in cooperation with the Owner. Coordinate construction schedule with the Owner. Report delays in material receipt immediately to Owner indicating full circumstances concerning delay.
- F. Piping systems shall be presented to the Owner complete, in perfect working order, tested in full accordance with the Contract Documents. All work associated with the installations shall be guaranteed in complete accordance with the Contract Documents.
- G. Perform all testing as required and as specified herein.

PART 2 - PRODUCTS

2.1 PIPE

- A. Heating Hot Water, Chilled Water (2" & Below):
 - 1. Type L, seamless hard drawn temper copper tube, ASTM B-88; wrought copper socket fittings, unions, ANSI B16.22; threaded valve connections, solder joints shall be 95-5 tin to antimony solder, conforming to ASTM B-32.
 - 2. Type L, seamless hard drawn temper copper tube, ASTM B-88; unions, ANSI B16.22. For use with mechanically joined fittings.
- B. Heating Hot Water, Chilled Water (2-1/2" & Larger):
 - 1. Black steel pipe, seamless or ERW, Schedule 40 with beveled ends, ASTM A-53, GR.B; steel weld joints and fittings, ASTM A-234; standard weight steel flanged connections to valves and equipment, butt-weld ends, raised facings, 150 lb. rating, ANSI B16.5.
 - 2. Black steel pipe, seamless or ERW, Schedule 40 with beveled ends, ASTM A-53, GR.B; ASTM A-234; standard weight steel flanged connections to valves and equipment, 150 lb. rating, ANSI B16.5. For use with mechanically joined fittings.
- C. Condensate Drain (1" & Below): Type M, hard drawn copper tube, ASTM B-88; wrought copper socket fittings, unions, ANSI B16.22; solder joints shall be 50/50 tin to lead solder, conforming to ASTM B-32.
- D. Condensate Drain (1-1/4" & Larger): Type DWV, hard drawn copper tube, ASTM B-88; wrought copper socket fittings, unions, ANSI B16.22; solder joints shall be 50/50 tin to lead solder, conforming to ASTM B-32.
- E. Natural Gas (2" & Below): Black steel pipe, seamless, Schedule 40, ASTM A-53, GR.B; threaded malleable iron fittings, 150 lb. ratings, ANSI B16.3; threaded joints, ANSI B1.20.1; union connections.

- F. Natural Gas (2-1/2" and Larger): Black steel pipe, seamless or ERW, Schedule 40 with beveled ends ASTM A-53, Grade B; steel weld joints and fittings ASTM A-24; standard weight steel flanged connections to valves and equipment, butt weld ends, raised facings, 150 lb. rating ANSI B-16.5.
- G. Cold Water Make-Up (All Sizes): Type L, seamless hard drawn temper copper tube, ASTM B-88; wrought copper socket fittings, unions, ANSI B16.22; threaded valve connections, solder joints shall be 95/5 tin to antimony solder conforming to ASTM B-32.
- H. Condensate Neutralizer Drain (All sizes): Schedule 40, chlorinated polyvinyl chloride (CPVC) plastic pipe. ASTM D2846 F441, ASTM F442. Orion Blue Line Flame Retardant or equal.

2.2 FITTINGS

- A. 2" and Smaller – Copper Pipe Mechanically Joined Fittings:
 - 1. Copper and copper alloy press fittings shall conform to material requirements of ASME B16.18 or ASME B16.22 and performance criteria of ASME B16.51 and IAPMO PS 117. Sealing elements shall be factory installed EPDM. Fittings shall be rated for an operating pressure of 200PSI and operating temperature range of 0°F to 250°F
 - 2. Manufacturer shall warranty fittings to be free from failure caused by manufacturing defect for a period of 50 years from date of installation.
 - 3. Fittings shall not be allowed for use in below grade/direct buried application, or exposed outside of building envelope.
 - 4. Fittings shall be Viega ProPress or equal
- B. 2-1/2" and Larger - Steel Pipe Mechanically Joined Fittings:
 - 1. Couplings shall be manufactured in two segments of cast ductile iron, conforming to ASTM A-536, Grade 65-45-12. Gaskets shall be pressure-responsive synthetic rubber, grade to suit the intended service, conforming to ASTM D-2000. Mechanical Coupling bolts shall be zinc plated (ASTM B-633) heat treated carbon steel track head conforming to ASTM A-449 and ASTM A-183, minimum tensile strength 110,000 psi.
 - a) Rigid Type: Victaulic Style 107H / W07. Coupling housings with offsetting, angle-pattern bolt pads shall be used to provide system rigidity and support and hanging in accordance with ANSI B31.1, B31.9, and NFPA 13. Above 12in, coupling keys shall be wedge shaped for increased strength. Installation ready rigid coupling for direct stab installation without field disassembly. Gasket shall be Grade "EHP" EPDM compound with red color code designed for operating temperatures from -30°F to +250°F.
 - b) Flexible Type: Victaulic 177N / W77. Use in locations where vibration attenuation and thermal expansion compensation (including risers). Flexible couplings may be used in lieu of flexible connectors at equipment connections. Installation ready flexible coupling for direct stab installation without field disassembly. Gasket shall be Grade "EHP" EPDM compound with red color code designed for operating temperatures from -30°F to +250°F.
 - c) Fittings: Cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, provided with an alkyd enamel finish. Factory-fabricated grooved end header all-in-one assembly for fluid distribution, consisting of an ASTM A53, Grade B, standard weight pipe spool with required outlet connections. Grooved ends roll grooved to Victaulic dimensions, with enamel coating.

2.3 IDENTIFICATION

- A. Pipe Identification Markers: Furnish and install pipe identification markers on all piping installed under this contract. It shall consist of self-adhesive labels of black letters imprinted on color coded backgrounds indicating pipe fill and direction of flow. Lettering shall be 2" high on pipes 3" diameter and over and 3/4" high on pipes under 3". Markers shall be applied to pipe, or to insulation in case of insulated pipes, on 15' centers and at each valve, whichever is closer. Color code as follows:

	<u>Legend</u>	<u>Background</u>
a)	Steam Supply	Yellow
b)	Steam Condensate	Yellow
c)	High Temperature Hot Water	Yellow
d)	Heating Hot Water	Yellow
e)	Condensate Drain	Green
f)	Cold Water Make-Up	Green
g)	Chilled Water	Green
h)	Fuel Oil	Yellow
i)	Natural Gas	Yellow
j)	Refrigeration Piping	Green

- B. All pipe identification colors shall conform to ANSI Standard A-13.1. Pipe identification markers shall be vinyl cloth, 0.0085" thick, Seton Nameplate Corp., Setmark Type; or equal.
- C. Nameplates: Identify each valve, control entity or piece of equipment with stamped brass or engraved plastic nameplate permanently attached by riveting, wiring, etc. Set up complete identification system in cooperation with Owner's Physical Plant/Maintenance Department. Each drain plug or valve shall be tagged "DRAIN". Furnish and install engraved rigid laminated plastic nameplate to identify function of each control item on temperature control panel. Remote operating control switches shall have engraved faceplates to indicate function and/or operation controlled. Embossed and/or pressure sensitive plastic tape labels shall not be acceptable. Furnish engraved 2" x 1" black rigid laminated plastic nameplate for each motor starter furnished for mechanical equipment and present with motor starter to EC for mounting.

2.4 PIPING HANGER SYSTEMS

- A. See Specification Section 230548, Seismic Restraint of Mechanical Systems for further requirements.
- B. Heating System Pipe Hangers: Furnish cast iron single pipe roll hangers, carbon steel clevis hangers, carbon steel copper plated hanger, as required for proper installation. Furnish C Type beam clamps, carbon steel electro-galvanized continuous threaded rod and accessories as required. Furnish as manufactured by Elcen Metal Products Co., Michigan Hanger Co., Inc.; or an approved equal.
- C. Chilled Water Pipe Hangers: Furnish clevis ring pipe hanger, carbon steel electro-galvanized finish, Model #401. Furnish carbon steel electro-galvanized insulation shield welded to clevis hanger. Furnish insulation shield Model #121. Furnish steel c-clamps, continuous threaded rod, and accessories. Furnish cooling piping hanger assemblies as manufactured by Michigan Hanger Co., Inc.; or an approved equal.
- D. Non-Insulated System Pipe Hangers: Furnish clevis ring pipe hanger, carbon steel electro-galvanized finish, Model #401. Furnish steel c-clamps, continuous threaded rod and accessories.
- E. Furnish trapeze hanger system in addition or in place of hanger systems above as detailed on drawings.

2.5 TEE CONNECTIONS

- A. Two sizes or more smaller than main run in steel pipe, make with Bonney Forge, Inc., Weldolets or Thredolets; or equal. Copper tube run-out piping thus connected to steel mains shall be by means of bronze threaded adapter threaded into Thredolet.

2.6 LIABILITY

- A. Contractor shall be held liable throughout guarantee period for any damage from failure of piping due to poor or faulty workmanship and/or defective materials.

2.7 STEEL PIPE HANGERS

- A. Horizontal runs of pipe shall be securely held in place by means of suitable hangers. In general, hanger shall be clevis type with threaded rod supports. Chain or cold rolled flat steel straps are not acceptable. Supports shall be spaced according to the following schedule:

	<u>Pipe Size</u>	<u>Maximum Spacing</u>	<u>Minimum Rod Size</u>
1.	3/4 in.	5 ft.	3/8"
2.	1 in.	6 ft.	3/8"
3.	1-1/4 in.	6 ft.	3/8"
4.	1-1/2 in.	8 ft.	3/8"
5.	2 in.	10 ft.	3/8"
6.	2-1/2 in.	11 ft.	1/2"
7.	3 in.	12 ft.	1/2"
8.	4 in.	12 ft.	5/8"
9.	6 in.	10 ft.	3/4"
10.	8 in. and larger	10 ft.	3/4"

- B. Heating piping hangers shall be applied directly to piping. Cut-out insulation for hanger and cover with jacketing. Insulation shall be "butt-up" to hanger as tightly as possible.
- C. Chilled water pipe insulation shall be continuous and have no breaks, insulation shield shall be applied between insulation and hanger.
- D. Where Piping is Supported From Open Web Steel Joists, and Running Perpendicular to the Joists:
1. Reduce the maximum hanger spacing for 8" pipe from 12 feet to 8 feet. Where two 6" or 8" pipes are running side by side, stagger the hangers so only the load from one pipe is applied to a joist. Where two 6" and two 8" pipes are running side by side, reduce the maximum hanger spacing for 6" pipe from 12 feet to 8 feet and for 8" pipe from 12 feet to 6 feet, and stagger the hangers so that no more than one 6" pipe and one 8" pipe are supported from a single joist. Where possible, support from steel beams or girders.
- E. Where Piping is Supported From Open Web Steel Joists, and Running Parallel to the Joists:
1. Reduce the maximum hanger spacing for 6" pipe from 12 feet to 10 feet and for 8" pipe from 12 feet to 8 feet. Where two 6" or 8" pipes are running side by side, stagger the hangers so only the load from one pipe is applied to each support location. Where two 6" and two 8" pipes are running side by side or where four 6" inch pipes are running side by side, reduce the maximum hanger spacing for 6" pipe from 12 feet to 8 feet and for 8" pipe from 12 feet to 6 feet, span unistrut supports between at least three joists, and stagger the hangers so that no more than two pipes are supported at each support point. Where possible, support from steel beams or girders.

2.8 COPPER TUBE HANGERS

- A. See Specification Section 230548, Seismic Restraint of Mechanical Systems for further requirements.
- B. Pipe hangers for copper tube shall be copper plated hanger rings.

2.9 SLEEVES

- A. Pipes passing through masonry construction shall be fitted with sleeves. Each horizontal sleeve shall extend through its respective wall and be flush with each surface. Each vertical sleeve shall extend through its respective floor slab, be flush with underside of slab, and extend 1/2" above top of finished slab. Sleeves shall be two pipe sizes larger than uninsulated lines and one pipe size larger than overall diameter of insulated lines.
- B. See Section 230005 - MECHANICAL Work General; for penetration requirements through fire rated partitions, walls, floors etc.

2.10 PIPE ENCLOSURES

- A. 16 GA metal piping enclosures by Sterling. Provide mounting strip and angle supports. Refer to drawings for three sided vertical (model #PCV) two sided vertical (model #PCV) or horizontal (model #PCH) enclosures. Color selection by architect.

VERTICAL PIPE ENCLOSURE			
PIPE SIZE (IN)	NUMBER OF PIPES	INSULATION THICKNESS	PIPE ENCLOSURE SIZE (IN)
3/4	2	1-1/2	10x5
1	2	1-1/2	10x5
1-1/4	2	1-1/2	10x5
1-1/2	2	2	12x6
2	2	2	14x8
2-1/2	2	2	16x8
3	2	2	16x10
4	2	2	18x10
6	2	2	20x12

2.11 FIN ENCLOSURE

- A. For all exposed horizontal piping on a wall that is below 4ft, provide Sterling PCH-17 horizontal pipe enclosure, no louvers, flat top. Enclosure to be 18 CRS, 17" in height. Color selection by Architect.

PART 3 - EXECUTION

3.1 GENERAL PIPE INSTALLATION

- A. The following shall describe methods of assembly to be followed in the installations of piping by the Contractor:
 - 1. All pipe shall be clean and free of internal mill scale, dirt, etc. before installation.

2. All pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing except where specifically called for. All pipe shall be out of the way of all windows, doors and other building openings or structural parts. All pipe shall be so installed that it can expand and contract freely without damage to any other portions of the work or to itself. All pipe, after having been cut, shall be reamed so as to present full pipe size. All changes in direction shall be made with proper pipe fittings. All pipe shall be installed approximately as indicated upon the plans and as specified. Piping connections to pieces of equipment shall be in accordance with the details shown on the plans or as specified. All open ends of pipe or equipment shall be properly capped or plugged during the installation in order to keep dirt and foreign matter out of the system.
3. Run-outs and branches from mains to units above the mains shall be taken from the top of the main and sloped up to the units. Run-outs and/or branches for heating units below the mains shall be taken from the bottom of the main and sloped down to the units, except where specifically noted.
4. All changes in supply main size shall be made with eccentric fittings arranged so as not to pocket entrained air.
5. All changes in directions of pipe lines shall be made with proper welding fittings for welded pipe and proper screwed joint fittings for screwed pipe and proper soldering fittings for soldered or brazed tube connections.

3.2 EQUIPMENT AND SYSTEMS

- A. Dissimilar metals shall not be in contact with each other (i.e. steel and copper shall never touch). Provide dielectric fittings between dissimilar metals. Brass between dissimilar metals shall only be used under engineers written approval.
- B. All equipment and systems as shown on the drawings or specified herein shall be installed in accordance with the provisions of each applicable section of these specifications and all local and state codes and regulations having jurisdiction.
- C. All installations shall be performed in a workmanlike manner as determined by the Architects or Owner.
- D. Accurately establish grade and elevation of all piping before setting sleeves. Arrange piping at equipment with necessary offsets, unions, flanges, valves, to allow for each part removal and maintenance, as approved.
- E. Pitch steam condensate and drain piping to allow for proper drainage.
- F. Offset piping and change elevation as required to coordinate with all other trades.
- G. Avoid contact with any part of other mechanical or electrical systems.
- H. Provide adequate means of draining and venting all units, risers, circuits and systems.
- I. Conceal all piping unless otherwise specified.
- J. Cap or plug equipment and pipe openings during construction. Install piping parallel with lines of building, properly spaced to provide clearance for insulation.

- K. Provide trap seal of adequate depth in overflow line on each drain pan installation.
- L. All cleanout plugs, bushings and nipples, required for gauge and instrument installation shall be brass.
- M. Do not install valves, unions and flanges in inaccessible locations.
- N. Materials used within a system and between systems shall be consistent. If this is not possible, install approved dielectric fittings.
- O. Ream pipes after cutting and clean before installing.
- P. Refer to Specification Section 232100 - Water Systems Specialties & Equipment; for water system fill requirements.

3.3 FABRICATION AND CONNECTIONS

- A. Area of interior welding/soldering shall be ventilated. Personnel shall use respirator protection in accordance with OSHA if ventilation cannot be accomplished during welding/soldering operations in the field.
- B. Fabrication methods as specified in Pipe & Fittings Products, shall be as follows:
- C. Welding:
 - 1. Contractor shall provide welders who are qualified to Section IX of the ASME Boiler and Pressure Vessel Code.
 - 2. All welds shall conform and be inspected in accordance with ASME B31.9 pressure piping.
 - 3. Comply, with Section II, Part C. ASME Boiler and Pressure Vessel Code for welding materials appropriate for the wall thickness and chemical analysis of the pipe being welded.
 - 4. Welding can be electric arc or oxy-acetylene and shall present a complete fusion of the weld metal and parent metals for the full depth and/or thickness of adjacent butted parent metals and for the complete circumference.
 - 5. Weld and fabrication sequence shall be arranged to avoid distortion or damage to piping and fittings. Cutting of pipe shall be done to achieve straight lines and squared surfaces.
- D. Flanged Connections:
 - 1. Flanged joints shall be carefully aligned and flange bolts, nuts and fastener bearing surfaces shall be lubricated with a heavy graphite oil mixture.
 - 2. Initial tightening of flange bolts shall be 1/2 of the final torque and shall be tightened in a proper sequence pattern. Final tightening shall be uniform with each bolt pulling the same load. Bolts shall be re-tightened 24 hours after final tightening. Torque values shall be in accordance with industrial standards.
 - 3. Furnish gasket material, thickness and type suitable for fluid to be handled, and design temperatures and pressures.

- E. Soft Solder Joints - 95/5: Thoroughly clean, apply flux, heat mating parts and apply solder to flow over and form a complete bond of mating parts. Remove excess solder and hold each joint rigid and still until completely cooled. Soft solder shall be 95% tin - 5% antimony, Mueller Brass Co., #95; or equal. Bring soldering flux on job in 2 oz. cans only and keep sealed when not in use.
- F. Screw Joints: Shall be made with standard taper pipe threads, properly cut and made up with "permatex", or equal, pipe dope applied to male ends. The use of teflon type tape shall not be permitted.
- G. Grooved Connections: Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. A Victaulic factory trained representative (direct employee) shall provide on-site training for contractor's field personnel in the use of grooving tools, application of groove, and product installation. All groove depths shall be checked manually or by grooving tool (RG5200i). A Victaulic representative shall periodically visit the job site and review installation.
- H. Mechanical Press Fittings: Pipe ends shall be cut on a right angle (square) to the tube. Pipe ends shall be reamed and chamfered, all grease, oil or dirt shall be removed from the tube end with a clean rag. Visually examine the fitting sealing element to ensure there is no damage, and it is properly seated into the fitting. Insert tube fully into the fitting. Make a mark with a felt tip pen on the pipe at the face of the fitting. Always examine the tube to insure it is fully inserted into the fitting prior to pressing the joint. Utilize manufacturer's recommended tool(s) to make final connection. Sealing elements shall be verified for the intended use. Installers shall attend manufacturer's installation training class prior to start of work.

3.4 TESTING

- A. Preparation and testing shall be in accordance with ASME B31.9.
- B. Refer to Specification Section 230593 - Testing, Adjusting and Balancing; for adjusting and balancing of systems.
- C. Preparation:
 - 1. Leave joints including welds uninsulated and exposed for examination during the test.
 - 2. Provide temporary restraints for expansion joints which cannot sustain the reactions due to test pressure. If temporary restraints are not practical, isolate expansion joints from testing.
 - 3. Flush system with clean water. Clean strainers.
 - 4. Isolate equipment that is not to be subjected to the test pressure from the piping. If a valve is used to isolate the equipment, its closure shall be capable of sealing against the test pressure without damage to the valve. Flanged joints at which blinds are inserted to isolate equipment need not be tested.
 - 5. Install relief valve set at a pressure no more than 1/3 higher than the test pressure, to protect against damage by expansion of liquid or other source of over-pressure during the test.

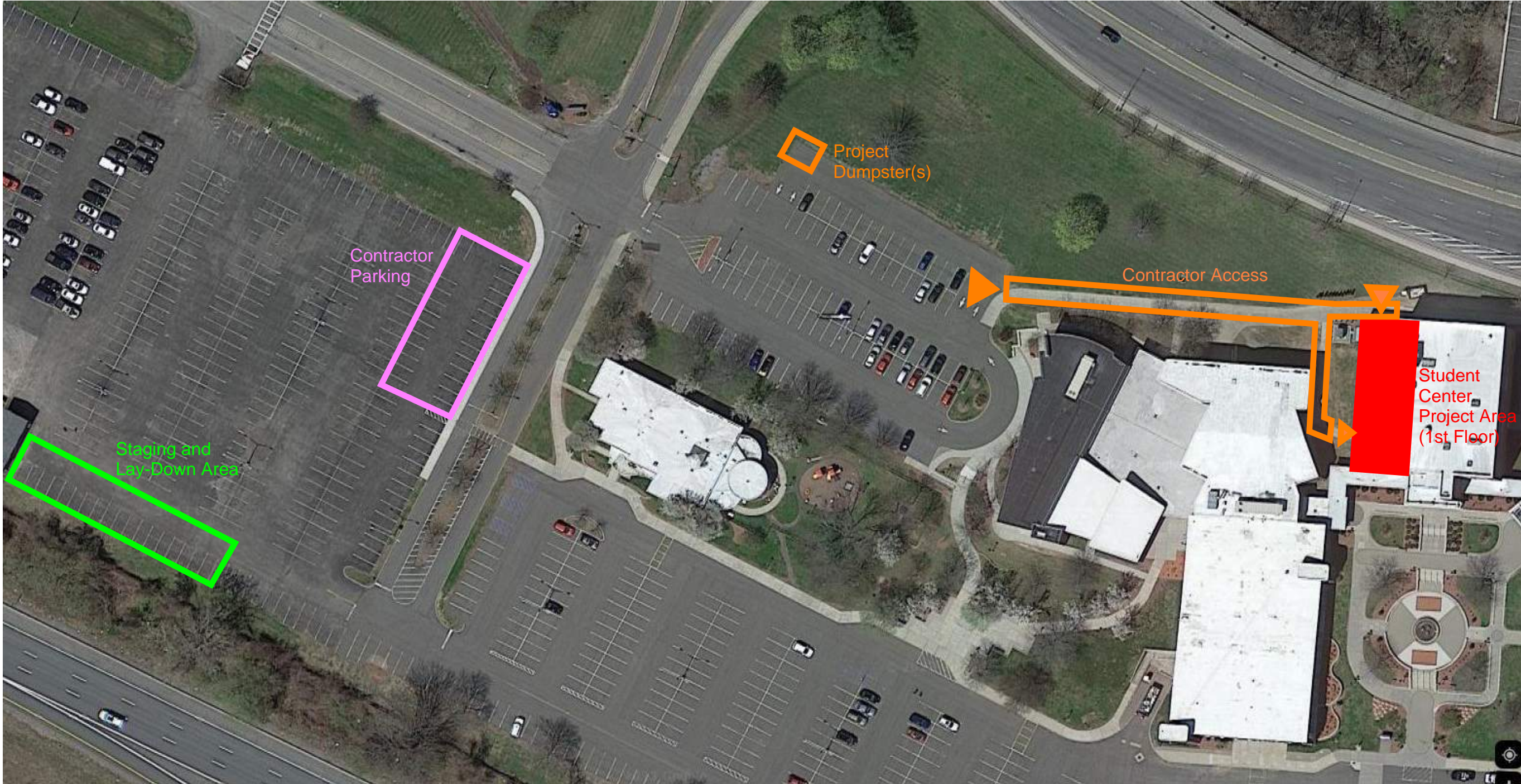
- D. Hydrostatic Testing (Hydronic Systems):
1. Use ambient temperature water as the testing medium, except where there is a risk of damage due to freezing. Another liquid may be used if it is safe for workmen and compatible with the piping system components.
 2. Use vents installed at high points in the system to release trapped air while filling the system. Use drains installed at low points for complete removal of the liquid.
 3. Examine system to see that equipment and components that cannot withstand test pressures are properly isolated. Examine test equipment to ensure that it is tight and that low pressure filling lines are disconnected.
 4. Subject piping system to a hydrostatic test pressure which at every point in the system is not less than 100 psi or 1.5 times the design pressure. The test pressure shall not exceed the maximum pressure for any vessel, pump, valve or other component in the system under test. Make a check to verify the stress due to pressure at the bottom of vertical runs does not exceed either 90% of specified minimum yield strength, or 1.7 times the "SE" value in Appendix A of ASME B31.9, Code for Pressure Piping, Building Services Piping.
 5. After the hydrostatic test pressure has been applied for at least 2 hours, examine piping, joints and connections for leakage. Eliminate leaks by tightening, repairing or replacing components as appropriate and repeat hydrostatic test until there are no leaks.
 6. Clean and flush hydronic piping systems. Remove, clean and replace strainer screens. After cleaning and flushing hydronic piping system, but before balancing, remove disposable fine mesh strainers in pump suction diffusers.
- E. Natural Gas System Testing: Completed gas piping is to be pressure tested with air or inert gas for a minimum of 1 hour at 15 psig or 1-1/2 times the working pressure, whichever is greater. Remove all control devices before testing.
1. Test Medium: The test medium shall be air, nitrogen, or carbon dioxide. OXYGEN SHALL NEVER BE USED.
- F. Pressure Testing and Inspection - General:
1. Prior to acceptance and initial operation, all piping installations shall be inspected and tested to determine that the materials, design, fabrication and installation practices comply with Code Requirements.
 2. Inspection shall consist of visual examination, during or after manufacture, fabrication, assembly or pressure tests as appropriate. Supplementary types of non-destructive inspection techniques, such as magnetic-particle, radiographic, ultrasonic, etc. shall not be required unless specifically listed herein or in the engineering design.
 3. In the event repairs or additions are made following pressure test, the affected piping shall be tested, except that, in the case of minor repairs or additions, testing shall be permitted to be omitted where precautionary measures are taken to ensure sound construction.

4. Because it is sometimes necessary to divide a piping system into test sections and install test heads, connecting piping and other necessary appurtenances for testing, it is not required that the tie-in sections of pipe be pressure tested. Tie-in connections, however, shall be tested with soap solution after gas has been introduced and the pressure has been increased sufficiently to give some indications should leaks exist.
- G. Test Preparation:
1. Pipe joints, including welds, shall be left exposed for examination during the test. If the pipe end joints have been previously tested in accordance with Code Requirements, they shall be permitted to be covered or concealed.
 2. Equipment that is not to be included in the test shall be either disconnected from the piping or isolated by blanks, blind flanges, or caps. Flanged joints at which blinds are inserted to blank off other equipment during the test shall not be required to be tested.
 3. Where the piping system is connected to equipment or components designed for operating pressures of less than the test pressure, such equipment or equipment components shall be isolated from the piping system by disconnecting them and capping the outlet(s).
- H. Test Pressure:
1. Test pressure shall be measured with a manometer or with a pressure measuring device designed and calibrated to read, record, or indicate a pressure loss due to leakage during the pressure test period. The source of pressure shall be isolated before the pressure tests are made.
 2. The test pressure to be used shall be no less than 1-1/2 times the proposed maximum working pressure, but not less than 3 psig (20 kPa gauge), irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe.
 3. Test duration shall be not less than 1/2 hour for each 500 cubic feet of pipe volume or fraction thereof. When testing a system having a volume less than 10 cubic feet, the test duration shall be permitted to be reduced to 10 minutes. For piping systems having a volume of more than 24,000 cubic feet, the duration of the test shall not be required to exceed 24 hours.
- I. Detection of Leaks and Defects:
1. The piping system shall withstand the test pressure specified without showing any evidence of leakage or other defects. Any reduction of test pressures as indicated by pressure gauges shall be deemed to indicate the presence of a leak unless such reduction can be readily attributed to some other cause.
 2. The leakage shall be located by means of an approved combustible gas detector, soap and water, or an equivalent non-flammable solution. Matches, candles, open flames, or other methods that could provide a source of ignition shall not be used.
 3. CAUTION: Since some leak test solutions, including soap and water, may cause corrosion or stress cracking, the piping shall be rinsed with water after testing, unless it has been determined the leak test solution is non-corrosive.

4. Where leakage or other defects are located, the affected portion of the piping system shall be repaired or replaced and re-tested.

- J. Test Records: Records shall be made of inspection and all tests performed. These records shall indicate which portions of the piping system conform to Code Requirements or were pressure tested.

END OF SECTION 23 21 13



SCHENECTADY COUNTY COMMUNITY COLLEGE - STOCKADE BUILDING

DRAWN BY:	C2 Architecture
DATE:	09/08/2023
SCALE:	AS NOTED
JOB NO:	2240
SHEET:	SK-01

SHEET TITLE:	Staging and Laydown Site Map
PROJECT:	Renovations To: SCCC Student Center Renovation 78 Washington Ave, Stockade Building - 1st Fl. Schenectady, NY 12305

Bid Documents : RFB-2023-52	
No.	ASpecimen 03
SUBMITTAL / REVISION	
DATE:	09/12/2023

STAMP: