



ST. TAMMANY PARISH

PATRICIA P. BRISTER  
PARISH PRESIDENT

May 7, 2019

Please find the following addendum to the below mentioned BID.

**Addendum No.:** 2

**Bid#:** 327-00-18-50-2

**Project Name:** Safe Haven Renovations Quad A

**Bid Due Date:** May 10, 2019

**GENERAL INFORMATION:**

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1. At Section 10 – Technical Specifications, Section 01 23 00 – Alternates, Part 3.1 A. **ADD** “If Alternate No. One is accepted, an additional 30 calendar days will be added to the construction time.”
2. At Section 10 – Technical Specifications, Section 02 82 10 – Summary of the Work – Asbestos Abatement, Part 1.7 D. **ADD** “5. Terracon P. 504-818-3638”
3. At Section 10 – Technical Specifications, **DELETE** Section 22 00 10 – Plumbing Basic Materials and Methods and **ADD** Section 22 00 10 – Plumbing Basic Materials and Methods – Revised. Section revised to include prior approved equals. (Attached)
4. At Section 10 – Technical Specifications, **DELETE** Section 22 00 40 – Plumbing Equipment and Specialties and **ADD** Section 22 00 40 – Plumbing Equipment and Specialties – Revised. Section revised to update water heater specification and include prior approved equals. (Attached)
5. At Section 10 – Technical Specifications, **DELETE** Section 22 00 50 – Plumbing Fixtures and Accessories and **ADD** Section 22 00 50 – Plumbing Fixtures and Accessories – Revised. Section revised to update lavatory faucet controls, to update trench drain specification including sizes, and to include prior approved equals. (Attached)
6. At Section 10 – Technical Specifications, **DELETE** Section 23 00 10 – HVAC Basic Materials and Methods and **ADD** Section 23 00 10 – HVAC Basic Materials and Methods – Revised. Section revised to include prior approved equals. (Attached)



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7. At Section 11 – Drawings, sheet A1.02, **ADD** sheet ASK-01 revising detail 1/A1.02 to indicate the location of a water cooler. (Attached)
8. At Section 11 – Drawings, sheet A4.03, **ADD** sheet ASK-02 revising detail 5/A4.03 to indicate the location of a water cooler. (Attached)
9. At Section 11 – Drawings, **ADD** sheet ASK-03 for roof penetration details. (Attached)
10. At Section 11 – Drawings, sheet ENV-1, **DELETE** Abatement Notes #6 and **ADD** “6. The air monitoring of the project shall be provided through the general contractor from the list as per Specifications Section 02 82 10.”
11. At Section 11 – Drawings, **DELETE** sheet M1.01 and **ADD** sheet M1.01 Rev. 1 dated 6 May 2019. Added electric water cooler in 118 – Common Area, added hose bibb and revised trench drains in 123 – Semi-Private Respite Room. (Attached)
12. At Section 11 – Drawings, **DELETE** sheet M1.02 and **ADD** sheet M1.02 Rev.1 dated 6 May 2019. Updated water heater details to comply with new specification of the water heaters, added notes to the underground gas pipe routing for clarity purposes and revised the plumbing riser diagram to include the new electric water cooler. (Attached)
13. At Section 11 – Drawings, **DELETE** sheet E4.01 and **ADD** sheet E4.01 Rev. 1 dated 6 May 2019. Update the lighting fixture schedule to include prior approved equals. (Attached)

### QUESTIONS & ANSWERS:

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**Question #1:** Per note 17 on the Demo Plan, Sheet A1.01 the ceilings are to be removed. Do the ceilings contain asbestos? We do not see that the abatement plan addresses the ceilings so would like to confirm.

**Answer #1:** General contractor shall remove ceilings up to 6” from the walls that are noted to contain Pyrobar and Mortar. Asbestos abatement contractor to remove the remaining portion of the ceiling in a manner as to not disturb the asbestos containing Mortar. The ceilings do not contain asbestos containing materials.



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**Question #2:** The time allotted for completion of the project is 180 days. Is this just the time for the work associated with the base bid or both the base bid and, if accepted, Alternate #1? If it was intended to include the work associated with both the base bid and alternate, we request that this be reevaluated and additional time allotted, as Alternate #1 adds a significant amount of work.

**Answer #2:** The contract time is 180 calendar days for the base bid. An additional 30 calendar days will be added to the construction time, as indicated in Addendum No. 2, General Information #1.

**Question #3:** For alternate #01 – on sheet A103, plan note 1, does the demo of corridor walls include door frames?

**Answer #3:** No. Plan Note #1 on sheet A1.03 indicates to remove existing corridor wall from 8'-0" AFF to structure or deck above. Existing door frames are below 8'-0".

**Question #4:** Section 230060 1.1 A. refers to providing controls to new and existing systems in Building "A" and Building "H". Are there any existing units that are not listed on the drawings? Are there drawings available for Building "H" to determine any existing systems?

**Answer #4:** Existing AHUs 1, 2, 5, and 6 in Building "A" to receive new controls. RE: Drawing Sheet M3.01 for Building "H" equipment. Existing chillers, pumps, and cooling towers along with new boiler and new pumps to receive new controls.

**Question #5:** Section 06 41 16 paragraph 2.3 F calls for locks at EVERY cabinet door and drawer. Does this imply that there needs to be a fixed vertical divider included in every 2 door cabinet so that it isolates access behind each door?

**Answer #5:** No, a fixed vertical divider is not required.

**Question #6:** it appears that all of the cleanouts in the plumbing system are in the crawl space below the building slab and do not turn up to floor cleanouts for easy accessibility. Is this correct? It will be difficult to have to clean out the sewer lines in a crawl space & when the cleanout plug is removed the sewage will spill below the building requiring it to be cleaned up.

**Answer #6:** It is our understanding that the cleanouts are located in the crawl space.



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### ATTACHMENTS:

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1. Section 10 – Technical Specifications, Section 22 00 10 – Plumbing Basic Materials and Methods – Revised
2. Section 10 – Technical Specifications, Section 22 00 40 – Plumbing Equipment and Specialties – Revised
3. Section 10 – Technical Specifications, Section 22 00 50 – Plumbing Fixtures and Accessories – Revised
4. Section 10 – Technical Specifications, Section 23 00 10 – HVAC Basic Materials and Methods – Revised
5. Section 11 – Drawings, sheet ASK-01 dated 5/6/19
6. Section 11 – Drawings, sheet ASK-02 dated 5/6/19
7. Section 11 – Drawings, sheet ASK-03 dated 5/6/19
8. Section 11 – Drawings, sheet M1.01 Rev. 1 dated 6 May 2019
9. Section 11 – Drawings, sheet M1.02 Rev. 1 dated 6 May 2019
10. Section 11 – Drawings, sheet E4.01 Rev. 1 dated 6 May 2019

<< End of Addendum # 2 >>

**SECTION 22 00 10 - PLUMBING BASIC MATERIALS AND METHODS – REVISED****PART 1 - GENERAL****1.1 LABELS**

- A. Provide a label on each piece of apparatus and each controlling device. Labels shall identify item and number and have identifying function and position settings. Labels shall be pressure sensitive adhesive mount type, 1/16 inch minimum thickness, engraved type laminated plastic, black with white lettering.

**1.2 PIPING IDENTIFICATION**

- A. Provide markers on piping which is either exposed or concealed in accessible spaces, with Seton Setmark, EMED Co. Kwik Koil, or approved equal plastic snap-around markers. For insulated piping, markers may be Seton Opti-Code, EMED Co. Econo Mark or approved equal pressure sensitive vinyl markers with matching self-adhesive "arrow" banding tape applied circumferentially at each end of marker. For piping system, other than drain and vent lines, include generic name of system or its abbreviation, either by pre-printed markers or stenciled marking, and include arrows to show direction of flow. Locate markers at ends of lines, near major branches and other interruptions including equipment in the line, where lines pass through floors, walls or ceilings or otherwise pass into inaccessible spaces, and at 50 feet maximum intervals along exposed portions of lines. Marking of short branches and repetitive branches for equipment connections is not required. Markers shall comply with ANSI A13.1 Standard.

**1.1 PIPE COLOR CODING**

- A. Except where noted otherwise (see below), pipe colors shall be ANSI Standards Red, Blue, Green, Yellow or Aluminum according to function. Pipe supports shall be painted. Refer to Section 220000.
- B. Except for piping concealed above ceilings or concealed within wall/chase space, piping shall have the following color coding:
  - 1. Natural Gas: ANSI Gas Yellow - Field Painting

**1.3 MATERIALS IN AIR DUCTS AND PLENUMS**

- A. No plastic or other non-metallic materials as defined by NFPA 90A shall be used in air ducts or plenums unless specifically rated for such service.

**PART 2 - PRODUCTS****2.1 MOTORS AND MOTOR STARTERS**

- A. Electric motors with characteristics as shown on the Drawings shall be provided by the Contractor for all pieces of driven equipment. Electric motors shall be submitted for approval and shall conform to the following: Single phase motors shall generally be as recommended by the manufacturer of the driven equipment. Motors shall have characteristics as listed on the Drawings and shall be selected to be non-overloading and capable of normal scheduled operation without requiring operating in the service factor range. Motors shall be designed for a 40°C rise from 40°C ambient and shall have NEMA design B normal starting torque unless otherwise specified.

Enclosures shall be open, drip-proof for all applications not exposed to outside weather conditions and totally enclosed, fan-cooled for motors located outside, or exposed to outside conditions. All motors shall be rated at full load conditions and be high efficiency, high power factor type, copper wound, premium grade, and shall comply with the Louisiana Building Energy Conservation Code and based on ASHRAE 90.1-2007 with all addenda. Motor shall comply with Energy Independence and Security Act (EISA) of 2007 (NEMA MG-1 Tables 12-1 and 12-2).

- B. Manual starters for single phase motor applications shall be magnetic start type with operating pilot light, thermal melting alloy overloads, one per phase, Square D Type 3536, Allen-Bradley Bulletin 509, Cutler-Hammer Freedom Series, General Electric CR101, Siemens-Furnas 14 Series or approved equal.
- C. Where starters for single phase motor applications call for magnetic type starters, they shall be full voltage, non-reversing combination magnetic motor starter disconnect type with adjustable trip motor-rated circuit protector. Starter shall be NEMA rated and shall have a thermal melting alloy overload, one per phase, operating pilot light and shall have auxiliary contacts as required for interlocking. Any and all indicating pilot lights, diagnostic lamps, etc. shall be LED type with color as standard; do not use incandescent lamps. Overload relays shall be NEMA Class 10 for HVAC compressor use, Class 20 for fan and pump use and Class 30 for high starting torque use. Units shall be Square D Class 8539 with motor logic Class 9065, Cutler-Hammer Freedom Series with CEP7, Siemens-Furnas Class 14 Series, with ESP 200, General Electric CR101 Series, Cerus BAS-1P Series, Taco TAS Series or approved equal.
- D. Enclosures for combination starters shall be NEMA 1 general purpose for all indoor applications and NEMA 3R rainproof for all applications exposed to outdoor conditions. Provide mechanical operators capable of being locked. Each shall be rated 10K AIC minimum and shall have a hand-off-automatic switch and operating pilot light with push to test lamp feature mounted in the face of the enclosure. Any and all indicating pilot lights, diagnostic lamps, etc. shall be LED type with color as standard; do not use incandescent lamps. Provide fused control voltage transformer 100VA minimum size for 120 Volt or lower coil controls. Unit shall include a factory wiring block for field extension. No wire nut connections allowed. Verify with Temperature Control requirements. Submit shop drawings on all starters and switches.
- E. Motor starters for motors 25 HP and less shall have a line power monitor to protect the motor from overcurrent and voltage and loss of phase protection. Include with starter, factory wired and UL listed.

## 2.2 INSULATION

- A. All surfaces shall be clean and dry when covering is applied. Covering shall not be applied before piping and equipment have been tested and proven free of leaks. On piping carrying cold fluids, the covering shall pass full thickness through or over hangers and the Contractor shall provide a galvanized steel bearing plate at each support:

<u>Pipe Size</u>	<u>Plate Length</u>	<u>Plate Gauge</u>
Up to 4 Inch	12 Inches	16
5 and 6 Inch	18 Inches	16
8 Inch to 14 Inch	24 Inches	14
Above 14 Inch	24 Inches	12

- B. Plates shall be formed to fit the outside of covering and shall extend halfway around the covering. All plates, sleeves and hanger devices to be sized and applied without damaging or deforming the insulation or puncturing the vapor barrier.
- C. For the purposes of this specification, the term "attic" refers to the cavity space between the roof deck and the insulation level at the ceiling line. If all of the insulation is at the roof level, with no insulation at the ceiling line, then the cavity space is not an attic.

- D. Unless indicated otherwise, all insulation installed within the building enclosure(s) shall have a composite (insulation, jacket and adhesive, as applicable) flame spread index of 25 or less and a smoke-developed index of 450 or less, unless required otherwise by local Codes and International Building Code 720. Insulation within air ducts, plenums or other similar compartments used as part of an air distribution system shall be of materials approved for plenum service and shall have a flame spread index of 25 or less and a smoke-developed index of 50 or less, as per NFPA 90A and International Mechanical Code 602. Plastic materials are not allowed in plenum spaces unless specifically rated for such service.
- E. For evaporator condensate drain piping, horizontal runs of above grade waste piping carrying cold fluids (such as drains from HVAC cooling coils, coolers/freezers, or ice makers), insulate with flexible elastomeric cellular (foam) insulation applied by the slip on method with glued and sealed joints. Insulation shall be 3/4" thickness. Where routed within a return air environment, insulation shall have an acceptable composite flame and smoke rating.
- F. Insulate all domestic hot water piping except exposed runouts at fixtures, with molded glass fiber insulation having factory fire retardant vaporproof jacket (stapled and glued) or pre-slit/pre-glued flexible elastomeric cellular (foam) molded insulation with peel-off adhesive. Insulation shall be 1 inch thickness for all piping. Domestic cold water piping at inlet to water heaters shall be insulated same as specified for domestic hot water piping; insulation shall extend from inlet of heater to inlet of piping (in-line) heat trap. Except as indicated above for water heaters, domestic cold water lines in attics, outside walls, and unconditioned equipment spaces shall be insulated same as specified for domestic hot water, except may be 1/2 inch thickness. Insulate all such fittings with molded fitting sections to match or with fire rated plastic fitting cover sections filled with glass fiber. Plastic fitting covers shall not be used in plenum spaces. Provide bearing plates, same as specified above, at hangers for insulated domestic water piping larger than 3/4 inch diameter.
- G. Except for piping insulated with elastomeric cellular (foam), all domestic water piping systems within mechanical rooms shall be covered with PVC jacketing in addition to the "factory applied vaporproof flame bar jacket." Piping concealed within wall space or concealed above ceiling is not required to have PVC jacketing. PVC jacketing shall be 0.020 inch minimum thickness applied with approved PVC adhesive over all seams; fill any unavoidable openings in jacketing with silicone sealant. Jacketing shall be 25/50 Flame/Smoke Rating as per ASTM E-84. Generally jacking shall be white color.
- H. For piping exposed to outdoor environments, insulation shall be covered with outer jacketing of multi-ply zero permeable embossed aluminum sheeting material (nominal 7 MILS thickness), VentrueClad 1577 CW Series, Ideal Tape Co., Inc. IdealSeal 777, Polyguard Alumaguard or Alumaguard LTE Series or approved equal; install sheeting material in accordance with manufacturer's installation requirements.
- I. Insulation materials shall meet the following minimum standards:
1. Fiberglass piping insulation: ASTM C 547, CLASS 1, 0.25 K-factor at 100°F mean temperature.
  2. Flexible elastomeric cellular insulation: ASTM C 534, TYPE I (for Piping), ASTM C 534, TYPE II (for Sheets)
- J. Insulating materials shall be as made by Dow, Knauf, Owens-Corning, Pittsburgh Corning, Johns Manville, Armstrong, Nomaco, or approved equal, and shall be installed as per manufacturer's requirements.

## **PART 3 - EXECUTION**

### **3.1 INSULATION INSTALLATION**

- A. Extend insulation without interruption through walls, floors and similar penetrations, except where otherwise indicated. Apply insulation using staggered joint method for both single and double layer construction, where feasible. Apply each layer of insulation separately. Maintain and seal carefully and completely all vapor barriers.

### 3.2 SUPPORTS, FOUNDATIONS AND VIBRATION ISOLATION

- A. The Contractor shall, unless otherwise specified, provide all foundations, supports, etc., necessary for properly supporting his work and equipment furnished by him and shall furnish and install all isolation materials to prevent transmission of vibration to the building structure. Isolation of equipment as shown on Drawings is the minimum required and any additional isolation required to prevent transmission of vibration or sound shall be provided by the Contractor, in accordance with the equipment manufacturer's requirements. All floor mounted equipment shall have a 4 inch high minimum housekeeping concrete pad with 1 inch chamfered edges. For indoor slab mounted equipment, vibration isolation is required for all vibrating or rotating equipment.
- B. Where applicable, under no circumstances is the Contractor to attach to or support from any bar joist bridging. Any supports to the bar joists or any structural systems shall be approved by the Architect. All supplemental angle or channel iron required to support equipment of this Specification shall be furnished by the Contractor and shall be independent of any other supports.
- C. Supports for piping, conduit and equipment exceeding 200 pound load suspended from overhead construction in concrete shall incorporate steel imbedded anchors into the concrete pour. Use stainless steel expansion anchors only for loads less than 200 pounds per anchor and only in non-post tensioned slabs. For post tensioned slabs use imbedded support plates only.
- D. For slab mounted equipment, provide rubber mounting pads at each corner and under the support rails. For suspended units, provide combination rubber and captured spring isolators at each suspension point under the support base. Size and configuration shall be as required by the manufacturer for the use intended.

### 3.3 OPENINGS, CUTTING AND PATCHING

- A. Cut all openings as required for the work under this subcontract. Patching shall be done by the various crafts whose work is involved. Furnish and install all necessary sleeves, thimbles, hangers, inserts, etc., at such times and in such a manner as not to delay or interfere with the work of other contractors. Seal, caulk and otherwise make air tight all pipe penetrations through walls and floors. Caulk, flash or otherwise make weatherproof all penetrations through the roof and exterior walls. No pipe opening shall be sealed around the pipe or insulation without the penetration isolated from the wall system.
- B. No additional compensation will be authorized for cutting and patching work that is necessitated by ill-timed, defective, or non-conforming installations.
- C. For all openings larger than 16 inches horizontal dimension in existing masonry walls, provide 3 inch x 6 inch x 1/4 inch steel angle lintel with 8 inch minimum bearing length extending beyond each side of opening.
- D. Where required, all openings shall be protected by a rated protection system listed for the specific application for the type of material penetrating the fire barrier and the type of construction of barrier penetrated. Sealants used in floor penetrations shall be waterproof.
- E. Where piping or other items, that are provided for under this contract, penetrate fire rated walls or floors, the Contractor shall seal around the item to maintain the integrity of the rated system. All openings shall be protected by a rated protection system listed for the type of material penetrating the fire barrier and the type of construction of barrier penetrated. Sealants used for floor penetrations shall be waterproof. Systems shall be UL rated for two hours minimum. Submit for system proposed for review. Provide documentation to the General Contractor and Architect for each type fire protection sealing system utilized in this project. The Fire Marshal Inspector may perform random destructive sampling of the sealant system installation; Contractor shall repair seal at sampling locations.



- F. For openings containing non-metallic material, piping, conduit or wiring, and penetrating a floor-ceiling assembly, the system shall include intumescent material and shall be a listed "through penetration" assembly tested in accordance with ASTM E-814.

### **3.4 ACCESS PANELS**

- A. Access panels in ceilings and walls shall be steel doors with heavy duty concealed hinges of the pinless type and key operated locks with spare set of keys. Doors shall be prime coat finish.
- B. Provide access panels in the ceilings and walls for valves, etc. These access panels are for installation by others, but the Contractor is responsible for their proper location.
- C. Access panels in fire rated ceiling/walls shall be UL labeled to meet the requirements of the rated assembly and shall have a closer device to automatically close and latch the door upon release from any open position. Fire rated access panels shall have key operated locks with spare set of keys (turn over to Owner).
- D. Where lay-in ceilings exist, no access panels are required.
- E. All keyed access panels to be key'd alike. RE: Section 23 00 10, Paragraph 3.4.

### **3.5 EXCAVATING, TRENCHING AND BACKFILLING**

- A. Protect trench and handle materials in accordance with good safety practice. All pipes shall be installed with minimum 24 inch cover wherever possible and in no case less than 12 inch cover.
- B. The bottom of the trenches shall be accurately graded. Bell holes and depressions for joints shall be dug after the trench bottom has been graded. Wherever unstable soil is encountered, such soil shall be removed and the trench backfilled to proper grade with coarse sand or fine gravel.
- C. After all required tests and inspections have been performed, the trenches shall be carefully backfilled with materials approved for backfilling, deposited in 9 inch layers and thoroughly and carefully tamped. Repeat backfill as required after any subsequent settlement.
- D. Refer to other sections of this Specification for additional requirements for trenching, backfill, bedding, compaction, etc.

### **3.6 CLEANING AND STERILIZATION**

- A. When all work has been finally tested, clean all fixtures, pipes and exposed work. All pipes shall be free of all obstructions. Thoroughly clean and polish all plated and other finished products.
- B. All new piping, vessels and heat exchangers in the project shall be thoroughly flushed of all debris and foreign objects with appropriate fluids before systems are placed in operation. After flushing, all strainers and dirt traps shall be checked and cleaned.

- C. All new potable water piping systems shall be thoroughly sterilized with a solution containing 50 mg/L of available chlorine. The chlorinating material shall be either liquid chlorine or sodium hypochlorite solution. The sterilizing solution shall be allowed to remain in the system for a period of six hours or longer, during which time all valves and faucets shall be opened and closed several times. After sterilization, the solution shall be flushed from the system with clean water until the residual chlorine content is not greater than 0.2 ppm. All work shall meet requirements of applicable codes.

**END OF SECTION 22 00 10**

**SECTION 22 00 40 - PLUMBING EQUIPMENT AND SPECIALTIES – REVISED****PART 1 - GENERAL****1.1 SCOPE**

- A. Furnish and install all equipment as indicated on the Drawings, and specified hereinafter including requirements of SECTION 22 00 00 - PLUMBING GENERAL REQUIREMENTS.
- B. The Contractor shall verify that all equipment and materials provided for the project by him will fit and function within the space allowed. This includes the access to and the arrangement within the space. This requirement may require field breakdown and reassembly of the equipment.

**PART 2 - PRODUCTS****2.1 WATER HEATERS - GENERAL**

- A. Where applicable, provide for certificate inspection of water heater(s) as required by State Authorities; this inspection is to be occur prior to Substantial Completion of the Work.
- B. Except for water heaters furnished with an integral cold water (anti-siphon) dip tube, water heaters shall be provided with an approved vacuum relief valve (complying with appropriate requirements of ANSI Z21.22), field installed in the cold water inlet piping.
- C. Water heaters shall meet the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE IESNA 90.1.

**2.2 DOMESTIC GAS-FIRED WATER HEATER – CONDENSING**

- A. The water heater shall be a Lochinvar Shield or Bock Optitherm having capacities as scheduled on drawings and shall be operated on Natural Gas. The water heater shall be capable of full modulation firing down to 20% of rated input with a turn down ratio of 5:1.
- B. The water heater shall consist of a direct fired stainless steel or glass fused to steel heat exchanger mounted on top of a glass lined storage tank in a fashion that will reduce the amount of scale build-up that is known to reduce efficiency. The water heater shall have no visible pipes that connect the heat exchanger to the storage tank. The unit shall bear the ASME "HLW" stamp and shall be National Board listed. There shall be no banding material, bolts, gaskets or "O" rings in the header configuration. The combustion chamber shall be designed to drain condensation to the bottom of the heat exchanger assembly. A built-in trap shall allow condensation to drain from the heat exchanger assembly. The water heater shall carry a three (3) year warranty against leaks one (1) year parts.
- C. Specified water heaters shall bear the ASME "HLW" stamp and shall be National Board listed. The tank shall have a working pressure of 150 psi. The tank shall be glass lined. The tank shall be completely encased in high density insulation of sufficient thickness to meet the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard. The tank shall be fitted with a brass drain valve.
- D. The water heater shall be certified and listed by C.S.A. International under the latest edition of the harmonized ANSI Z21.10.3 test standard for the US and Canada . The water heater shall comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 standard. The water heater shall be certified for indoor

installation. The water heater's efficiency shall be verified through third party testing by AHRI and listed in the AHRI Certification Directory.

- E. The water heater shall be constructed with a heavy gauge steel jacket assembly, primed and pre-painted on both sides. The combustion chamber shall be sealed and completely enclosed, independent of the outer jacket assembly, so that integrity of the outer jacket does not affect a proper seal. A burner/flame observation port shall be provided. The burner shall be a premix design and constructed of high temperature stainless steel with a woven metal fiber outer covering to provide modulating firing rates. The water heater shall be supplied with a gas valve designed with negative pressure regulation and be equipped with a variable speed blower system, to precisely control the fuel/air mixture to provide modulating water heater firing rates for maximum efficiency. The water heater shall operate in a safe condition at a de-rated output with gas supply pressures as low as 4 inches of water column.
- F. The water heater shall utilize a 24 VAC control circuit and components. The control system shall have an electronic display for water heater set-up, water heater status, and water heater diagnostics. All electronic circuitry shall be easily accessed and serviceable from the front of the jacket. The water heater shall be equipped with; an all-bronze circulating pump; high limit temperature control; ASME certified temperature and pressure relief valve; inlet & outlet water temperature sensors; flue temperature sensor; runtime contacts; alarm contacts; low water flow protection, contacts for louvers, security protection, adjustable pump delay, enable/disable contacts and built-in freeze protection. The manufacturer shall verify proper operation of the burner, all controls and the heat exchanger by connection to water and venting for a factory fire test prior to shipping.
- G. The water heater shall feature electronic control with an LCD display with soft key pad, pump delay with freeze protection and pump exercise. The water heater shall be equipped with an eight foot power cord. Supply voltage shall be 120 volt / 60 hertz / single phase.
- H. The water heater shall be installed and vented with a direct vent vertical system with a vertical roof top termination of both the vent and combustion air. The flue shall be stainless steel sealed vent material terminating at the roof top with the manufacturers specified vent termination. A separate pipe shall supply combustion air directly to the water heater from the outside. The air inlet pipe may be CPVC sealed pipe. The air inlet must terminate on the roof top with the manufacturer's specified air inlet cap. The water heater's total combined air intake length shall not exceed 100 equivalent feet. Foam Core pipe is not an approved material for exhaust piping.
- I. The water heater shall be approved for 180°F operation.
- J. The Firing Control System shall be Direct Spark Ignition with Electronic Supervision.
- K. Start-up shall be performed by an authorized start-up agency of the manufacturer, with a written report to the Architect.

### **2.3 DOMESTIC-WATER THERMAL EXPANSION TANKS**

- A. Domestic-Water Thermal Expansion Tanks shall be steel pressure-rated constructed with welded joints and factory installed FDA approved butyl-rubber diaphragm. Each tank shall have an operating working pressure of 150 PSIG (minimum), and shall include an air precharge, set to the minimum system-operating pressure at the installed location, (40 PSIG set pressure, unless noted otherwise on drawings). The tank shall be certified to NSF 61, and interior water contacting surfaces of the tank shall comply with NSF 61 barrier materials for potable-water tank linings, including extending finish into and through tank fittings and outlets
- B. Product Manufacturers and Model Series:
  - 1. AMTROL Inc. THERM-X-TROL ST Series
  - 2. Wilkins (Zurn) XT & WXT Series

3. Flexcon Industries WH & WHV Series
4. State Industries ETC Series
5. Watts PLT Series
6. American Wheatley BDT Series
7. Approved equal

#### **2.4 DOMESTIC WATER CIRCULATORS**

- A. Provide circulating pumps suitable for domestic hot water system where shown. Pumps shall be close-coupled, in-line type, bronze or stainless steel fitted, with mechanical seal and with capacities as scheduled.
- B. Provide plug and cord electrical connection through plug-in timer. Timer shall be Intermatic DT620CL, or equal, programmable 24-hour plug-in timer with LCD readout, battery back-up, UL listed, 1/3 HP inductive load rating. Program timer to match building occupancy time periods.

#### **2.5 GAS VENTS - TYPE B**

- A. Vents from domestic hot water boilers and water heaters shall be Metalbestos Types RV or QC, Ampco Ameri-Vent Type B, or approved equal, double wall Class Type "B" vent pipe. Provide Underwriter's Collar at roof and floors with copper roof jack and flashing at roof. See "FLASHINGS" under "SHEET METAL WORK." Cap with Ampco Models EC, RC and C, Metalbestos TOP, or approved equal, cap designed to prevent backdraft.
- B. For metal panel roofing, flashing shall be same as specified for "PIPE FLASHINGS" in Section 22 00 20, except rubber boot shall be silicone construction for +250°F "high" temperature application.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. Install equipment as per manufacturer's requirements.

**END OF SECTION 22 00 40**

**SECTION 22 00 50 - PLUMBING FIXTURES AND ACCESSORIES – REVISED****PART 1 - GENERAL****1.1 SCOPE**

- A. Plumbing fixtures shall be as specified below.
- B. Rough-in locations shall be carefully spotted to result in a symmetrical pattern with sufficient spacing to accommodate full escutcheons.
- C. All fixtures shall have supplies with stops. Stops shall be chrome plated brass. Trim shall be polished, chrome plated brass, same manufacturer as fixture unless otherwise indicated. All pipe, fittings, etc., in connection with supply or drain trim shall be chrome plated. In cases where fixtures may have hot and cold water trim without hot water service, connect cold water to both trim inlets.
- D. Trap separately each fixture and piece of equipment requiring connection to drainage, unless otherwise shown on Drawings. Place traps as near to the fixture as possible. No fixture shall be double trapped. Unless indicated otherwise, drain "P" traps shall be polished, chrome plated cast brass with cleanout plug and 17 gauge tubular outlet to wall. For floor drains, hub drains or other similar devices with underfloor traps, drain "P" traps shall be same material as the branch piping system.
- E. All piping, plumbing fixtures and fittings, all solder and/or flux used in the installation or repair of any potable (domestic) water piping shall meet the "lead free" requirements of the Plumbing Code. Refer to Section 22 00 20.

**PART 2 - PRODUCTS****2.1 WATER CLOSET – WC-1**

- A. General: Water closet bowl shall be installed such that the top of seat is 17 to 19 inches above the finished floor. Where the flush valve is shown to incorporate a trap primer, the vacuum breaker tube must be taller to meet the Plumbing Code; for example, utilize a Sloan model 113 rather than a 111.
- B. Refer to Architectural drawings for exact rough-in position.
- C. Fixture: Wall hung, siphon jet type water closet with elongated bowl, 1-1/2" top spud and vitreous china construction.
  - 1. Brands and Models:
    - a. American Standard 2257.001
    - b. Kohler K-4325
    - c. Sloan ST-2059-A
    - d. Zurn Z5615
    - e. Delaney UP402-1.6-SC-T42
    - f. Approved equal
- D. Supporting Carrier: Cast iron floor mounted carrier with adjustable face plate. For single model carriers, furnish with rear anchor lug. Carrier feet and anchor lug shall be securely bolted to floor.

1. Brands and Models:
  - a. J.R. Smith 0175, 0185, 0210 and 0220 series
  - b. Josam 12000 series
  - c. Mifab MC-10/12 series
  - d. Wade W310/330/340 series
  - e. Watts ISCA-101/121 series
  - f. Zurn Z1203/1204/1207 series
  - g. Approved equal
  
- E. Flush Valve: Water saver 1.6 gpf type with polished chrome finish, sweat solder adapter, vandal resistant stop cap, cast escutcheon and chloramine resistant components. Handle shall be ADA compliant and shall have a non-hold-open feature.
  1. Brands and Models:
    - a. Delta 81T201
    - b. Sloan "Sloan" 111
    - c. Zurn Aquaflush Plus Z6000PL-WS1
    - d. Approved equal
  
- F. Seat: Solid polystyrene or polypropylene, extra heavy duty, white, open front seat with self-sustaining, check hinge.
  1. Brands and Models:
    - a. American Standard 5905.100SS
    - b. Bemis 1655SSC
    - c. Beneke 527SS
    - d. Centoco 1500STSCCSS
    - e. Church 9500SSC
    - f. Zurn Z5956SS-EL-STS
    - g. Approved equal
  
- G. Water closet shall be designed and installed to meet the Americans With Disabilities Act (ADA) standard for physically impaired people, and the ANSI A117.1 standard. Manual flush valve handles (when used) shall be constructed to meet the ADA, shall be positioned on the wide side of the stall, and shall be installed not higher than 44 inches above the finished floor. Where the flush valve is shown to incorporate a trap primer, the vacuum breaker tube must be taller to meet the Plumbing Code, for example, utilize a Sloan model 113 rather than a 111. Also, contractor must verify clearances to the rear grab bar used in the installation, and if necessary, use a flush tube with an offset to avoid interference with the grab bar.

## 2.2 WATER CLOSET – WC-2

- A. General: Refer to Architectural drawings for exact rough-in position.
  
- B. Fixture: Ligature Resistant floor outlet ADA 2010 Compliant Water Closet. Fixture shall be fabricated from 16 gauge, type 304 stainless steel. Construction shall be seamless welded and outside surfaces are powder coated white. Housing to include side access panels. Water Closet shall be concealed siphon jet type with an elongated bowl and self-draining flushing rim. Water Closet shall be ASME A112.19.3-2008, CSA B45.4-2008, and ADA 2010 compliant. Water Closet requires a minimum of 25 PSI flow pressure. Water Closet trap shall have a minimum 3-1/2" seal and shall pass a 2-1/8" diameter ball and is fully enclosed.

1. Brands and Models:
  - a. Whitehall Manufacturing WH2142-ADA-T-EGE10\_12 with WH2802SLPT-ADA-EG10-1.6 ligature resistant flush valve cover with 1.6 GPF flush valve.
  - b. Acorn LR2141-ADA-T3-TM with ligature flush valve cover with 1.6 GPF flush valve.
  - c. Willoughby ASETF-1490-FM-FA-12-TS-HC-1.6GPF-GWC-FV1.6TS
  - d. Approved equal

### 2.3 LAVATORY – L-1

- A. General: Lavatories shall be drilled for a concealed arm type carrier. Refer to Architectural drawings for exact rough-in position.
- B. Fixture: Wall hung, 20" x 18", integral back lavatory with front overflow, self-draining deck area, contoured back and side splash shields, and vitreous china construction.
  1. Brands and Models:
    - a. American Standard 0356.421
    - b. Kohler K-2007
    - c. Sloan SS-3103
    - d. Zurn Z5361
    - e. Approved equal
- C. Supporting Carrier: Floor mounted carrier with steel uprights and coated steel or cast iron adjustable arms. Carrier feet shall be securely bolted to floor.
  1. Brands and Models:
    - a. J.R. Smith 0700 series
    - b. Josam 17100 series
    - c. Mifab MC-41 series
    - d. Wade 520 series
    - e. Watts WCA-411 series
    - f. Zurn Z series
    - g. Approved equal
- D. Faucet Set: 4" centerset faucet with single lever handle, WaterSense certified, 1.5 gpm aerator, cast grid drain and polished chrome finish. Handle shall be ADA compliant.
  1. Brands and Models:
    - a. American Standard 7385.003
    - b. Delta 523LF-HGMHDF
    - c. Kohler K-15598
    - d. Zurn Z81000-XL-G-25M
    - e. Speakman SB-2111-E-LD
    - f. Approved equal
- E. Drain: Furnish a heavy cast brass, grid strainer type drain with a polished chrome plated finish.



1. Brands and models: Drains may be as furnished by manufacturer of faucet or may be one of the following:

- a. Dearborn 760-1
- b. McGuire 155A
- c. Approved equal

F. Lavatory shall be designed and installed to meet the Americans With Disabilities Act (ADA) standard for physically impaired people, and ANSI 117.1 Standard. Unless indicated otherwise on the Contract Drawings, lavatory is to be installed with a rim height 34 inches (maximum) above finished floor. Lavatory shall have a minimum clearance of 29 inches measured from the floor to the bottom of the lavatory apron. Drain and water piping under lavatory shall not interfere with required knee clearance, 8.5 inches measured horizontally from front edge toward rear of lavatory. Provide ADA Compliant molded PVC/vinyl lavatory protective enclosure to enclose piping beneath lavatory. Enclosure shall be factory cut to fit make and model of lavatory supplied. **Field cut enclosures will not be accepted.**

1. Brands and Models:

- a. IPS Corporation Truebro "Lav Shield" series
- b. Sloan ETF-529
- c. Approved equal

## 2.4 LAVATORY – L-2

A. General: Ligature resistant "D" shaped washbasin unit with an integral rear overflow. Basin, surface, backsplash and sidesplash is to be constructed of Corterra™ recycled solid surface polymer resin. Washbasin shall conform with ANSI, UFAS and ADA Accessibility Standards, plus shall conform to ANSI Z124.3 and ANSI Z124.6. Washbasin trap enclosure is to be constructed of heavy gage, type 304 stainless steel. Washbasin is to be furnished complete with the following: single temp electronic valve, conical sprayhead, 1-1/2" p-trap, and thermostatic mixing valve. Color of the basin and trap enclosure shall be selected by the architect from the manufacture's available color options.

1. Brands and Models:

- a. Whitehall Manufacturing model - WH3775
- b. Bradley model – HSL1
- c. Willoughby LRBHL-2320-IR
- d. Approved equal

B. Faucet: Faucet shall be an electronically operated control valve utilizing infrared sensor module to control operation of the integral solenoid valve. Valve shall be metering, non-hold open type. Valve timing range shall be field adjustable from 5-60 seconds. Valve shall include a 0.5 GPM flow control. Valve and bubbler shall conform with the lead-free requirements of NSF61, Section 9, 1997 and shall be ADA compliant.

1. Brands and Models:

- a. Whitehall Manufacturing model – WH3375-SO
- b. Bradley fixture is one-piece – faucet included.
- c. Approved equal

C. Point-of-Use Type Thermostatic Mixing Valve: Include a Thermostatic Mixing Valve (mounted within the trap enclosure) which shall deliver tempered water flow by compensating for pressure and temperature fluctuations and shall be ASSE 1070 compliant. Valve is to be field set to 95° Fahrenheit and shall include strainers and integral checks. Operating range is 30 to 100PSI.

1. Brands and Models:
  - a. Whitehall Manufacturing model –WHST70-12
  - b. See Section 22 00 50, Paragraph 2.3 for TMV.
  - c. Approved equal
- D. Lavatory shall be installed to meet the Americans With Disabilities Act (ADA) standard for physically impaired people, and ANSI 117.1 Standard. Unless indicated otherwise on the Contract Drawings, lavatory is to be installed with a rim height 34 inches (maximum) above finished floor. Lavatory shall have a minimum clearance of 29 inches measured from the floor to the bottom of the lavatory apron.

## 2.5 POINT-OF-USE THERMOSTATIC MIXING VALVE

- A. General: Provide point-of-use type thermostatic mixing valves where called for herein, or as shown on drawings. Devices must be approved by the Plumbing Code and comply with ASSE 1070. Each mixing valve is to include integral check valves on hot and cold water inlets.
- B. For each single (individual) sink, provide point-of-use thermostatic mixing valve, Leonard Model 170-BP, or Bradley S59-4000BY Series or approved equal, 0.35 GPM minimum flow rate and peak flow rate of 1.7 GPM at 5 PSIG (maximum) pressure drop. Position mixing valve directly beneath countertop (so as not to interfere with ADA clearances). Extend/connect outlet of mixing valve to hot water inlet of lavatory faucet.

## 2.6 MOP SINK – MS

- A. General: Contractor to provide suitable wall reinforcement for all wall supports. Refer to Architectural drawings for exact rough-in position.
- B. Fixture: One piece, precast terrazzo mop basin with 2" thick x 12" high sides and integrally cast 3" drain with strainer. On installations where walls are to receive tile, provide with cast-in tiling flanges on abutted walls. On installations with all other wall types, furnish 12" high stainless steel guards for all walls, width to match full length/width of sink.
- C. Furnish with faucet and accessories as indicated below.
- D. Fixture: Four sided, 32" x 32", full height sides, stainless steel caps on all sides.

### 1. Brands and Models:

- a. Acorn TSH-32-SSC
- b. Fiat TSB-300
- c. Stern-Williams SB-700
- d. Approved equal

- E. Faucet: Wall mounted mixing faucet with vacuum breaker, integral stops, 3/4" male hose threaded spout with pail hook, and wall brace.

### 1. Brands and Models:

- a. Acorn KFC
- b. Chicago 897-RCF
- c. Fiat 830-AA
- d. Stern-Williams T-10-VB
- e. T&S Brass B-0655-BSTR
- f. Zurn Z843M1-RC

- g. Speakman SC-5812-RCP
  - h. Approved equal
- F. Hose and Wall Hook: 36" long heavy duty rubber hose with 3/4" coupling, and stainless steel wall hanger bracket.
- 1. Brands and Models:
    - a. Acorn KH36
    - b. Fiat 832-AA
    - c. Stern-Williams T-35
    - d. T&S Brass B-0654
    - e. Approved equal
- G. Mop Hanger: Stainless steel wall mounted hanger bracket.
- 1. Brands and Models:
    - a. Acorn KMH
    - b. Fiat 889-CC
    - c. Stern-Williams T-40
    - d. T&S Brass B-0653
    - e. Approved equal

## 2.7 SINK – SK-1

- A. General: Sinks shall be drilled for style faucet specified and with any additional holes required for accessories, such as a water spray. Refer to Architectural drawings for exact rough-in position.
- B. Fixture: Countertop mounted 33" x 22" double bowl, self-rimming sink, 18 gauge stainless steel construction, with faucet ledge and full sound deadening on bowls.
- 1. Brands and Models:
    - a. Elkay LR-3322
    - b. Just DL-2233-A-GR
    - c. Approved equal
- C. Faucet Set: Swing spout faucet with 8" centers, single lever handle, aerator with 2.0-2.5 gpm flow rate, (hose spray,) and polished chrome finish. Handle shall be ADA compliant.
- 1. Brands and Models:
    - a. American Standard 4205.000
    - b. Delta 100LF-HDF
    - c. Elkay LKE4300
    - d. Just J-900
    - e. Kohler K-15171-FL
    - f. Zurn Z7870C-XL
    - g. Approved equal
- D. Drain: Furnish with two sink drain assemblies, each consisting of a type 304 stainless steel drain body and basket strainer, and a chrome plated brass tailpiece.

1. Brands and Models:
  - a. Elkay LK35
  - b. Just J-35
  - c. Approved equal

## 2.8 SINK – SK-2

- A. General: Sinks shall be three compartment deep drawn Scullery NSF sink drilled for style faucet specified. Refer to Architectural drawings for exact rough-in position.
- B. Fixture: Freestanding, three compartment (24" x 24") with 24" drainboard on left side, 16 gauge stainless steel construction, with faucet ledge and full sound deadening on bowls. Compartments shall be 14" deep and shall have drains centered. Unit to have 8" high splash, stainless steel tubular legs and bullet feet.
  1. Brands and Models:
    - a. Advance Tabco 93-43-72-24L
    - b. Approved equal
- C. Faucet Set: Swing spout faucet with 8" centers, single lever handle, aerator with 2.0-2.5 gpm flow rate, and polished chrome finish. Handle shall be ADA compliant. Provide two each.
  1. Brands and Models:
    - a. Advance Tabco K118
    - b. Approved equal
- D. Drain: Furnish with three sink drain assemblies, each consisting of a type 304 stainless steel drain body and basket strainer, and a chrome plated brass tailpiece and lever handle.

## 2.9 SINK – SK-3

- A. General: Sinks shall be drilled for style faucet specified (generally two holes, with one hole centered and second hole offset 4" to right). Refer to Architectural drawings for exact rough-in position.
- B. Fixture: Countertop mounted 15" x 15" single bowl, self-rimming sink, 18 gauge stainless steel construction, with faucet ledge and full sound deadening on bowls.
  1. Brands and Models:
    - a. Elkay BLR-15
    - b. Just SBL-1515-A-GR
    - c. Approved equal
- C. Faucet: Faucet shall be an electronically operated control valve utilizing infrared sensor module to control operation of the integral solenoid valve. Valve shall be metering, non-hold open type. Valve timing range shall be field adjustable from 5-60 seconds. Valve shall include a 0.5 GPM flow control. Valve and bubbler shall conform with the lead-free requirements of NSF61, Section 9, 1997 and shall be ADA compliant.
  1. Brands and Models:
    - a. Whitehall Manufacturing model – WH3375-SO
    - b. Bradley fixture is one-piece – faucet included.

- c. Approved equal
- D. Point-of-Use Type Thermostatic Mixing Valve: Include a Thermostatic Mixing Valve (mounted within the trap enclosure) which shall deliver tempered water flow by compensating for pressure and temperature fluctuations and shall be ASSE 1070 compliant. Valve is to be field set to 95° Fahrenheit and shall include strainers and integral checks. Operating range is 30 to 100PSI.
  - 1. Brands and Models:
    - a. Whitehall Manufacturing model –WHST70-12
    - b. See Section 22 00 50, Paragraph 2.3 for TMV.
    - c. Approved equal
- E. Drain: Furnish a sink drain assembly consisting of a type 304 stainless steel drain body and grid strainer, and a chrome plated brass tailpiece.
  - 1. Brands and Models:
    - a. Elkay
    - b. Just
    - c. Approved equal

## 2.10 SHOWER – SHR-1

- A. General: Shower stall by others. Refer to Architectural Drawings.
- B. Shower shall be Ligature Resistant.
- C. Refer to Architectural drawings for exact rough-in position.
- D. Shower Valve Set: Provide and install Ligature Resistant Component Shower. Exposed trim shall be chrome plated brass. Fixture shall be with furnished with two non-adjustable multi-stream spray pattern, 2.5 gpm flow rate conical showerheads, and ASSE 1016 compliant temperature/pressure balancing mixing control valve. Control valve shall have ADA Compliant Ligature Resistant Lever Handles.
  - 1. Brands and Models:
    - a. Whitehall model WH538-CSH-SRCH
    - b. Willoughby CWBIS-FA-TPLR-2.0GPM-LRSH
    - c. Approved equal
- E. Include Shower Drain – SD at each location.

## 2.11 SHOWER – SHR-2

- A. General: Shower stall by others. Refer to Architectural Drawings.
- B. Shower shall be Ligature Resistant and ADA compliant.
- C. Refer to Architectural drawings for exact rough-in position.
- D. Shower Valve Set: Provide and install Ligature Resistant Component Shower. Exposed trim shall be chrome plated brass. Fixture shall be with furnished with two non-adjustable multi-stream spray pattern, 2.5 gpm flow rate

conical showerheads, ASSE 1016 compliant temperature/pressure balancing mixing control valve, and diverter valve. Control valve and diverter valve shall have ADA Compliant Ligature Resistant Lever Handles.

1. Brands and Models:
  - a. Whitehall model WH538-FH-CSH-SRCH
  - b. Willoughby CWBIS-FA-ADA-TPLR-DVLR-2.0GPM-LRSH-2HD
  - c. Approved equal
  
- E. Include Shower Drain – SD at each location.

## 2.12 ELECTRIC WATER COOLERS - GENERAL

- A. Water coolers shall be the type as indicated below, or approved equal. The cooler shall have a stainless steel top and backsplash. Capacities listed below are at ARI Standard 1010-73 conditions unless indicated otherwise. Coolers shall meet the Standards of the Safe Drinking Water Act and the Lead Contamination Act. Miscellaneous appurtenances required for connection, such as water stops and P-traps, shall be as specified elsewhere in this specification. Contractor shall provide suitable wall reinforcement for all wall mounted supports.

## 2.13 EWC

- A. Fixture: Wall hung, barrier free, split-level type water cooler, with front and side push actuators. Provide with apron adapter.
- B. Capacity: 8 gph.
- C. Finish: Cooler front and side enclosure shall be stainless steel with a satin polished finish.
- D. Brands and Models:
  1. Elkay EZSTL8C
  2. Halsey Taylor HAC8FSBL-Q ADA
  3. Oasis PG8ACSL
  4. Sunroc ADA8ACB
  5. Approved equal
- E. Unless indicated otherwise on drawings, water coolers shall be installed in compliance with the Americans With Disabilities Act (ADA) Standard for physically impaired people, and to the ANSI 117.1 Standard. Unless indicated otherwise on drawings, install the cooler with the bubbler (spout) no higher than 36" above the finished floor, and with a clear knee space of 27" measured between the bottom of the cooler basin and the finished floor.

## 2.14 WASHER SERVICE BOX - WSB

- A. Fixture: Flush mounted washer service box, 20 ga. steel, water-tight construction, with galvanized or white powder coat finish, 2" bottom drain outlet and two brass valves with male hose threads on outlets.
- B. Brands and Models:
  1. Guy Gray Model T-200
  2. Oatey 38993
  3. Approved equal

**2.15 ICE MAKER SERVICE BOX - IMSB**

- A. Fixture: Flush mounted ice maker service box, 20 ga. steel, water-tight construction, with galvanized or white powder coat finish, and a brass angle valve with compression outlet. Valve shall be low-lead type.
- B. Brands and Models:
  - 1. Guy Gray Model BIM-875AB
  - 2. Oatey 39141
  - 3. Approved equal

**2.16 DRAINS – GENERAL**

- A. Body castings shall be of a high grade, even grain cast iron, free from defects which might affect their serviceability, and with a 1/4" minimum wall thickness. Drain body shall have a bottom caulk outlet, except on upper floors, drain may have a no-hub outlet unless indicated otherwise. All floor drains shall be installed with a deep seal P-trap. All grates, strainers and trim shall be nickel bronze unless indicated otherwise below. Floor drains installed in new or existing slabs shall be positioned so the top of the drain is 3/8" to 1/2" below the finished slab, and the slab shall be evenly sloped to the drain.

**2.17 FLOOR SINK – FS**

- A. Fixture: Sanitary type floor drain, 8" x 8" x 6" deep, with an A.R.E. interior, seepage flange, aluminum bottom dome strainer, and a nickel bronze frame and grate. Refer to drawings for grate style: full, three quarter, half, or no grate.
- B. Brands and Models:
  - 1. J.R. Smith 3100 series
  - 2. Josam 49300-NB
  - 3. MIFAB FS1520-FL-1
  - 4. Wade 9110-1
  - 5. Watts FS-710-F-1
  - 6. Zurn ZN1910-KC-32
  - 7. Approved equal

**2.18 FLOOR DRAINS – FD**

- A. Fixture: General purpose floor drain with an adjustable 6" diameter, standard-duty, nickel bronze strainer, and a non-puncturing membrane clamping device on body. Where noted on the drawings, provide a 1/2" trap primer connection at inlet to the drain P-trap.
- B. Brands and Models:
  - 1. J.R. Smith 2010-A
  - 2. Josam 30000-A
  - 3. MIFAB F1100-C
  - 4. Wade 1100-STD
  - 5. Watts FD-100-A
  - 6. Zurn ZN415B
  - 7. Approved equal

- C. Provide tamper-proof screws at all floor drains.

## 2.19 SHOWER DRAINS – SD

- A. Fixture: General purpose floor drain with an adjustable 5" diameter, standard-duty, polished chrome plated nickel bronze strainer, and a non-puncturing membrane clamping device on body. Provide tamper proof screws.
- B. Brands and Models:
  - 1. J.R. Smith 2010-A-CP
  - 2. Josam 30000-A-CP
  - 3. MIFAB F1100-C-49
  - 4. Zurn ZN415B-CP
  - 5. Approved equal

## 2.20 TRENCH DRAIN - TD

- A. Drains shall be ligature resistant linear drain with flashing flange and solid removable cover.
- B. Each trench drain shall be nominal 2-3/8" wide. Whitehall WHLD-60-F or approved equal. Provide no-hub outlet. Length of each drain section to be 60".
- C. Submit proposed drain system complete with scale drawings and components for review prior to fabrication.

## 2.21 WATER HAMMER ARRESTORS

- A. General: Furnish in conjunction with fixtures or fixture groups throughout the building, water hammer arrestors (shock absorbers). Water hammer arrestors shall utilize a nested stainless steel bellows permanently sealed within a stainless steel shell, and shall be pre-charged with nitrogen or helium gas. Arrestors shall meet ASSE Standard 1010 and shall be of low-lead construction. Sizing and placement of arrestors shall be in accordance with PDI Standard WH-201. Long isolated runs to single fixtures, such as an EWC or lavatory, without a quick-acting valve, may use field fabricated air chambers.
- B. Brands and Models (Bellows Style):
  - 1. J.R. Smith 5000 series
  - 2. Josam 75000 series
  - 3. MIFAB WHB series
  - 4. Wade "Shokstop" SS series
  - 5. Watts SS series
  - 6. Zurn Z1700 series
  - 7. Approved equal
- C. Alternative Style: Contractor may alternatively use piston style water hammer arrestors. These arrestors shall utilize a floating piston sealed with dual EDPM O-rings inside a permanently sealed copper tube, and shall be internally lubricated with FDA approved silicone compound. Units shall be pre-charged with air, and shall carry the same approvals as above.
- D. Brands and Models (Piston Style):
  - 1. Josam 75000-S series
  - 2. MIFAB MWH series



3. Precision Plumbing Products (PPP) SC Commercial series
4. Wade "Shokstop" P series
5. Watts SG series
6. Zurn WH2950XL series
7. Zurn/Wilkens 1250XL series
8. Approved equal

## 2.22 TRAP PRIMER – TP-1

- A. General: Trap primer valve may be located anywhere in an active cold water line near and above the floor drain. Up to four floor drains located in close proximity to the primer may be served by a single trap primer utilizing a pre-manufactured distribution unit. Trap primers shall be listed by the Uniform Plumbing Code (UPC), and shall meet ASSE Standard 1018. In addition, backflow prevention devices shall be in conformance with all applicable sections of the Plumbing Code. Extend a 1/2" copper water line from the trap primer (or manifold where applicable) to the floor drain, keeping line sloped evenly down toward the drain it serves to prevent trapping water in the line.
- B. Fixture: Trap primer shall be a fully automatic type with no adjustment required, and shall be activated by a drop in building water pressure. Primer shall have 1/2" inlet and outlet connections and shall be of all brass construction. Manifolds, if used, shall be by the same manufacturer as the primer device.
- C. Brands and Models:
1. Josam 88300 Series
  2. MIFAB MR-500
  3. Precision Plumbing Products (PPP) Prime-Rite PR-500
  4. Approved equal

## 2.23 TRAP PRIMER – TP-2

- A. General: Trap primer assembly shall be installed under lavatory in lieu of P-trap assembly previously specified in this section. Provide one trap primer assembly for each floor drain. Extend a 1/2" copper water line from the trap primer supply connection to the floor drain, keeping line sloped evenly down toward the drain it serves to prevent trapping water in the line. All water piping beyond connection point to trap primer supply shall be concealed within wall and floor.
- B. Fixture: Trap primer shall be an assembly consisting of a lavatory tailpiece with side outlet, cast brass P-trap with cleanout, 17 gauge tubular outlet to wall, slip joint nuts, primer tube to wall with fittings, and escutcheons. All components shall have a polished chrome plated finish.
- C. Brands and Models:
1. J.R. Smith 2698 "Prime-Eze"
  2. MIFAB MI-750
  3. Zurn Z1021-WL
  4. Approved equal

## 2.24 WATER HAMMER ARRESTORS

- A. General: Furnish in conjunction with fixtures or fixture groups throughout the building, water hammer arrestors (shock absorbers). Water hammer arrestors shall utilize a nested stainless steel bellows permanently sealed within a stainless steel shell, and shall be pre-charged with nitrogen or helium gas. Arrestors shall meet ASSE

Standard 1010 and shall be of low-lead construction. Sizing and placement of arrestors shall be in accordance with PDI Standard WH-201. Long isolated runs to single fixtures, such as an EWC or lavatory, without a quick-acting valve, may use field fabricated air chambers.

B. Brands and Models (Bellows Style):

1. J.R. Smith 5000 series
2. Josam 75000 series
3. MIFAB WHB series
4. Wade "Shokstop" SS series
5. Watts SS series
6. Zurn Z1700 series
7. Approved equal

C. Alternative Style: Contractor may alternatively use piston style water hammer arrestors. These arrestors shall utilize a floating piston sealed with dual EDPM O-rings inside a permanently sealed copper tube, and shall be internally lubricated with FDA approved silicone compound. Units shall be pre-charged with air, and shall carry the same approvals as above.

D. Brands and Models (Piston Style):

1. Josam 75000-S series
2. MIFAB MWH series
3. Precision Plumbing Products (PPP) SC Commercial series
4. Wade "Shokstop" P series
5. Watts SG series
6. Zurn WH2950XL series
7. Zurn/Wilkens 1250XL series
8. Approved equal

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Immediately after installation of plumbing fixtures, cover each fixture with a fixture protector. Take every possible precaution for the protection of fixtures and connections and replace any fixture or other work damaged with no additional cost to the Owner.
- B. Provide suitable (silicone base) caulking material between fixture and wall/floor/countertop (as applicable) for each fixture type such as water closets, urinals, lavatories, sinks, showers, etc.; caulking material shall form a neat bead around the perimeter of fixture to form a watertight joint.

**END OF SECTION 22 00 50**

**SECTION 23 00 10 - HVAC BASIC MATERIALS AND METHODS – REVISED****PART 1 - GENERAL****1.1 LABELS**

- A. Provide a label on each piece of apparatus and each controlling device. Labels shall identify item and number and have identifying function and position settings. Labels shall be pressure sensitive adhesive mount type, 1/16 inch minimum thickness, engraved type laminated plastic, black with white lettering.

**1.2 PIPING IDENTIFICATION**

- A. Provide markers on piping which is either exposed or concealed in accessible spaces, with Seton Setmark, EMED Co. Kwik Koil, or approved equal plastic snap-around markers. For insulated piping, markers may be Seton Opti-Code, EMED Co. Econo Mark or approved equal pressure sensitive vinyl markers with matching self-adhesive "arrow" banding tape applied circumferentially at each end of marker. For piping system include generic name of system or its abbreviation, either by pre-printed markers or stenciled marking, and include arrows to show direction of flow. Locate markers at ends of lines, near major branches and other interruptions including equipment in the line, where lines pass through floors, walls or ceilings or otherwise pass into inaccessible spaces, and at 50 feet maximum intervals along exposed portions of lines. Marking of short branches and repetitive branches for equipment connections is not required. Markers shall comply with ANSI A13.1 Standard.

**1.3 MATERIALS IN AIR DUCTS AND PLENUMS**

- A. No plastic or other non-metallic materials as defined by NFPA 90A shall be used in air ducts or plenums unless specifically rated for such service.

**PART 2 - PRODUCTS****2.1 MOTORS AND MOTOR STARTERS**

- A. Electric motors with characteristics as shown on the Drawings shall be provided by the Contractor for all pieces of driven equipment. Electric motors shall be submitted for approval and shall conform to the following: Single phase motors shall generally be as recommended by the manufacturer of the driven equipment. Three phase motors shall be squirrel-cage induction type motors unless otherwise specified. Motors shall have characteristics as listed on the Drawings and shall be selected to be non-overloading and capable of normal scheduled operation without requiring operating in the service factor range. Motors shall be designed for a 40°C rise from 40°C ambient and shall have NEMA design B normal starting torque unless otherwise specified. Enclosures shall be open, drip-proof for all applications not exposed to outside weather conditions and totally enclosed, fan-cooled for motors located outside, or exposed to outside conditions. All motors shall be rated at full load conditions and be high efficiency, high power factor type, copper wound, premium grade, and shall comply with the Louisiana Building Energy Conservation Code and based on ASHRAE 90.1-2007 with all addenda. Motor shall comply with Energy Independence and Security Act (EISA) of 2007 (NEMA MG-1 Tables 12-1 and 12-2).
- B. Motors used for inverter service shall have a field applied and installed split ring grounding mechanism that shall ground the rotor shaft to prevent inverter induced voltages from pitting the bearings. Systems by Aegis or approved equal are acceptable.

- C. In addition, motors for inverter, variable frequency drive use shall be definite purpose inverter fed motor rated NEMA mG-1, Part 31 compliant and rated to withstand voltage peaks of 1600 volts at a rise time of 0.1 microseconds as a minimum.
- D. Motor starters for factory assembled units shall be provided for by the manufacturer and be completely factory wired and mounted. All contactors to be NEMA rated and generally conform to the specifications below. All separate motors and motors not otherwise packaged with a starter unit as part of a factory assembly shall have a starter as specified below. Provide labels for each starter: white etched letters on black laminated plastic base.
- E. Manual starters for single phase motor applications shall be magnetic start type with operating pilot light, thermal melting alloy overloads, one per phase, Square D Type 3536, Allen-Bradley Bulletin 509, Cutler-Hammer Freedom Series, General Electric CR101, Siemens-Furnas 14 Series or approved equal.
- F. Where starters for single phase motor applications call for magnetic type starters, they shall be full voltage, non-reversing combination magnetic motor starter disconnect type with adjustable trip motor-rated circuit protector. Starter shall be NEMA rated and shall have a thermal melting alloy overload, one per phase, operating pilot light and shall have auxiliary contacts as required for interlocking. Any and all indicating pilot lights, diagnostic lamps, etc. shall be LED type with color as standard; do not use incandescent lamps. Overload relays shall be NEMA Class 10 for HVAC compressor use, Class 20 for fan and pump use and Class 30 for high starting torque use. Units shall be Square D Class 8539 with motor logic Class 9065, Cutler-Hammer Freedom Series with CEP7, Siemens-Furnas Class 14 Series, with ESP 200, General Electric CR101 Series, Cerus BAS-1P Series, Taco TAS Series or approved equal.
- G. Each three phase electric motor shall be provided with a full voltage non-reversing combination magnetic motor starter disconnect type with adjustable trip motor rated circuit protector unless noted otherwise on Drawings as furnished elsewhere. The starter shall be NEMA rated and have solid state overload relays, one for each leg and shall have a minimum of two each NO and two each NC auxiliary contacts as required for interlocking. Overload relays shall be NEMA Class 10 for HVAC compressor type use and Class 20 for fan and pump use. Use NEMA Class 30 overload relays only for high starting torque use. Units shall be Square D Class 8539 with motor logic class 9065, Cutler-Hammer Freedom Series with CEP7, General Electric CR387/487 Series Siemens-Furnas 18 Series with ESP 200, Taco TAS Series or approved equal.
- H. Enclosures for combination starters shall be NEMA 1 general purpose for all indoor applications and NEMA 3R rainproof for all applications exposed to outdoor conditions. Provide mechanical operators capable of being locked. Each shall be rated 10K AIC minimum and shall have a hand-off-automatic switch and operating pilot light with push to test lamp feature mounted in the face of the enclosure. Any and all indicating pilot lights, diagnostic lamps, etc. shall be LED type with color as standard; do not use incandescent lamps. Provide fused control voltage transformer 100VA minimum size for 120 Volt or lower coil controls. Unit shall include a factory wiring block for field extension. No wire nut connections allowed. Verify with Temperature Control requirements. Submit shop drawings on all starters and switches.
- I. Motor starters for motors 25 HP and less shall have a line power monitor to protect the motor from overcurrent and voltage and loss of phase protection. Include with starter, factory wired and UL listed.

## 2.2 SOFT START SOLID STATE STARTERS

- A. For all starters 30 hp and above, provide a combination motor starter disconnect type. Units shall be microprocessor controlled, reduced voltage, stepless, solid state, soft start and non-reversing. Overload protection shall be electronic type field selectable for Class 10 (for HVAC compressor type use), Class 20 (for fan and pump use), or Class 30 (for high starting torque use) type relay curves with protection provided with each phase. Motor service factor shall be selectable at 1.0, 1.15 or 1.25. Starter shall have single phase, overvoltage, undervoltage, phase rotation, stalled motor, ground fault and line-to-line current imbalance protection. Starter shall have a control power transformer for 120 volt or lower control voltage.

- B. Starters shall have a start ramp time adjustable from 0-120 seconds, adjustable deceleration profile, 0-60 seconds, auto ranging watt/watt-hour meter, elapsed time meter and scrolling volt/ammeters, accumulated event recorder (25 minimum events) time and date stamped, battery backed up menu parameters and static non-volatile operating settings with pass code protection.
- C. Starter shall have LCD and/or LED status and diagnostics displays with full fault annunciation, push to test type indicating light to indicate motor operation and Hand-Off-Auto control switch. Any and all indicating pilot lights, diagnostic lamps, etc. shall be LED type with color as standard; do not use incandescent lamps.
- D. Software selectable relay outputs shall consist of a general fault relay and a minimum of two relay outputs user selected to any of the following functions: Run, Up to Speed, Motor Trip, Motor Pre-Trip alarm. Provide auxiliary contacts for interlock purposes as required by the control system.
- E. The starter shall have a circuit breaker (motor rated circuit protector) disconnect operable from outside the enclosure with the enclosure closed, padlockable in off position.
- F. All components (controller and motor rated circuit protector) shall be housed in a single enclosure, NEMA Type 1 for indoor locations, NEMA Type 3R or Type 4X stainless steel for outside locations.
- G. Soft start starters shall be by Square D Class 8660, Cutler-Hammer Type IT, Model ECS Series, General Electric ASTAT-XT or approved equal.

### 2.3 VARIABLE FREQUENCY DRIVES (VFD)

- A. The Contractor shall supply a variable frequency, variable torque, Alternating Current, solid state, induction motor speed controlling Variable Frequency Drive (VFD) for each variable speed application (i.e., AHU's, pumps, fans, etc.) where shown on Drawings. Controllers shall be Yaskawa E7 Series, Fuji AF-300-F11 Series, Danfoss VLT Series, ABB ACH-550 Series, or approved equal. All drives for this project shall be by the same manufacturer. The speed controller, the bypass switch, contactor and controls shall be by the same manufacturer, factory installed, and be self-contained, totally enclosed in a single convection cooled NEMA cabinet. For drives installed interior to buildings, cabinets shall be NEMA 12, rated for operation between 0°C and 40°C. Cabinets shall be NEMA 3R, rated for operation between -12°C and 48°C. The unit shall be fully rated for the horsepower of the motor connected at the voltage specified.
- B. VFD shall include all necessary motor starter functions. Unit shall have a loss of phase protection to prevent drive operation on loss of phase. Threshold on phase monitoring shall be adjustable. Provide external to the drive unit a three-contactor manual power bypass arrangement to manually bypass the variable speed controller. The controller shall be out of the circuit when in the bypass mode. The unit shall have full power for 100% motor speed while variable speed drive is removed. The manual bypass switch to be a switch to operate fully NEMA rated bypass contactors that will transfer the input power to the motor starter circuit and allow complete removal from the enclosure of the drive electronics package in an energized state. For units serving air units, manual bypass shall have auxiliary contacts for connection by the Temperature Controls Contractor, such that in the bypass position, the contact makes and all VAV boxes go to full open. In the bypass position, all start, stop, auto functions will be connected and maintained. In the normal position, bypass starter, overloads and controls are deactivated and the load of the motor is transferred to the output of the variable frequency drive.
- C. Provide an interface card such that the unit will transmit to the BMCS status and diagnostic information.
- D. The physical size of the unit shall be verified to physically fit the space allowed **before** bid. Units that do not fit or do not comply with Code clearances will be rejected. The bypass arrangement, drive and cabinet shall be a single source responsibility and be manufactured and factory supplied by the drive manufacturer. No shop assembled or field fabricated assembly of components is acceptable.

- E. Input voltage of the unit shall be the same as the voltage required by the motor. No voltage level transformation is allowed unless specifically noted otherwise. The unit to be capable of input voltage variations of  $\pm 10\%$ , 3 phase, and frequency  $\pm 2\%$  at rated voltage and 60 Hz.
- F. The output voltage to vary from zero to the rated motor voltage, and the output frequency to vary from zero to 120 Hz minimum. The output voltage-frequency combination shall insure the optimum volts per Hertz ratio for best operating efficiencies and minimum motor heating. The output must be a voltage source type generating a sine coded PWM waveform utilizing an asynchronous carrier frequency. This carrier frequency shall be adjustable to minimize harmonically induced noise or vibration. This must be accomplished using a microprocessor based technique which forms a true sine coded current waveform to the motor for smooth performance at all speeds.
- G. The VFD shall provide the necessary conversion and control of incoming line voltage to the variable frequency, variable voltage output via the following general scheme:
  - 1. The power input stage shall convert three-phase AC line power to a fixed DC bus voltage. Provide a solid state three-phase full wave diode rectifier with metal oxide varistor (MOV) three-phase protection. Minimum full load power factor shall be 0.90. Drive shall not cause voltage line notching nor introduce noise to the mains.
- H. The drive shall not produce more than 5% total voltage demand harmonic distortion (THD), voltage as measured on the line side of the drive. Provide for DC bus reactor in the positive line of the DC section of the drive. Locate in the drive cabinet.
- I. Provide for a factory trained service technician to supervise start-up of each motor speed controller.
- J. Once the DC bus voltage is established, the power is internally delivered to the intermediate stage. The intermediate power stage shall be interfaced with the drive's diagnostics to provide continuous monitoring for the drive power component protection. The DC bus shall be fused for short circuit power protection. The DC bus shall have capacitive filtering to provide smooth DC power to the output power stage. The power is then routed to the drive's output stage.
- K. The drive's output stage shall utilize switching transistors to convert DC bus power to sine-coded or voltage-vector pulse width modulated (PWM) voltage source power for motor control. Current transformers (CT's) shall be utilized to detect the output current of all three phases to the motor.
- L. The drive shall have a 4 to 1 speed range as a minimum. The unit must be specifically designed for Air Handling unit service and be matched to the motors of the unit, size and characteristics scheduled and as specified herein. Unit must be solid state, microprocessor controlled, and use the pulse-width modulated technology to remanufacture the output waveform.
- M. The VFD shall be automatically controlled by a DC control signal. The DC control signal shall either be 4 - 20 ma or 0 - 10 volts. Manual operation capability must be provided. Provide integrated BacNet connectivity.
- N. VFD must provide for a slow speed start (soft start) with adjustable starting frequency. Minimum and maximum speed shall be capable of adjustment.
- O. VFD shall have built-in current limiter with automatic shutdown if motor current exceeds 110% of design, but will allow momentary overloads of 150% of design current. Set at start-up for actual motor nameplate rating.
- P. The VFD shall provide simple connections for interface with the temperature controls panel, the fire alarm system, and equipment safety cut-outs. A visible front mounted indicator light must indicate if fire, smoke or freeze conditions have shut down unit.

- Q. VFD must be capable of running through momentary power outages up to 5 cycles in duration. Unit will shutdown if power fails for greater than 5 cycles but will automatically restart when power is reapplied.
- R. Provide for a factory trained service technician to supervise start-up of each VFD. This is mandatory and is to be part of the overall instructions to the Owner. Schedule through the Architect.
- S. The VFD must meet the following Specifications in operation:
1. Instantaneous shutdown on current overloads in excess of 150%.
  2. Momentary current overload capability up to 120% for 60 seconds (adjustable).
  3. All control circuitry must be electrically isolated from inverter logic and power sections.
  4. Output shall be current limited.
  5. Current limiting fuses shall be supplied on AC input lines.
  6. Shall have under-voltage, over-voltage, loss of phase, over-temperature, short circuit, DC bus and electronics protection.
  7. Built-in motor stall protection.
  8. External to drive unit bypass switch for emergency motor operation in case of unit failure. Provide 3-contactor isolating bypass arrangement with separate set of thermal motor overload relays **and** full size NEMA rated motor starter for operation in the bypass condition. See Temperature Controls and above. Bypass switch shall include the fully NEMA rated external bypass motor starter, NEMA rated bypass contactors, overloads and disconnect switch. In lieu of the drive input contactor, a fully rated service disconnect switch is acceptable. This switch must be internal to the NEMA cabinet (see Paragraph A, above) and labeled "SERVICE DISCONNECT."
  9. Provide Hand-Off-Auto switch with manual speed potentiometer on the unit. This Hand-Off-Auto switch is to be operable in both the normal and bypass position.
  10. Provide unit mounted disconnect switch operable in the normal condition or bypass position. If a thermal-magnetic circuit breaker is used as the system disconnect switch, it shall be sized for across-the-line starting of the motor when in the bypass position.
  11. Input electrical lug and output electrical lugs shall accommodate the wiring type, number per phase and size as per the Drawings.
  12. Cabinet assembly with drive and all components to have lockable door with all normal operating controls on the door face and be NEMA constructed (see Paragraph A, above).
  13. Ground fault protection trip out.
  14. Adjustable accelerating and decelerating time.
  15. Built-in diagnostics and indicators to provide fault condition trouble shooting by field personnel without the use of external measurements.
  16. Any and all indicating pilot lights, diagnostic lamps, etc. shall be LED type with color as standard; do not use incandescent lamps.
- T. The overall noise level of the unit and motor combination must be acceptable to the Owner. Noisy units or motors that produce objectionable noise under normal operating conditions as judged by the Architect shall be replaced or repaired with quieter units at no cost to Contract.
- U. Refer to Drawings for additional work. The Electrical Contractor is to provide for all power wiring with the Temperature Controls Contractor providing the interlock wiring, the interface and interlock devices, and all pneumatic work.

## 2.4 INSULATION

- A. All surfaces shall be clean and dry when covering is applied. Covering shall not be applied before piping and equipment have been tested and proven free of leaks. On piping carrying cold fluids, the covering shall pass full thickness through or over hangers and the Contractor shall provide a galvanized steel bearing plate at each support:

<u>Pipe Size</u>	<u>Plate Length</u>	<u>Plate Gauge</u>
Up to 4 Inch	12 Inches	16
5 and 6 Inch	18 Inches	16
8 Inch to 14 Inch	24 Inches	14
Above 14 Inch	24 Inches	12

- B. Plates shall be formed to fit the outside of covering and shall extend halfway around the covering. All plates, sleeves and hanger devices to be sized and applied without damaging or deforming the insulation or puncturing the vapor barrier.
- C. For the purposes of this specification, the term "attic" refers to the cavity space between the roof deck and the insulation level at the ceiling line. If all of the insulation is at the roof level, with no insulation at the ceiling line, then the cavity space is not an attic.
- D. Unless indicated otherwise, all insulation installed within the building enclosure(s) shall have a composite (insulation, jacket and adhesive, as applicable) flame spread index of 25 or less and a smoke-developed index of 450 or less, unless required otherwise by local Codes and International Building Code 720. Insulation within air ducts, plenums or other similar compartments used as part of an air distribution system shall be of materials approved for plenum service and shall have a flame spread index of 25 or less and a smoke-developed index of 50 or less, as per NFPA 90A and International Mechanical Code 602. Plastic materials are not allowed in plenum spaces unless specifically rated for such service.
- E. Insulate all interior above ground chilled water supply and return piping, including fittings and connections with molded insulation. Pipe covering shall have factory applied vaporproof flame bar paperless jacket. Pipe covering shall be applied with all joints buttered with vapor barrier mastic; jacket laps shall be sealed with vapor barrier adhesive. For application on piping and fittings not within a duct or plenum use 2 inch thickness molded cellular glass, polyisocyanurate foam (Trymer 2000/2500 or HiTherm HT-300). For application on piping and fitting within a duct or plenum use 2 inch thickness molded cellular glass or HiTherm HT-300 on all size piping.
- F. Insulating methods using Trymer or HiTherm material shall have the factory supplied and approved vapor retarder film applied as follows:
1. The vapor retarder shall be factory or field applied 6 mil thick PVDC Saran 560CX vapor retarder film on the straight pipe insulation sections. Butt joints of the film shall be sealed with 3" wide PVDC tape. The vapor retarder must be continuous throughout the insulation system. PVDC Tape in 1, 2, or 3" widths shall be applied to the surface of the insulation on all fittings and elbows. The PVDC film and tape shall be furnished and installed per manufacturer's guidelines. Note that the standard all service jacket (ASJ) and foil scrim kraft (FSK) type vapor retarders do not meet this specification and shall not be used on the insulating materials.
- G. For chilled water piping systems, provide "vapor stops" (dams) at intervals not exceeding 23 feet to prevent condensation and/or system fluid leaks from migrating (beneath the piping insulation) beyond the vapor stops. Also, at piping fittings, flanges and valves, provide vapor stops at the butt joints of the insulation segments for these piping components. Except where recommended otherwise by the insulation manufacturer's installation instructions, vapor stops shall be a continuous circumferential bead of flexible elastomeric vapor barrier sealant (Pittseal CW, Childers CP-76 or equal) applied on the inner diameter and butt joint surface of the pipe covering.
- H. Insulate underground (including underslab) and exterior above ground chilled water and heating hot water piping, including valves and fittings, with molded cellular (foam)glass, polyisocyanurate foam (Trymer 2000/2500 or HiTherm HT-300 or approved equal) with all accessory materials required per manufacturer's instructions for the intended application. Insulation shall be installed to provide tight fitting joints, eliminate any voids by refitting or replacing insulation sections which do not fit tight. Insulation shall be 2 inches thick. Cover underground (including underslab) chilled water and heating water piping insulation with two layers 20 mils (minimum) PVC jacketing. For straight piping sections, jacketing shall be oven-curved, at the factory. Fitting and valve covering shall be heavy thickness two-piece molded type. Overlap both layers of PVC jacketing a minimum of 3 inches.



Seal all jacket seams and joints with PVC solvent welding. Temporarily secure the inner PVC jacket with tape, while the solvent dries, removing the tape after the solvent has dried (typically the following day). The outer PVC jacket is to be installed in a similar manner. Install overlapping seams of each jacketing layer at 10 and 2 o'clock positions (*i.e.*, top quadrant of insulation). Spiral wrap two layers of vapor retarder PVC tape over the entire underground fitting covers, extending 3 inches past fitting joint ends. Apply 2 inch wide PVC tape over the outer jacketing seams and joints, and two layers of taping wrapped circumferentially around jacketing at 12 inch intervals; circumferential wraps are to be applied after taping longitudinal seams. In lieu of PVC jacketing, insulation may be covered with factory applied Pittsburgh Corning Pittwrap CW Plus, Polyguard Insulrap 50 or approved equal, install per manufacturer's instructions.

- I. Insulate all interior heating hot water supply and return piping, fittings, valves (1.5" and smaller piping size) and equipment with 4 pound density molded glass fiber pipe covering with factory applied vaporproof flame bar jacket. Pipe insulation shall be 1 inch thickness up to and including 4 inch size, and 1-1/2 inch thickness for piping greater than 4 inches, except that the final 12 ft. segment of branch runout piping to individual units/VAV boxes may have 1 inch thickness insulation. Seal and staple laps and butt joint strips and apply lagging as required to seal and receive paint. Use high density insulation inserts at hangers to prevent sagging. Raw ends of insulation shall be tapered and finished to match covering.
- J. All heating hot water valves (larger than 1.5" piping size) and chilled water valves shall be insulated with a factory fabricated removable/reusable valve cover. Cover must be fabricated of 1 inch thickness flexible elastomeric cellular (foam) insulation, conforming to C534 Type I or II (as applicable), complete with Velcro closures as manufactured by CORICK, Baton Rouge, Louisiana, or approved equal. For outdoor applications, insulation shall be covered with outer jacketing of multi-ply zero permeable embossed aluminum sheeting material (nominal 7 MILS thickness), VentrueClad 1577 CW Series, Ideal Tape Co., Inc. IdealSeal 777, Polyguard Alumaguard LTE Series or approved equal; install sheeting material in accordance with manufacturer's installation requirements
- K. Insulate chilled water and heating hot water pumps with 1-1/2 inch flexible elastomeric cellular (foam) insulation or 2 inch cellular foamed glass to form a removable and reusable insulated equipment cover (similar to the detail on Plate No. 48 of the National Commercial and Industrial Insulation Standards, Third Edition) encasing the pump. The box enclosure shall be constructed of 0.032 inch (minimum) thickness aluminum sheet metal to which the insulation is applied. Insulation may be adhered directly to surfaces which do not require maintenance removal. Care shall be taken to provide a tight seal at all seams and joints. Allow for chilled water pump base plate to be piped to extend beyond insulated box. In lieu of that indicated above, chilled and heating hot water pumps may be insulated with a factory fabricated removable/reusable pump cover fabricated of 1-1/2 inch thickness flexible elastomeric cellular (foam) insulation, complete with Velcro closures as manufactured by CORICK, Baton Rouge, Louisiana or approved equal. For outdoor applications, elastomeric cellular (foam) insulation shall be covered with outer jacketing of multi-ply zero permeable embossed aluminum sheeting material (17.5 MILS minimum thickness), VentrueClad 1579 CW Series, Polyguard Alumaguard All-Weather Series, Protecto Wrap Insul-Seal-30 or approved equal; install sheeting material in accordance with manufacturer's installation requirements.
- L. Insulate duct pressure relief doors with 1/2 inch thick glue-on fire rated flexible elastomeric cellular (foam) sheet insulation. Apply with approved adhesive to a clean, dry surface, and install in a manner that will not interfere with operation of door. Insulate all surfaces sufficient to prevent sweating.
- M. Except for piping insulated with elastomeric cellular (foam), chilled water piping, heating hot water piping and all other insulated HVAC piping systems within mechanical rooms shall be covered with PVC jacketing in addition to the "factory applied vaporproof flame bar jacket." Piping concealed within wall space or concealed above ceiling is not required to have PVC jacketing. PVC jacketing shall be 0.020 inch minimum thickness applied with approved PVC adhesive over all seams; fill any unavoidable openings in jacketing with silicone sealant. Jacketing shall be 25/50 Flame/Smoke Rating as per ASTM E-84. Generally jacketing shall be white color except where color code jacking is required per Paragraph 1.3.B of this Specification Section 230010; color code selection of jacketing shall be chosen by the Architect based on jacketing manufacturer's standard color chart, and the color for fitting covers is to match that for straight pipe sections.

- N. Cover all straight runs of all outdoor piping insulation other than flexible elastomeric cellular (foam) insulation with 0.016 inch thick smooth aluminum jacket using strap method as recommended by the manufacturer. The aluminum jacket shall be in addition to the previously specified jackets. Fittings for piping receiving aluminum jacket shall be covered with pre-formed aluminum jacketing. Seal all joints and seams with silicone based caulking.
- O. Insulate all unlined supply ductwork including flexible duct connections on fan coil units, unlined return air ductwork, outside air ductwork, unlined exhaust ductwork and all lined ductwork routed in attics or unconditioned spaces, with 2 inch minimum thickness, minimum R=6 glass fiber blanket with glass fiber reinforced aluminum foil vapor barrier. Staple joints and apply pressure-sensitive tape (matching the insulation facing and designed for use with the insulation) all around joints and at longitudinal seams. Where insulation is applied to oval or rectangular ducts with horizontal dimension greater than 24 inches, provide clips on the underside at 18 inches on centers both ways. Refer to Section 23 00 20 for additional information.
- P. For supply air or return air ductwork exposed to the weather, insulate with two layers of 1 inch thickness flexible elastomeric cellular ("Armaflex") sheet insulation applied with manufacturer's recommended adhesive, overlap joint. Insulation shall be covered with outer jacketing of multi-ply zero permeable embossed aluminum sheeting material (17.5 MILS minimum thickness), VentruClad 1579 CW Series, Polyguard Alumaguard All-Weather Series, Protecto Wrap Insul-Seal-30 or approved equal; install sheeting material in accordance with manufacturer's installation requirements.
- Q. Insulate tops of air diffusers occurring in either spaces not conditioned or spaces not part of a return air plenum. Insulation shall be 2 inch thick 3/4 pound glass fiber with reinforced aluminum foil vapor barrier. Overlap diffuser 6 inches all around. Scribe to neck size and attach with aluminum tape.
- R. Insulation materials shall meet the following minimum standards:
1. Fiberglass piping insulation: ASTM C 547, CLASS 1, 0.25 K-factor at 100°F mean temperature.
  2. Flexible elastomeric cellular insulation: ASTM C 534, TYPE I (for Piping), ASTM C 534, TYPE II (for Sheets)
  3. Flexible fiberglass ductwork insulation: ASTM C 553, TYPE I, CLASS B-4.
  4. Cellular glass thermal insulation: ASTM C552
- S. Insulating materials shall be as made by Dow, Knauf, Owens-Corning, Pittsburgh Corning, Johns Manville, Armstrong, Nomaco, or approved equal, and shall be installed as per manufacturer's recommendations.

## **PART 3 - EXECUTION**

### **3.1 INSULATION INSTALLATION**

- A. Extend insulation without interruption through walls, floors and similar penetrations, except where otherwise indicated. Apply insulation using staggered joint method for both single and double layer construction, where feasible. Apply each layer of insulation separately. Maintain and seal carefully and completely all vapor barriers.

### **3.2 SUPPORTS, FOUNDATIONS AND VIBRATION ISOLATION**

- A. The Contractor shall, unless otherwise specified, provide all foundations, supports, etc., necessary for properly supporting his work and equipment furnished by him and shall furnish and install all isolation materials to prevent transmission of vibration to the building structure. Isolation of equipment as shown on Drawings is the minimum required and any additional isolation required to prevent transmission of vibration or sound shall be provided by the Contractor, in accordance with the equipment manufacturer's requirements. All floor mounted equipment

shall have a 4 inch high minimum housekeeping concrete pad with 1 inch chamfered edges. For indoor slab mounted equipment, vibration isolation is required for all vibrating or rotating equipment.

- B. Where applicable, under no circumstances shall the Contractor attach to or support from any bar joist bridging. Any supports to the bar joists or any structural systems shall be approved by the Architect. All supplemental angle or channel iron required to support equipment of this Specification shall be furnished by the Contractor and shall be independent of any other supports.
- C. Supports for ductwork, piping, conduit and equipment exceeding 200 pound load suspended from overhead construction in concrete shall incorporate steel imbedded anchors into the concrete pour. Use stainless steel expansion anchors only for loads less than 200 pounds per anchor and only in non-post tensioned slabs. For post tensioned slabs use imbedded support plates only.

### **3.3 OPENINGS, CUTTING AND PATCHING**

- A. Cut all openings, as required, for the work under this subcontract. Patching will be done by the various crafts whose work is involved. Furnish and install all necessary sleeves, thimbles, hangers, inserts, etc., at such times and in such a manner as not to delay or interfere with the work of other contractors. Seal, caulk and otherwise make air tight all duct and pipe penetrations through walls and floors. Caulk, flash or otherwise make weatherproof all penetrations through the roof and exterior walls. No pipe opening shall be sealed around the pipe or insulation without the penetration isolated from the wall system.
- B. No additional compensation will be authorized for cutting and patching work that is necessitated by ill-timed, defective, or non-conforming installations.
- C. For all openings larger than 16 inches horizontal dimension in existing masonry walls, provide 3 inch x 6 inch x 1/4 inch steel angle lintel with 8 inch minimum bearing length extending beyond each side of opening.
- D. All openings shall be protected by a rated protection system listed for the specific application for the type of material penetrating the fire barrier and the type of construction of barrier penetrated. Sealants used in floor penetrations shall be waterproof.
- E. Where piping, ductwork or other items that are provided for under this contract penetrate fire rated walls or floors, the Contractor shall seal around the item to maintain the integrity of the rated system. All openings shall be protected by a rated protection system listed for the type of material penetrating the fire barrier and the type of construction of barrier penetrated. Sealants used for floor penetrations shall be waterproof. Systems must be UL rated for two hours minimum. Submit proposed system for review. Provide documentation to the General Contractor and Architect for each type fire protection sealing system utilized in this project. The Fire Marshal Inspector may perform random destructive sampling of the sealant system installation; Contractor shall repair seal at sampling locations.
- F. For openings containing non-metallic material, piping, conduit or wiring, and penetrating a floor-ceiling assembly, the system shall include intumescent material and shall be a listed "through penetration" assembly tested in accordance with ASTM E-814.

### **3.4 ACCESS PANELS**

- A. Access panels in ceilings and walls shall be steel doors with heavy duty concealed hinges of the pinless type and key operated locks with spare set of keys. Doors shall be prime coat finish.
- B. Provide access panels in the ceilings and walls for duct dampers, terminal boxes, coils, valves, etc. These access panels are for installation by others, but the Contractor is responsible for their proper location.

- C. Access panels in fire rated ceiling/walls shall be UL labeled to meet the requirements of the rated assembly and shall have a closer device to automatically close and latch the door upon release from any open position. Fire rated access panels shall have key operated locks with spare set of keys (turn over to Owner).
- D. Where lay-in ceilings exist, no access panels are required.
- E. All keyed access panels to be key'd alike. RE: Section 23 00 10, Paragraph 3.4.

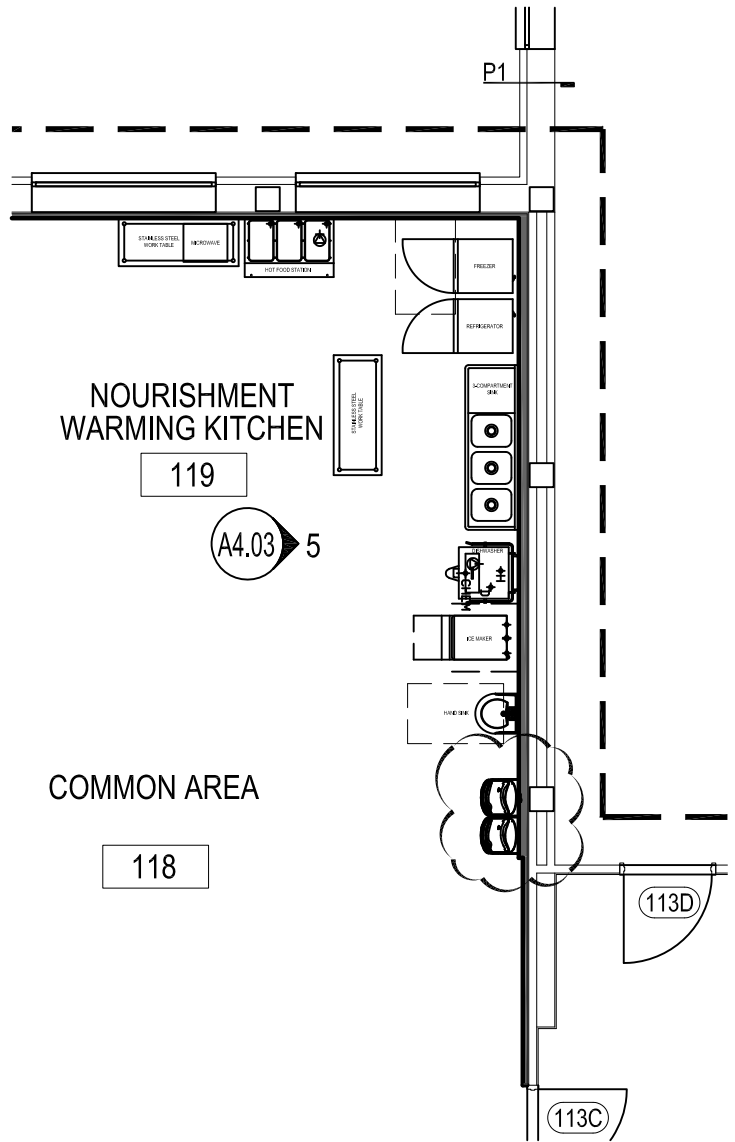
### **3.5 EXCAVATING, TRENCHING AND BACKFILLING**

- A. Protect trench and handle materials in accordance with good safety practice. All pipes shall be installed with minimum 24 inch cover wherever possible and in no case less than 12 inch cover.
- B. The bottom of the trenches shall be accurately graded. Bell holes and depressions for joints shall be dug after the trench bottom has been graded. Wherever unstable soil is encountered, such soil shall be removed and the trench backfilled to proper grade with coarse sand or fine gravel.
- C. After all required tests and inspections have been performed, the trenches shall be carefully backfilled with materials approved for backfilling, deposited in 9 inch layers and thoroughly and carefully tamped. Repeat backfill as required after any subsequent settlement.
- D. For insulated chilled water and heating hot water piping installed underground (including underslab), trench shall be excavated to allow 6 inch minimum clearance all around the final outside diameter of the piping insulation. Provide sand bedding and backfill material to an elevation at least 6 inches above the top of the insulated piping. Apply bedding in layers as specified above. The remainder of the trench shall be backfilled with suitable material approved for backfilling. Temporary piping supports (such as concrete or timber blocking) required for the installation of the pipe and insulation within the trench shall be removed during the backfill sequence.
- E. Refer to other sections of this Specification for additional requirements for trenching, backfill, bedding, compaction, etc.

### **3.6 CLEANING**

- A. When all work has been finally tested, remove construction debris from spaces containing HVAC equipment. Also, clean equipment exterior to remove construction dust/debris.
- B. All new piping, vessels and heat exchangers in the project shall be thoroughly flushed of all debris and foreign objects with appropriate fluids before systems are placed in operation. After flushing, all strainers and dirt traps shall be checked and cleaned.

**END OF SECTION 23 00 10**



**1 PARTIAL FLOOR PLAN**  
 A1.02 SCALE: 1/8" = 1'-0"

**VergesRome**  
 Architects  
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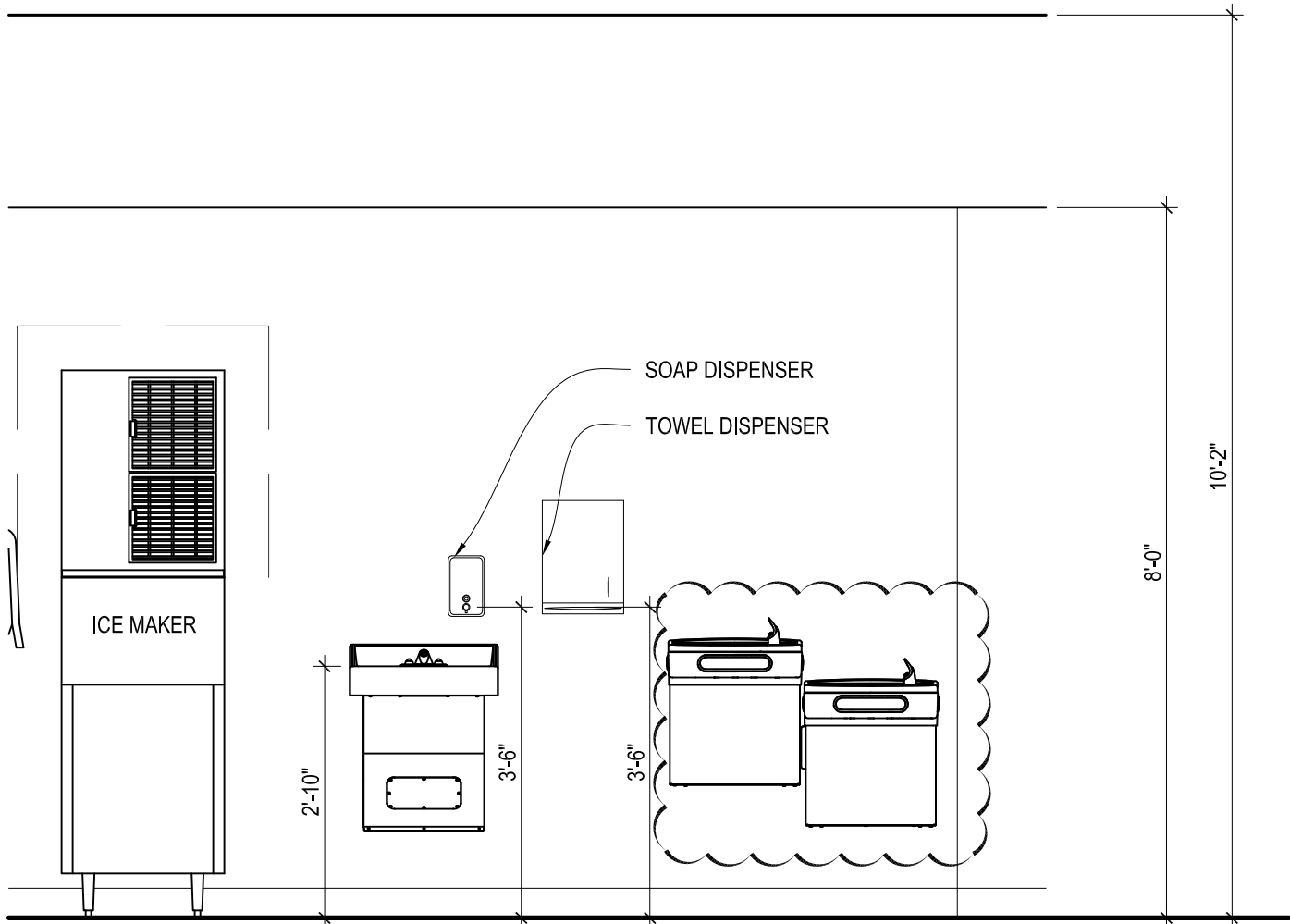
**SAFE HAVEN RENOVATIONS QUAD A**  
 ST. TAMMANY PARISH

23515 HWY 190

MANDEVILLE, LA 70448

PROJECT NO.	16001
DATE ISSUED:	5/6/19
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DRAWN BY:	MER
CHECKED BY:	CEV
PHASE:	ADDENDUM

TITLE:  
**PARTIAL FLOOR PLAN**  
 SHEET:  
**ASK-01**



**5** ELEVATION - NOURISHMENT WARMING KITCHEN 119  
**A4.03** SCALE: 1/2" = 1'-0"

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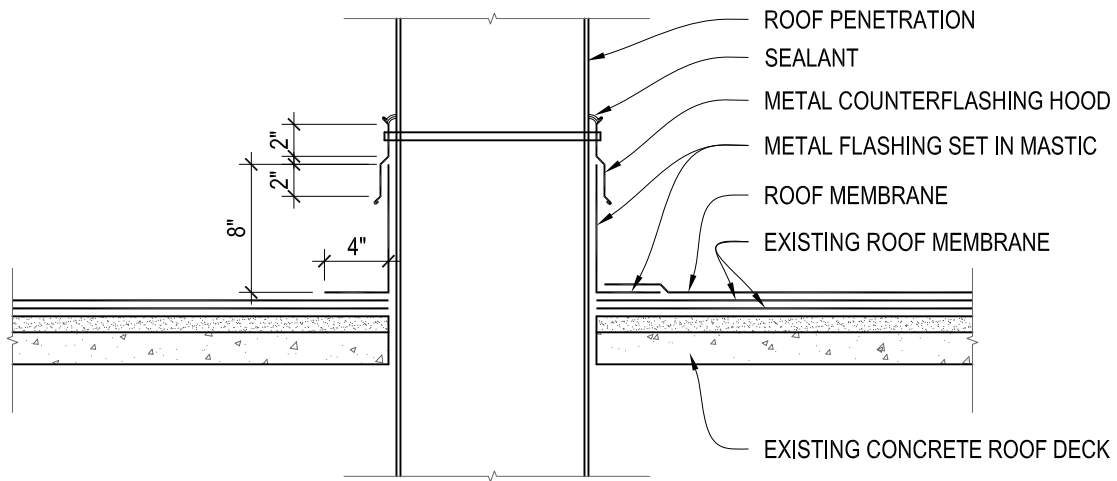
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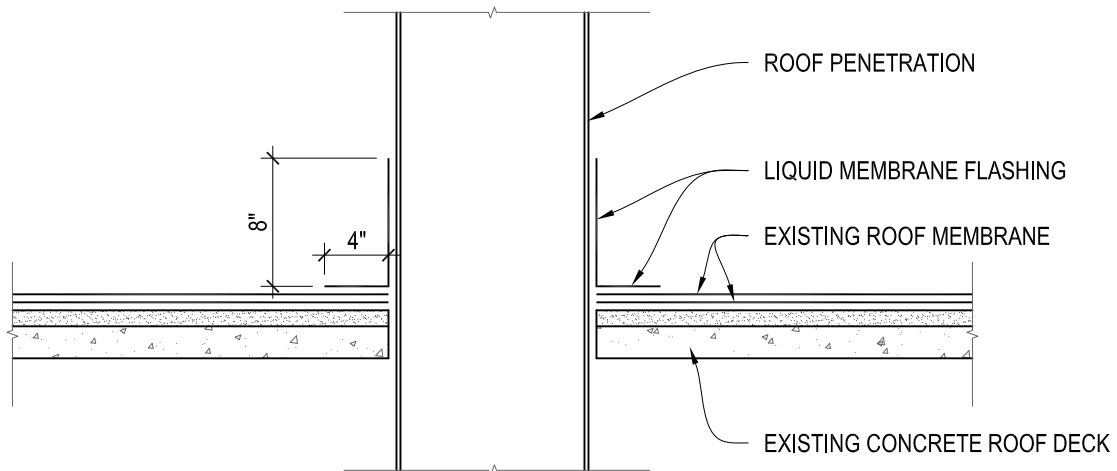
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PHASE:	ADDENDUM

TITLE:  
 PARTIAL ELEVATION  
 SHEET:  
**ASK-02**



**2** ROOF PENETRATION DETAIL  
 ASK-03 SCALE: 1" = 1'-0"



**1** ROOF PENETRATION DETAIL  
 ASK-03 SCALE: 1" = 1'-0"



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TITLE: ROOF DETAILS  
 SHEET: ASK-03



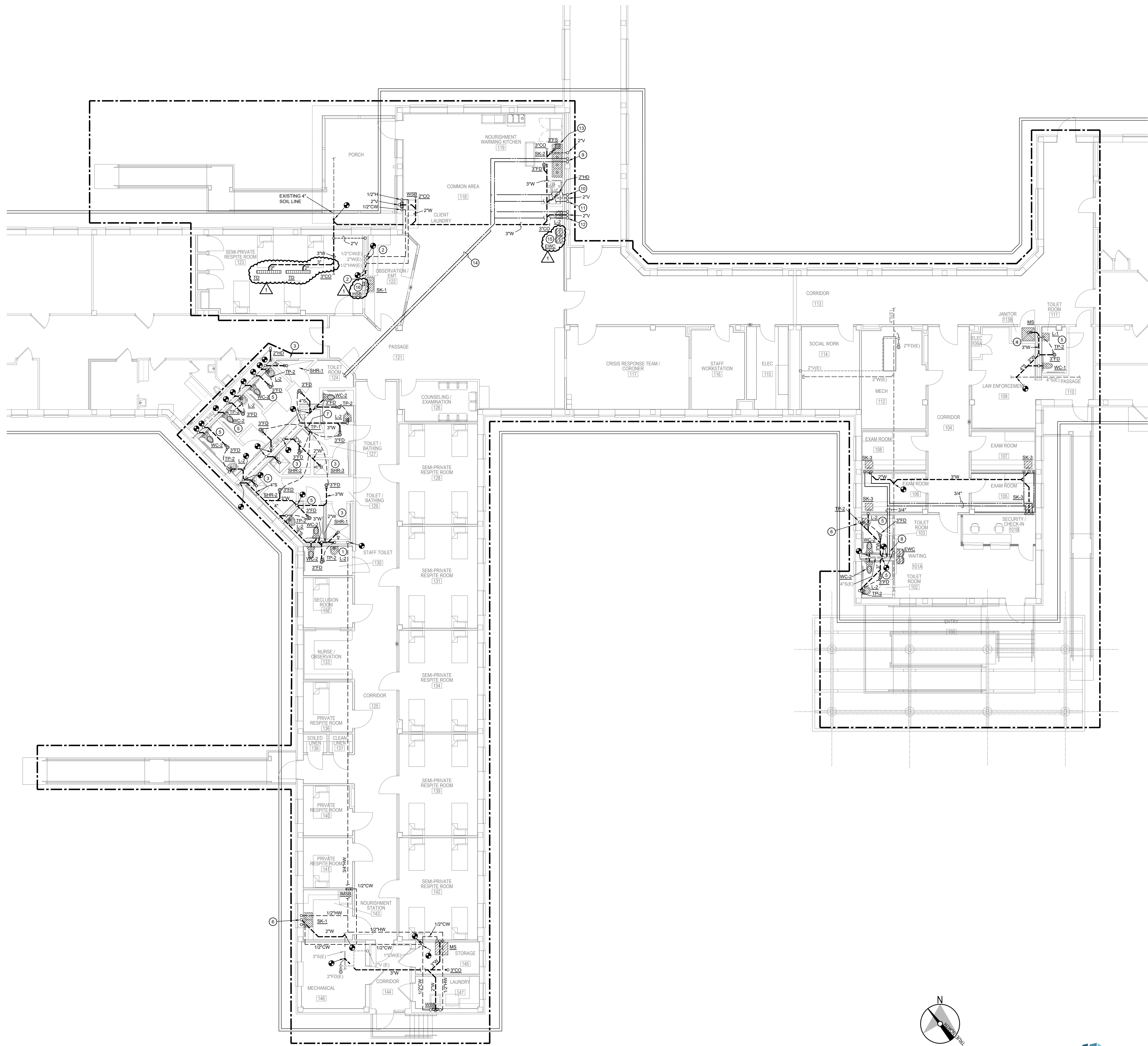
**GENERAL NOTE:**

1. ALL EXISTING INFORMATION ON DRAWINGS (LIGHT TEXT ETC) TAKEN FROM EXISTING DRAWINGS. CONTRACTOR TO VERIFY EXACT LOCATIONS BEFORE PROCEEDING WITH WORK AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
2. SCOPE OF WORK TO ALSO INCLUDE REMOVAL OF EXISTING STEAM TO DOMESTIC HOT WATER HEAT EXCHANGER LOCATED IN BUILDING E.
3. ALL SANITARY, WASTE, CW, AND HOT WATER LINES ROUTED IN CRAWLSPACE. EXTEND NEW VENT LINES THROUGH EXISTING SLAB AND CONNECT TO EXISTING NEARBY VENT HEADER.
4. FOR INDIVIDUAL WASTE AND VENT SIZES. RE: 2M1.01 FOR PLUMBING FIXTURE SCHEDULE UNLESS NOTED OTHERWISE.
5. REMOVE STRAINERS AND CLEAN ALL EXISTING FLOOR DRAINS. RE-ESTABLISH FLOW AS REQUIRED.
6. NEW WATER CLOSETS ARE WALL HUNG TYPE (MATCHING PREVIOUS STYLE). CONTRACTOR TO REMOVE EXISTING CHASE WALLS SUFFICIENTLY TO REMOVE EXISTING CARRIERS, INSTALL NEW CARRIERS, WASTE, VENT AND DOMESTIC WATER LINES. CONNECT/ADJUST EXISTING ROUGH-INS.

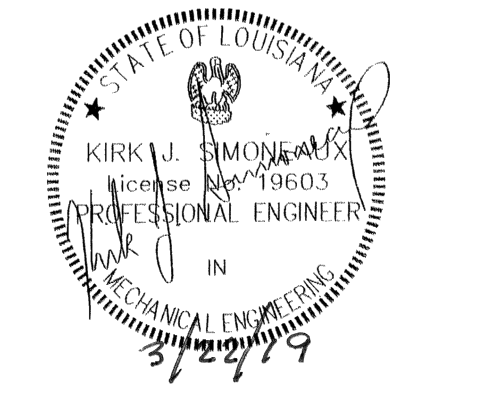
**KEYNOTES:**

1. CONNECT NEW 3/4" HW TO EXISTING HW LINE IN CRAWLSPACE.
2. CONNECT NEW SINK UTILITIES (2" W, 1/2" CW, 1/2" HW) TO DEMOLISHED SINK UTILITIES. WORK AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
3. CONNECT NEW SHOWER TO EXISTING NEARBY UTILITIES. RE: 2M1.01 FOR UTILITY REQUIREMENT AND SIZE.
4. CONNECT NEW MOP SINK TO EXISTING NEARBY UTILITIES. RE: 2M1.01 FOR UTILITY REQUIREMENT AND SIZE.
5. CONNECT NEW WATER CLOSET, LAVATORY AND FLOOR DRAIN TO EXISTING NEARBY UTILITIES. RE: 2M1.01 FOR UTILITY REQUIREMENT AND SIZE.
6. OFFSET NEW PLUMBING IN WALL AS REQUIRED TO AVOID WINDOW ABOVE.
7. INSTALL TWO EACH NEW TP-1. CONNECT TO NEAREST SOURCE OF 1/2" CW. PROVIDE 1/2" VALVE TO ISOLATE EACH TP-1.
8. ROUTE NEW 3/4" CW FROM EXISTING CHASE (CONNECT TO EXISTING CWH LINES IN CHASE) TO NEW SK-FS AS SHOWN. ROUTE NEW 3/4" HW TO CRAWL SPACE BELOW CHASE AND CONNECT TO NEAREST EXISTING 3/4" H.
9. 3/4" CW AND HW UP TO SK-1 TRM. CONNECT.
10. 3/4" HW UP. ROUTE 3/4" HW TO DISHWASHER AND CONNECT. ROUTE DRAIN FROM DISHWASHER TO 2" HD AND CONNECT.
11. ROUTE 1/2" CW TO ICEMAKER SERVICE BOX (MSB) AND CONNECT.
12. ROUTE 1/2" CW, 1/2" HW, 2" W AND 2" V TO L-2 AND CONNECT.
13. PROVIDE UNDERCOUNTER GREASE INTERCEPTOR ON FLOOR UNDER SK-2. ROUTE DRAIN FROM SK-2 TO GREASE INTERCEPTOR. ROUTE DISCHARGE FROM GREASE INTERCEPTOR TO 3" FS AND TERMINATE WITH 2" AIR GAP. GREASE INTERCEPTOR TO BE LOW PROFILE HYDROMECHANICAL CSA AND PEX CERTIFIED TO FIT ON FLOOR BELOW TRIPLE COMPARTMENT SINK. GREEN TURTLE RC-35LP, 35 GPM FLOW, 75 LBS GREASE CAPACITY.
14. ROUTE 1" CW AND 1" HW IN CRAWL SPACE FROM EXISTING CWH LINES SERVICING TOILET ROOMS. VERIFY EXACT CONNECTION POINT IN FIELD) TO NEW FIXTURES. CONNECT AS SHOWN.
15. CONNECT NEW HW TO NEW L-2 ROUGH-INS BELOW SLAB.
16. PROVIDE NEW 1/2" GAUGE STAINLESS STEEL RECESSED HOSE AND SUPPLY BOX. HSB COMPLETE WITH TEMPERATURE GAUGE, H&C SUPPLY CONNECTIONS, CYLINDER LOCK WITH KEY, DIVERTER VALVE, HOSE CONNECTION, VACUUM BREAKER, AND CONTROL VALVE. ACCORRN MODEL R210 OR APPROVED EQUAL. CONNECT 1/2" H AND 1/2" C TO SK-1 ROUGH-INS.

2 PLUMBING LEGEND					
M1.01					
PLUMBING FIXTURE SCHEDULE					
SYMBOL	DESCRIPTION	CW	H	WASTE	VENT
WC	WATER CLOSET (FLUSH VALVE)	1"	---	4"	3"
L	LAVATORY	1/2"	1/2"	2"	1-1/2"
SHR	SHOWER STALL	1/2"	1/2"	2"	1-1/2"
SK	SINK	1/2"	1/2"	2"	1-1/2"
MSB	ICE MAKER SERVICE BOX	1/2"	---	---	---
WSB	WASHER SERVICE BOX	1/2"	1/2"	1-1/2"	2"
3" FD	3" FLOOR DRAIN	---	---	3"	1-1/2"
EWC	ELECTRIC WATER COOLER	1/2"	---	2"	1-1/2"
MS	MOP SINK	1/2"	2"	3"	1-1/2"
2" HD	2" HUB DRAIN	---	---	2"	1-1/2"
3" FS	FLOOR SINK	---	---	3"	2"
TD	TRENCH DRAIN	---	---	3"	1-1/2"
WATER PIPE SIZING TABLE					
UNLESS SHOWN OTHERWISE, DOMESTIC WATER LINES SHALL RUN CONCEALED OVERHEAD AS DESIGNATED IN PLUMBING FIXTURE SCHEDULE & BE SIZED ACCORDING TO TABLE BELOW. PLANS & RISERS DO NOT NECESSARILY SHOW ALL PIPING RUNS. INSTALL A FACTORY WATER HAMMER ARRESTOR AT TOP OF EACH FIXTURE GROUP AND AT WATER HEATER.					
NUMBER OF FIXTURES *	PIPE SIZE (IPS)				
2 OR LESS	1/2"				
3 TO 5	3/4"				
6 TO 10	1"				
11 TO 15	1-1/4"				
16 TO 28	1-1/2"				
* FLUSH VALVE WATER CLOSET IS EQUIVALENT TO 6 FIXTURES					



1 PARTIAL PLUMBING FLOOR PLAN  
M1.01 SCALE: 1/8" = 1'-0"



**SAFE HAVEN RENOVATIONS QUAD A**  
ST. TAMMANY PARISH  
23515 HWY 190, MANDEVILLE, LA 70448

DATE ISSUED:	25 MARCH 2019
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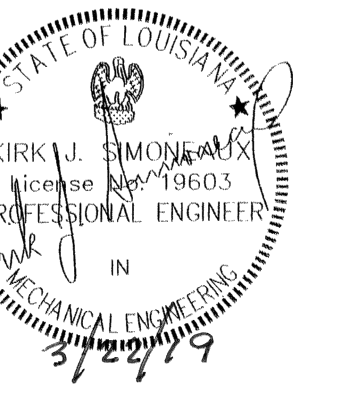
**CONSTRUCTION DOCUMENTS**

16091

TITLE:  
PARTIAL PLUMBING FLOOR PLAN

SHEET:  
**M1.01**





DATE ISSUED:	25 MARCH 2019
REVISED:	6 MAY 2019
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PHASE:	CONSTRUCTION DOCUMENTS

16091

TITLE:  
PARTIAL PLUMBING FLOOR PLANS

SHEET:

M1.02

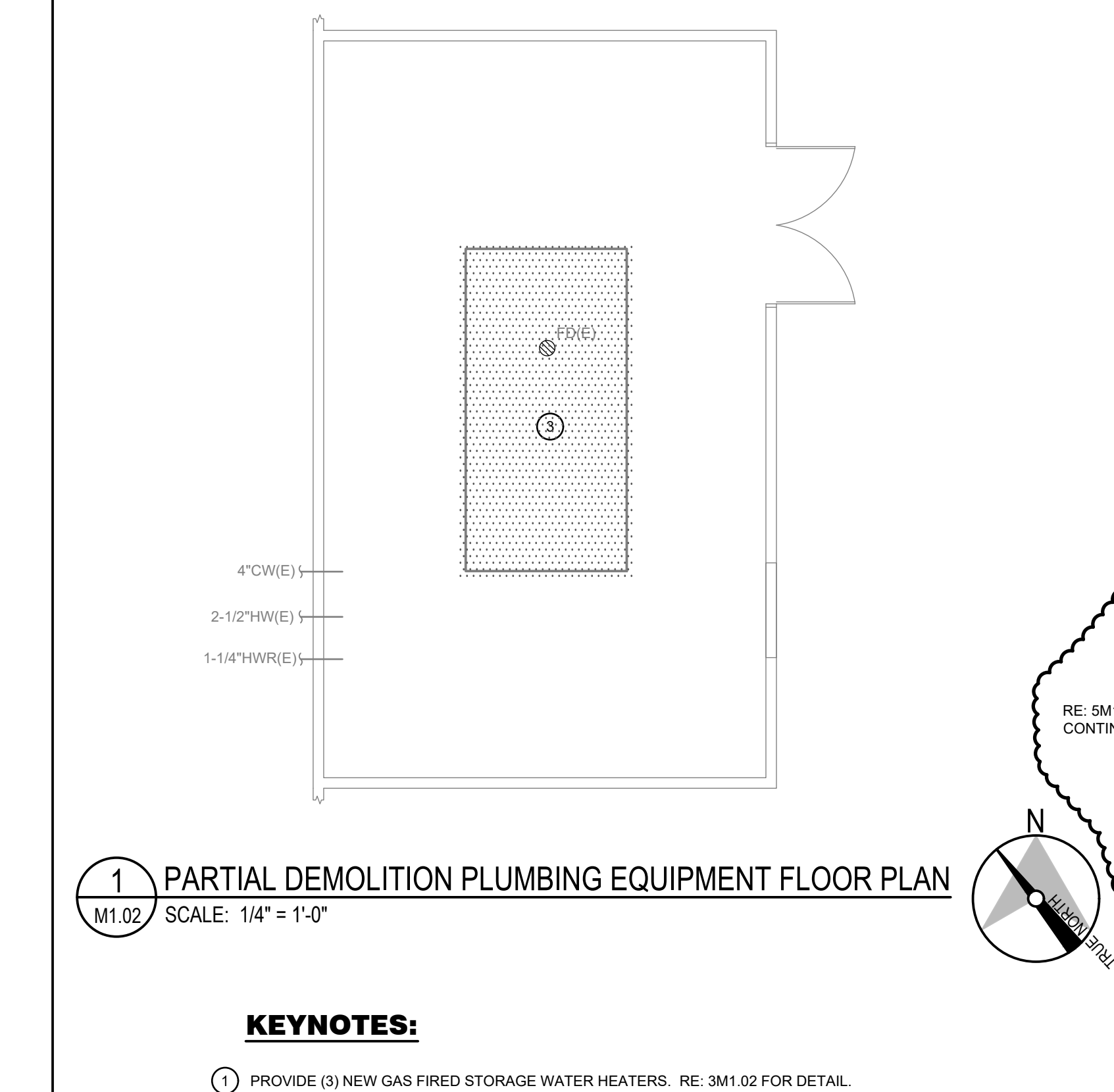
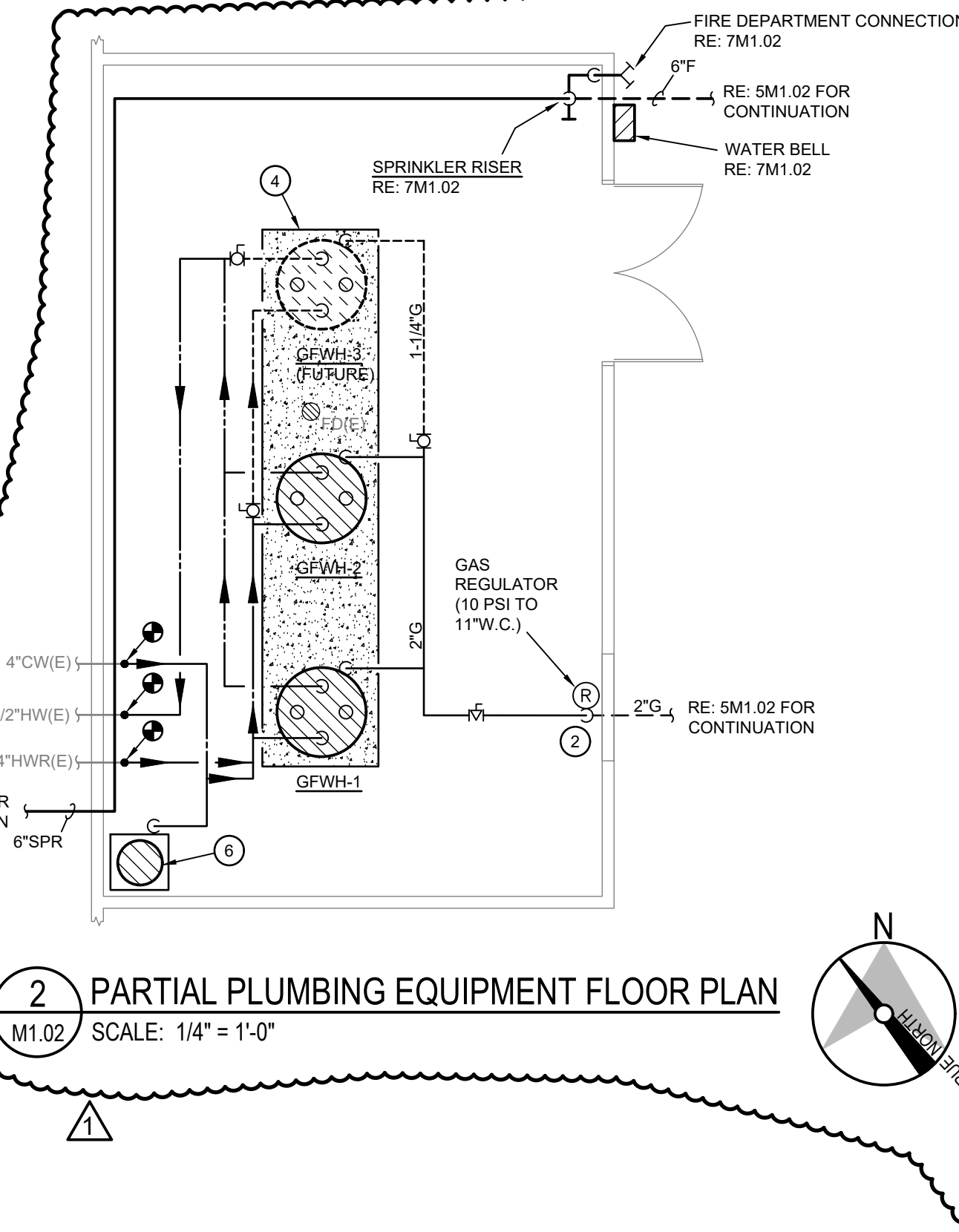
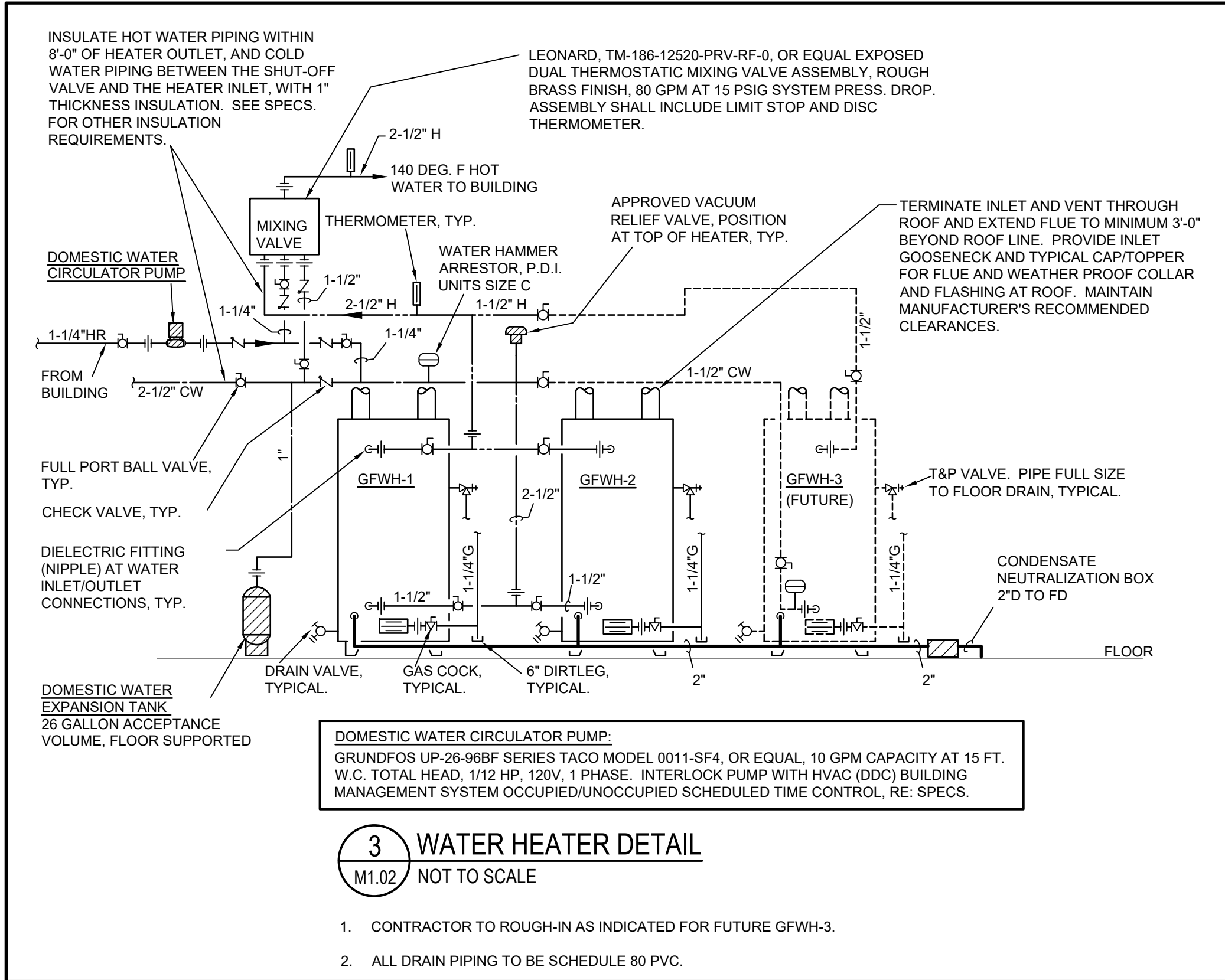
**4 WATER HEATERS, GAS-FIRED, CONDENSING**

**WATER HEATERS, GAS-FIRED CONDENSING**

DESIGNATION	STORAGE GALLONS	RECOVERY AT 100°F RISE GPH	BTUH INPUT A.G.A.	MIN. VENT DIA. INCHES	REMARKS
GFWH-1	120	582	500,000	4"	(1)
GFWH-2	120	582	500,000	4"	(1)

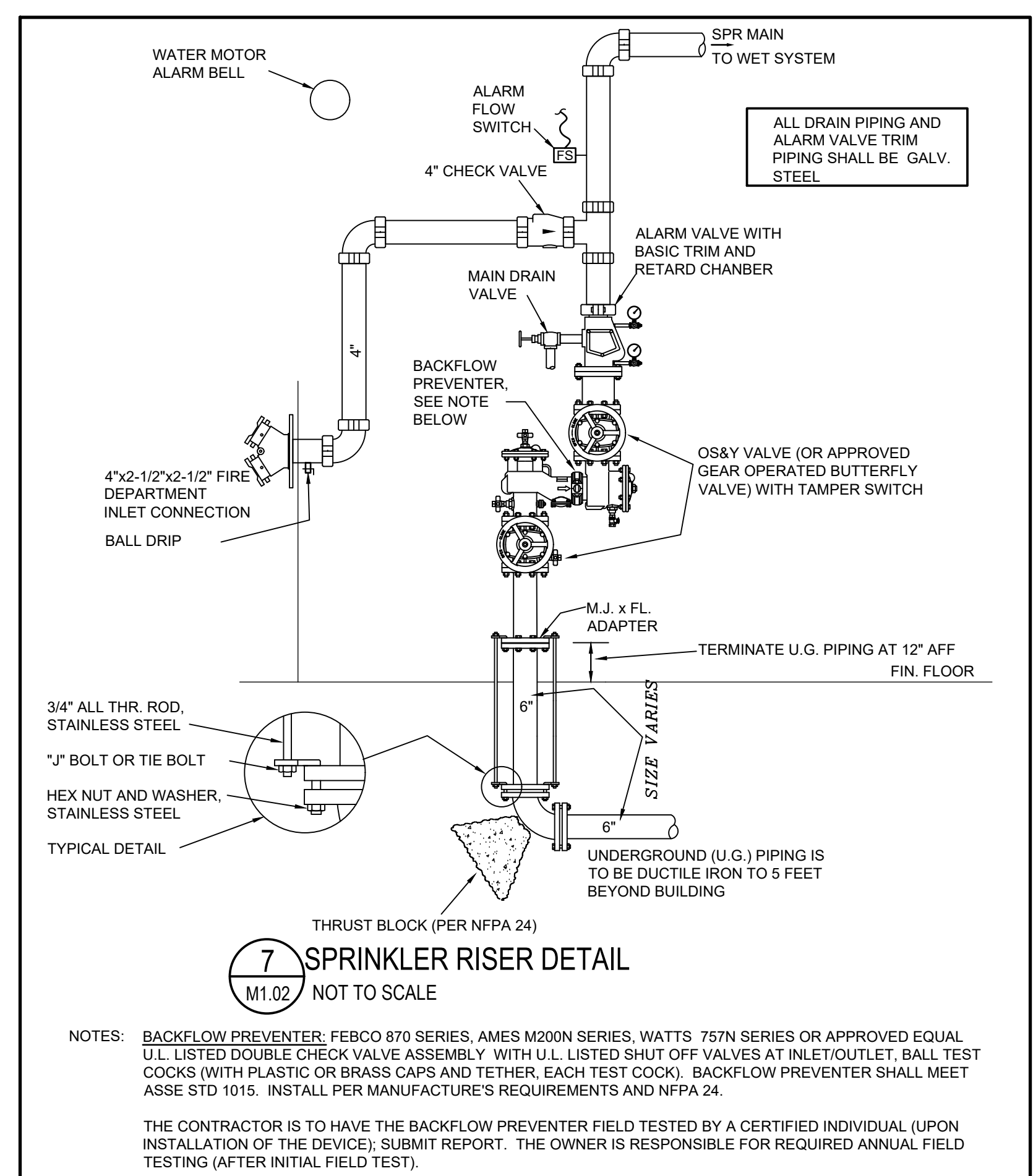
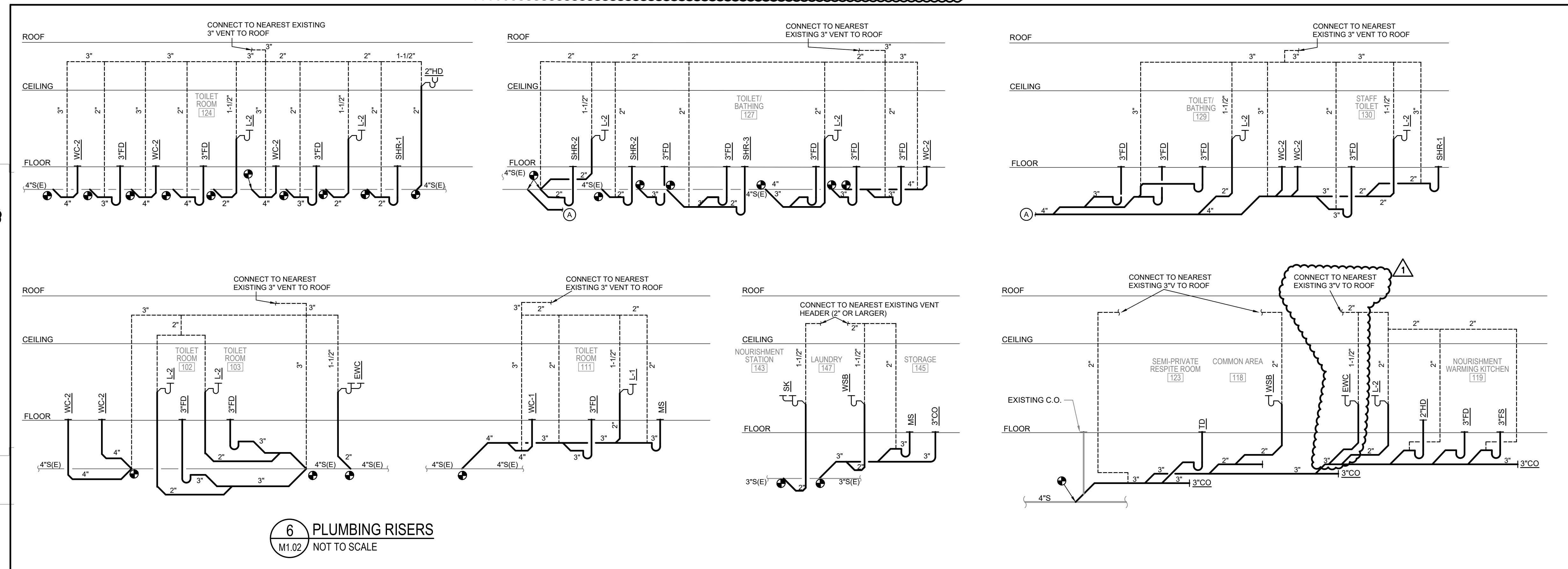
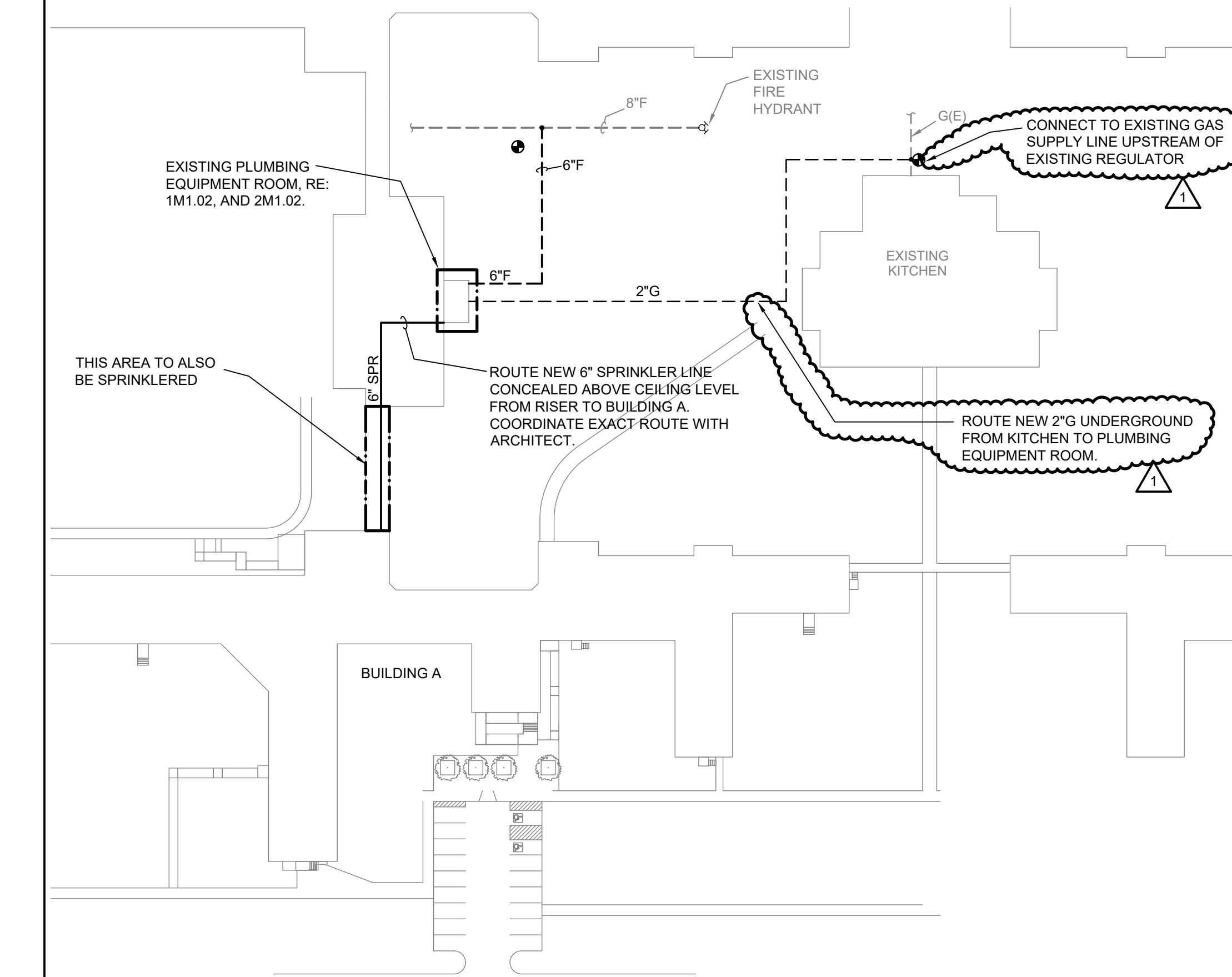
NOTE:

(1) REFER TO SPECIFICATIONS. PROVIDE CONDENSATE NEUTRALIZATION KIT.



**KEYNOTES:**

- PROVIDE (3) NEW GAS FIRED STORAGE WATER HEATERS. RE: 3M1.02 FOR DETAIL.
- ROUTE GAS LINE UNDERGROUND FROM KITCHEN AREA TO EQUIPMENT ROOM. RE: 5M1.02.
- REMOVE EXISTING 1000 GALLON HOT WATER STORAGE TANK. REMOVE ALL EXISTING STEAM UTILITIES WITHIN THE EQUIPMENT ROOM. CAP STEAM UTILITIES AT BUILDING ENTRANCE.
- PROVIDE NEW 4" THICK HOUSEKEEPING PAD.
- EXISTING FLOOR DRAIN TO REMAIN. RE: 2M1.02 FOR ADDITIONAL WORK.
- DOMESTIC WATER EXPANSION TANK. RE: 3M1.02 FOR SIZE.





**1 PANELBOARD SCHEDULE**  
E4.01

DESCRIPTION	CONDUCTORS/ CONDUIT	TRIP AMP	POLE NO	PH	NO	POLE AMP	CONDUIT	DESCRIPTION
REFRIGERATOR	2#12, 1#12G	20	1	A	2	1	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	3	B	4	20	RECEPTACLES
COFFEE MACHINE	2#12, 1#12G	20	1	5	C	8	20	RECEPTACLES
SPARE	2#12, 1#12G	20	1	9	B	10	20	SPARE
RECEPTACLES	2#12, 1#12G	20	1	11	C	12	20	RECEPTACLES
SPARE	2#12, 1#12G	20	1	13	A	14	20	SPARE
RECEPTACLES	2#12, 1#12G	20	1	15	B	16	20	RECEPTACLES
FIRE ALARM PANEL	2#12, 1#12G	20	1	17	C	18	20	LIGHTS
RECEPTACLES	2#12, 1#12G	20	1	19	A	20	20	RECEPTACLES
LIGHTS	2#12, 1#12G	20	1	21	B	22	20	LIGHTS
LIGHTS	2#10, 1#12G, 3/4"	20	1	23	C	24	20	LIGHTS
LIGHTS	2#12, 1#12G	20	1	25	A	26	20	SPARE
SPARE	2#12, 1#12G	20	1	27	B	28	20	SPARE
SPARE	2#12, 1#12G	20	1	29	C	30	20	SPARE
SPARE	2#12, 1#12G	20	1	31	A	32	20	SPARE
FC-1	2#4, 1#6G, 1"	70	2	33	B	34	1	SPARE
SPARE	2#12, 1#12G	20	1	35	C	36	20	SPARE
SPARE	2#12, 1#12G	20	1	37	A	38	20	SPARE
SPARE	2#12, 1#12G	20	1	39	B	40	20	SPARE
SPARE	2#12, 1#12G	20	1	41	C	42	20	SPARE
SPARE	2#12, 1#12G	20	1	43	A	44	20	SPARE
SPARE	2#12, 1#12G	20	1	45	B	46	20	SPARE
SPARE	2#12, 1#12G	20	1	47	C	48	20	SPARE
SPARE	2#12, 1#12G	20	1	49	A	50	20	SPARE
SPARE	2#12, 1#12G	20	1	51	B	52	20	SPARE
SPARE	2#12, 1#12G	20	1	53	C	54	20	SPARE
SPARE	2#12, 1#12G	20	1	55	A	56	20	SPARE
SPARE	2#12, 1#12G	20	1	57	B	58	20	SPARE
SPARE	2#12, 1#12G	20	1	59	C	60	20	SPARE
SPARE	2#12, 1#12G	20	1	61	A	62	20	SPARE
SPARE	2#12, 1#12G	20	1	63	B	64	20	SPARE
SPARE	2#12, 1#12G	20	1	65	C	66	20	SPARE
SPARE	2#12, 1#12G	20	1	67	A	68	20	SPARE
SPARE	2#12, 1#12G	20	1	69	B	70	20	SPARE
SPARE	2#12, 1#12G	20	1	71	C	72	20	SPARE
SPARE	2#12, 1#12G	20	1	73	A	74	20	SPARE
SPARE	2#12, 1#12G	20	1	75	B	76	20	SPARE
SPARE	2#12, 1#12G	20	1	77	C	78	20	SPARE
SPARE	2#12, 1#12G	20	1	79	A	80	3	SPARE
SPARE	2#12, 1#12G	20	1	81	B	82	20	SPARE
SPARE	2#12, 1#12G	20	1	83	C	84	20	SPARE

\*PROVIDE GROUND FAULT CIRCUIT BREAKER

DESCRIPTION	CONDUCTORS/ CONDUIT	TRIP AMP	POLE NO	PH	NO	POLE AMP	CONDUIT	DESCRIPTION
RECEPTACLES	2#12, 1#12G	20	1	A	2	1	20	RECEPTACLES
COFFEE MACHINE	2#12, 1#12G	20	1	3	B	4	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	5	C	8	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	7	A	8	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	9	B	10	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	11	C	12	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	13	A	14	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	15	B	16	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	17	C	18	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	19	A	20	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	21	B	22	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	23	C	24	20	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	25	A	26	20	RECEPTACLES
RECEPTACLES	2#10, 1#10G, 1/2"	30	1	25	A	26	1	RECEPTACLES
RECEPTACLES	2#12, 1#12G	20	1	27	B	28	20	RECEPTACLES
REACH IN FREEZER	2#12, 1#12G	20	1	29	C	30	1	SINK POWER SUPPLY
DISH WASHER	2#12, 1#12G	20	1	31	A	32	1	SPARE
MOTORIZED DAMPERS	2#12, 1#12G	20	1	33	B	34	1	SPARE
SPARE	2#12, 1#12G	20	1	35	C	36	1	SPARE
SPARE	2#12, 1#12G	20	1	37	A	38	1	SPARE
SPARE	2#12, 1#12G	20	1	39	B	40	1	SPARE
SPARE	2#12, 1#12G	20	1	41	C	42	1	SPARE
SPARE	2#12, 1#12G	20	1	43	A	44	1	SPARE
SPARE	2#12, 1#12G	20	1	45	B	46	1	SPARE
SPARE	2#12, 1#12G	20	1	47	C	48	1	SPARE
SPARE	2#12, 1#12G	20	1	49	A	50	1	SPARE
SPARE	2#12, 1#12G	20	1	51	B	52	1	SPARE
SPARE	2#12, 1#12G	20	1	53	C	54	1	SPARE
SPARE	2#12, 1#12G	20	1	55	A	56	1	SPARE
SPARE	2#12, 1#12G	20	1	57	B	58	1	SPARE
SPARE	2#12, 1#12G	20	1	59	C	60	1	SPARE
SPARE	2#12, 1#12G	20	1	61	A	62	1	SPARE
SPARE	2#12, 1#12G	20	1	63	B	64	2	SPARE
SPARE	2#12, 1#12G	20	1	65	C	66	2	SPARE
SPARE	2#12, 1#12G	20	1	67	A	68	2	SPARE
SPARE	2#12, 1#12G	20	1	69	B	70	2	SPARE
SPARE	2#12, 1#12G	20	1	71	C	72	2	SPARE
SPARE	2#12, 1#12G	20	1	73	A	74	2	SPARE
SPARE	2#12, 1#12G	20	1	75	B	76	2	SPARE
SPARE	2#12, 1#12G	20	1	77	C	78	2	SPARE
SPARE	2#12, 1#12G	20	1	79	A	80	3	SPARE
SPARE	2#12, 1#12G	20	1	81	B	82	20	SPARE
SPARE	2#12, 1#12G	20	1	83	C	84	20	SPARE

PANEL NOTE:  
FOR ANY EXISTING CIRCUIT WHICH IS TO REMAIN ACTIVE (IT HAS BEEN CALLED OUT TO REUSE THE EXISTING CIRCUIT, EQUIPMENT, OR THE CIRCUIT SERVES OTHER AREAS) USE A SPARE BREAKER TO DO THIS AND CONNECT THE EXISTING CIRCUIT TO THE NEW BREAKER. IF THE CIRCUIT IS OF A SIZE OR PHASE OTHER THAN THOSE AVAILABLE IN THE PANELS AS SPARES, PROVIDE A NEW BREAKER OF THE APPROPRIATE SIZE AND PHASE IN THE NEW PANEL AND CONNECT THE EXISTING CIRCUIT TO THE NEW BREAKER.

**2 LIGHTING FIXTURE SCHEDULE**  
E4.01

A	MANUF/NUMBER: LUMINAIRE/CM13-0CC-35-120-277-A-1-WHITE MANUF/NUMBER: KENALL/CD-4-21-45L35K-DCC-DV-1/G-1 MANUF/NUMBER: ADVANTAGE/BAL-4-35-SL-125C/125P-B16-EDD1-M-W VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 50 WATTS - 50 TYPE - LED, 4100 LUMENS, 3500K COLOR	ES	MANUF/NUMBER: FAL-SAFFEXL-7-RW MANUF/NUMBER: KENALL/MMXK-0-RDT-1.2 MANUF/NUMBER: MULE LIGHTING/PRX-1-R-C VOLTAGE: 120/277 FINISH: WHITE WITH RED LETTERS LAMP: QUANTITY - 2 WATTS - 2 TYPE - LED	J	MANUF/NUMBER: CSUS/RD-CFL-30-S-40-80-50-1-1-1N-LNL MANUF/NUMBER: GOTHAM/EVO-CYL-40-40-6BR-WD-LD-MVOLT-EZ10-FCM VOLTAGE: 120/277 FINISH: BLACK LAMP: QUANTITY - 40 WATTS - 40 TYPE - LED, 3500 LUMENS, 4000K
REMARKS:	7-1/2" HEIGHT x 7-1/2" DEPTH x 4-0" LONG ABUSE RESISTANT CORNER MOUNTED LUMINAIRE. LUMINAIRE HOUSING SHALL BE ONE PIECE, STEEL CONSTRUCTION. LUMINAIRE SHALL BE SECURED BY TAMPER RESISTANT STAINLESS STEEL SCREWS.	REMARKS:	HEAVY DUTY VANDAL RESISTANT SINGLE OR DOUBLE FACE EXIT FIXTURE WITH SELF-CONTAINED NICKEL CADMIUM BATTERY PACK MOUNTED INTERNALLY. PROVIDE FACE(S) AND ARROW(S) AS SHOWN ON DRAWINGS. CONNECT TO AREA LIGHTING BRANCH CIRCUIT AHEAD OF ANY LOCAL SWITCHING WITH 3#12 CONDUCTORS IN CONDUIT. INSTALL/CONNECT FIXTURE SUCH THAT WIRING INSIDE OF FIXTURE DOES NOT OBSTRUCT OR CAST SHADOWS ON WORDING/LETTERS. TOOLED TO REQUIRE ALTERN HEAD FASTENING.	REMARKS:	6" SURFACE MOUNTED LED CYLINDER LIGHT. MOUNT FIXTURE TO THE UNDERSIDE OF THE AWNING AND RUN CONDUIT ALONG THE SURFACE PAINTED TO MATCH THE BOTTOM OF THE AWNING. FIXTURE SHALL BE WET LOCATION LISTED. COORDINATE WITH ARCHITECT PRIOR TO PURCHASE.
AE	MANUF/NUMBER: LUMINAIRE/CM13-0CC-35-120-277-A-1-WHITE-EMB310 MANUF/NUMBER: KENALL/CD-4-21-45L35K-DCC-DV-1/G-1-L-LEL MANUF/NUMBER: ADVANTAGE/BAL-4-35-SL-125C/125P-B16-EDD1-M-W-12EBL VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 50 WATTS - 50 TYPE - LED, 4100 LUMENS, 3500K COLOR	EM	MANUF/NUMBER: SURE-LITES/CCWH MANUF/NUMBER: EMERGH-LITE/ECM18-2(ZD) MANUF/NUMBER: LITHONIA/ELM2 MANUF/NUMBER: MULE LIGHTING/SQ-LED-WHL VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 2 WATTS - 2 TYPE - LED	K	MANUF/NUMBER: LUMINAIRE/SPC1224-40W-40F-4000K-UNV-CC-BRZ MANUF/NUMBER: ZENITH/ZENL48-3-120-94-40K MANUF/NUMBER: CGF DESIGNAL-25-ADA-40W-CT4-UNV-REM16W100-BZ VOLTAGE: 120 FINISH: BRONZE LAMP: QUANTITY - 40 WATTS - 40 TYPE - LED, 4000 LUMENS, 4000K COLOR
REMARKS:	7-1/2" HEIGHT x 7-1/2" DEPTH x 4-0" LONG ABUSE RESISTANT CORNER MOUNTED LUMINAIRE. LUMINAIRE HOUSING SHALL BE ONE PIECE, STEEL CONSTRUCTION. LUMINAIRE SHALL BE SECURED BY TAMPER RESISTANT STAINLESS STEEL SCREWS. FIXTURE SHALL COME WITH EMERGENCY BATTERY BACKUP.	REMARKS:	WALL MOUNTED WET LOCATION LISTED FIXTURE WITH MOLDED FACEPLATE AND HIGH IMPACT LENS. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE WITH BATTERY BACKUP.	REMARKS:	WALL MOUNTED WET LOCATION LISTED FIXTURE WITH IP 66 RATING.
B1	MANUF/NUMBER: KURTZON/VL-S-ZDC-1-2x4-1LEDR-835-UNV-1-5 MANUF/NUMBER: KENALL/SSD-4-1/1-67L35K-DCC-DV-1/G-1 MANUF/NUMBER: ADVANTAGE/BAF-4-35-ML-B16-B16-125P-125C-MEDD1 VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 68 WATTS - 68 TYPE - LED, 7,000 LUMENS, 3500K	F	MANUF/NUMBER: METALUX/24GR-FA-L5-48-F1-UNV-EL14W-L835-CD1-SK-24-W5 MANUF/NUMBER: LITHONIA/ZLX4-48L-FW-A12-EZ1-LP835 MANUF/NUMBER: ADVANTAGE/LSMF4-35-ML-FWA-M VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 40 WATTS - 40 TYPE - LED, 4,800 LUMENS, 3500K COLOR	L	MANUF/NUMBER: LUMARK/LDWP-GL-68-ED-7040 MANUF/NUMBER: LITHONIA/P1-40L/MVOLT-0D87XD MANUF/NUMBER: NZMIN2M105F-1268-U-4K-2 VOLTAGE: 120/277 FINISH: BRONZE LAMP: QUANTITY - 48 WATTS - 48 TYPE - LED, 5,800 LUMENS, 4000K COLOR
REMARKS:	2-0" x 4-0" ABUSE RESISTANT SURFACE MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE ONE PIECE, HOLE FREE, STEEL CONSTRUCTION. LUMINAIRE SHALL BE SECURED BY TAMPER RESISTANT STAINLESS STEEL SCREWS. LUMINAIRE SHALL HAVE A 0-10V DIMMING DRIVER. FIXTURE SHALL BE LIGATURE RESISTANT.	REMARKS:	2-0" x 4-0" SURFACE MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE STEEL CONSTRUCTION. LUMINAIRE SHALL HAVE A #12 PATTERN ACRYLIC LENS. LUMINAIRE SHALL HAVE A DOOR ACCESS THAT ALLOWS THE DRIVER TO BE ACCESSIBLE FROM BELOW.	REMARKS:	WALL MOUNTED WET LOCATION LISTED FIXTURE WITH IP 66 RATING.
B1E	MANUF/NUMBER: KURTZON/VL-S-ZDC-1-2x4-1LEDR-835-UNV-1-EM10 MANUF/NUMBER: ADVANTAGE/BAF-4-35-ML-B16-B16-125P-125C-MEDD1-12EBL VOLTAGE: 120 FINISH: WHITE LAMP: QUANTITY - 77 WATTS - 77 TYPE - LED, 7,300 LUMENS, 3500K COLOR	FE	MANUF/NUMBER: METALUX/24GR-FA-L5-48-F1-UNV-EL14W-L835-CD1-SK-24-W5 MANUF/NUMBER: LITHONIA/ZLX4-48L-FW-A12-EZ1-LP835-EL14L MANUF/NUMBER: ADVANTAGE/LSMF4-35-ML-FWA-M-12EBL VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 40 WATTS - 40 TYPE - LED, 4,800 LUMENS, 3500K COLOR	UC	MANUF/NUMBER: HALORH10-D-9-35-P MANUF/NUMBER: LITHONIA/UCEL-35K-90-SWR-WH MANUF/NUMBER: ADVANTAGE/AUTO-35K VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 22 WATTS - 22 TYPE - LED, 330 LUMENS PER FOOT, 3500K COLOR
REMARKS:	2-0" x 4-0" ABUSE RESISTANT SURFACE MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE ONE PIECE, HOLE FREE, STEEL CONSTRUCTION. LUMINAIRE SHALL BE SECURED BY TAMPER RESISTANT STAINLESS STEEL SCREWS. LUMINAIRE SHALL HAVE A 0-10V DIMMING DRIVER. FIXTURE SHALL BE LIGATURE RESISTANT. FIXTURE SHALL COME WITH EMERGENCY BATTERY BACKUP.	REMARKS:	2-0" x 4-0" SURFACE MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE STEEL CONSTRUCTION. LUMINAIRE SHALL HAVE A #12 PATTERN ACRYLIC LENS. LUMINAIRE SHALL HAVE A DOOR ACCESS THAT ALLOWS THE DRIVER TO BE ACCESSIBLE FROM BELOW. FIXTURE SHALL COME WITH EMERGENCY BATTERY BACKUP.	REMARKS:	LED UNDERCABINET LIGHT. PROVIDE IN 2 FOOT LENGTH FOR UC, AND 4-LENGTH FOR UC2.
B2	MANUF/NUMBER: KURTZON/VL-S-ZDC-1-2x4-1LEDR-835-UNV-1-5 MANUF/NUMBER: KENALL/SSD-4-1/1-67L35K-DCC-DV-1/G-1 MANUF/NUMBER: ADVANTAGE/BAF-4-35-ML-B16-B16-125P-125C-MEDD1 VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 68 WATTS - 68 TYPE - LED, 7,000 LUMENS, 3500K	G	MANUF/NUMBER: METALUX/24GR-LDS-38-F1-UNV-L835-CD1 MANUF/NUMBER: LITHONIA/ZL4-40L-EZ1-LP835 MANUF/NUMBER: ADVANTAGE/LSMF4-35-ML-FWA-M VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 30 WATTS - 30 TYPE - LED, 3,500 LUMENS, 3500K		
REMARKS:	2-0" x 4-0" ABUSE RESISTANT SURFACE MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE ONE PIECE, HOLE FREE, STEEL CONSTRUCTION. LUMINAIRE SHALL BE SECURED BY TAMPER RESISTANT STAINLESS STEEL SCREWS. LUMINAIRE SHALL HAVE A 0-10V DIMMING DRIVER. FIXTURE SHALL BE LIGATURE RESISTANT.	REMARKS:	2-0" x 4-0" GRID MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE STEEL CONSTRUCTION. LUMINAIRE SHALL HAVE A #12 PATTERN ACRYLIC LENS.		
B2E	MANUF/NUMBER: KURTZON/VL-S-ZDC-1-2x4-1LEDR-835-UNV-1-EM10 MANUF/NUMBER: ADVANTAGE/BAF-4-35-ML-B16-B16-125P-125C-MEDD1-12EBL VOLTAGE: 120 FINISH: WHITE LAMP: QUANTITY - 77 WATTS - 77 TYPE - LED, 7,300 LUMENS, 3500K COLOR	H1	MANUF/NUMBER: KURTZON/VL-R-7-2X4-1LEDR-835-UNV-1-5 MANUF/NUMBER: KENALL/RMCD-4-TG-1/1-67L35K-DCC-DV-1/G-1 MANUF/NUMBER: ADVANTAGE/BAC4-35-ML-G-816-B16-125P-125C-MEDD1-PH VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 70 WATTS - 70 TYPE - LED, 7,200 LUMENS, 3500K COLOR		
REMARKS:	2-0" x 4-0" ABUSE RESISTANT SURFACE MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE ONE PIECE, HOLE FREE, STEEL CONSTRUCTION. LUMINAIRE SHALL BE SECURED BY TAMPER RESISTANT STAINLESS STEEL SCREWS. LUMINAIRE SHALL HAVE A 0-10V DIMMING DRIVER. FIXTURE SHALL BE LIGATURE RESISTANT.	REMARKS:	2-0" x 4-0" GRID MOUNTED TROFFER. LUMINAIRE HOUSING SHALL BE ONE PIECE, HOLE FREE, STEEL CONSTRUCTION. LUMINAIRE SHALL BE SECURED BY TAMPER RESISTANT STAINLESS STEEL SCREWS. LUMINAIRE SHALL HAVE A 0-10V DIMMING DRIVER.		
C	MANUF/NUMBER: METALUX/4SLSTP4035DD-UNV MANUF/NUMBER: LITHONIA/ZL1D-148-3000LM-FST-MVOLT-35K-80CRI-WH MANUF/NUMBER: ADVANTAGE/LSLP-4-35-SL-M-L-P-S VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 41 WATTS - 41 TYPE - LED, 4,500 LUMENS, 3500K COLOR	H1E	MANUF/NUMBER: KURTZON/VL-R-7-2X4-1LEDR-835-UNV-1-5-EM10 MANUF/NUMBER: KENALL/RMCD-4-TG-1/1-67L35K-DCC-DV-1/G-1-L-LEL MANUF/NUMBER: ADVANTAGE/BAC4-35-ML-G-816-B16-125P-125C-MEDD1-PH-12EBL VOLTAGE: 120/277 FINISH: WHITE LAMP: QUANTITY - 70 WATTS - 70 TYPE - LED, 7,200 LUMENS, 3500K COLOR		
REMARKS:	2-1/4" WIDE x 3" DEEP x 4-0" LONG STRIP				





## ST. TAMMANY PARISH

PATRICIA P. BRISTER  
PARISH PRESIDENT

**April 25, 2019**

Please find the following addendum to the below mentioned BID.

**Addendum No.:** 1  
**Bid#:** 327-00-18-50-2  
**Project Name:** Safe Haven Renovations Quad A  
**Bid Due Date:** May 10, 2019

### **GENERAL INFORMATION:**

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1. The Mandatory Pre-Bid Conference was held at the project site on April 25, 2019 at 10:00 AM. Questions from pre-bid meeting and official responses are listed in the Questions and Answers section of this addendum. The Pre-Bid Minutes and Sign-In sheet are attached.
2. At Section 10 – Technical Specifications, **ADD** the attached Section 08 33 13 – Coiling Counter Doors.
3. At Section 10 – Technical Specifications, Section 07 27 26 – Fluid-Applied Membrane Air Barriers, Part 2.3 A.1.a. **ADD** “5) W. R. Meadows, Inc; AIR-SHIELD LMP.”
4. The project site will be open for site visits by bidders on April 30, May 1, May 2, and May 6, 2019 from 9:00am – 1:00pm.

### **QUESTIONS & ANSWERS:**

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**Question #1:** Per the insurance requirements, Pollution Liability and Environmental Liability is required as well as Contractor’s Professional Liability/Errors and Omissions insurance is required when work performed by Contractor or on behalf of Contractor includes professional or technical services including, but not limited to, construction administration and/or management, engineering services such as design, surveying, and/or inspection, technical services such as testing and laboratory analysis, and/or environmental assessments. While this project does require several of the services described, the sub-contractors that perform the services carry the policies themselves. Are the contractors required to purchase these policies in addition to the policies that the sub-contractors who perform the services have? Please note that the policies aren’t sold on a per project basis, meaning that a full years coverage would have to be purchased.



## ST. TAMMANY PARISH

PATRICIA P. BRISTER  
PARISH PRESIDENT

**Answer #1:** The Parish does not have a Contract with the Contractor's subcontractors, and the Additional Insured and Waiver of Subrogation on a policy requires that it be required by Contract. So the main Contractor is responsible for purchasing all the coverages required. This is necessary and is a requirement for all of the Parish's Contractors regardless with whom the Contractor subcontracts.

**Question #2:** The table of contents lists a specification section titled Coiling Counter Doors yet no section for coiling counter doors is included in the specifications. Are there coiling counter doors required for this project?

**Answer #2:** Yes. Please refer to Section 10 – Technical Specifications, Section 08 33 13 – Coiling Counter Doors (attached).

**Question #3:** We would like to request that our AIR-SHIELD LMP please be reviewed as a permeable air barrier material here.

**Answer #3:** Yes. Please refer to Addendum No. 1, General Information #3. By approving this product, it does not waive any requirements of the technical specifications.

**Question #4:** Are the existing interior doors being replaced? What about the frames?

**Answer #4:** Please refer to Section 11 – Drawings, including, but not limited to Demo Floor Plan General Notes #3 on sheet A1.01, and Plan General Notes #1 on sheet A1.02, as well as Section 10 – Technical Specifications.

### ATTACHMENTS:

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1. Pre-Bid Minutes
2. Pre-Bid Sign-In Sheet
3. Section 10 – Technical Specifications, Section 08 33 13 – Coiling Counter Doors.

<< End of Addendum # 1 >>



April 25, 2019

**MANDATORY PRE-BID CONFERENCE MINUTES**

**Safe Haven Renovations Quad A**

**St. Tammany Parish**

**23515 Highway 190**

**Mandeville, LA 70448**

**VRA Project No. 16091**

1. Sign-in on sheets provided.
2. The door to the building where the mandatory pre-bid meeting was held was closed at 10:00am.
3. Bruce Crouch (STP) gave introductions of client and design team.
4. Michelle Richard (VRA) gave the summary of work.
5. Valerie Talley (STP) explained bidding procedures.
  - a. All questions and approved equal requests shall be submitted in writing to the Procurement Department ([purchasing@stpgov.org](mailto:purchasing@stpgov.org)). Do not send requests to the design team.
  - b. The last day to submit inquiries is by 2pm, 7 working days prior to the bid opening.
  - c. The last addendum will be issued no later than 72 hours prior to the bid opening.
  - d. Anything heard or discussed in this meeting is only applicable as addressed by addendum.
  - e. Bid documents are available from the Procurement Department or from Bid Express.
  - f. Plan Holders should check the Parish website and Bid Express for addenda.
  - g. Bruce stated for any questions received after the deadline, a response is not required, but may be addressed by addendum.
  - h. Contract completion time is 180 calendar days.
6. The project site will be open for site visits by bidders on April 30, May 1, May 2, and May 6, 2019 from 9:00am-1:00pm.
7. Bruce Crouch stated there is scope of work in the Central Plant and "doghouse" between buildings A and D.
8. Kirk Simoneaux (AST) stated the base bid includes testing of ductwork. Acceptance of the alternate will depend on the results of testing the ductwork.
9. Valerie Talley stated the estimate is \$2,100,000.
10. Bruce Crouch stated that attendees shall verify their contact information is correct on the pre-bid sign in sheet. This sign-in sheet will be issued by addendum.
11. Valerie Talley stated that all questions shall be submitted in writing to the Procurement Department ([purchasing@stpgov.org](mailto:purchasing@stpgov.org)).
12. The meeting was adjourned. Bidders were allowed to tour the project site.

**VergesRome Architects, APAC**

A handwritten signature in blue ink that reads "Michelle E. Richard, AIA". The signature is written in a cursive style.

Michelle E. Richard, AIA

cc: Ms. Valerie Talley  
Office File

Advocise 4-10, 17, 24

Prebid - 4-25 @ 10:00 AM

~~Last Day For Bidding 5-01-19~~

Bid Opening - 5-10-19 @ 2pm

Day, Month, Date  
Time

Pre-Bid Sign-In Sheet

Bid # 327-00-18-50-2 Safe Haven Rnoevations Quad A

Thursday, April 25, 2019 10:00am

	Name	Company	Email	Phone	Time In	Time Out
1	Bruce Crouch	STP Gov	Bruce@stpgov.org	985-898-8792	9:35	10:19
2	Joel Dixon	Dixon contracting group	joel@dixoncontractinggroupllc.com	601-569-9453	9:36	10:17
3	MIKE BERKOWITZ	SMITH CONSTRUCTION	mike@smithcc.net	985-882-2426	9:40	10:15
4	Eric Dehart	Gibbs Construction	bid@gibbsconstruction.com	504-733-4356	9:46	10:16
5	Ben Maxwell	Gibbs	"	"	9:47	10:16
6	Brandon Schaefer	CM Combos Construction	bschaefer@cmcombosconstruction.com	285-867-4960	9:47	10:19
7	Jerry Bui	M Metal Contractor	reception@mmetal.com	985-244-2223	9:48	10:15
8	Eric Penlar	Dynastar Builders Inc	cp@dynastarsystems.com	905-710-3777	9:50	10:15
9	MATTHEW	Gottfried Contr.	mthzren@gottfried-us.com	985-893-5773	9:50	10:33
10	Gordon Gottfried	Gottfried Contracting	gordon@gottfried-us.com	(985)893-3773	9:50	10:33
11	David Brown	Zimmer-Eschette Service ABATEMENT - DEMO	DAVID@ZESERVICESLLC.COM	985-222-6241	9:50	10:17

KURT

NOTE: Door to Building, where mandatory Pre-Bid was held, was closed at 10:00 AM.



	Name	Company	Email	Phone	Time In	Time Out
12	Kirk Simonetti	AST ENGINEERS	ast@astengineers.us	225-926-5600	9:52	10:15
13	Rebecca Gaspard	Terracon	Rebecca.gaspard@terracon.com	504 321 9382	9:52	10:14
14	HAROLD MONTREUIL	VRA	harold@vergostrame.com	504-488-7739	9:53	10:19
15	MICHELLE RICHARD	VRA	michelle@vergostrame.com	985-624-9000	"	10:19
16	DANNY STAN	McMATH Const	danny@mcmathconstruction.com		9:54	10:15
17	Bill Wallace	Gill Ind. (Asbestos)	bill@gillindustriesllc.com	225-413 7107	"	10:17
18	Tim Reedy	Hernandez Consulting	bid@hernandezconsulting.com	504-305-8571	9:57	10:14
19	Tracy Goldman	BEI General Contractors	tgoldman@belge.com	5042529666	9:58	10:14
20	Calerie Talle	STPG	umtalle@stpg.org	878-252	9:58	10:15
21	Lee Ritter	RCE	lee.ritter@rceconsulting.com	337-984-8485	9:59	10:18
22	Steven Latais	Terracon	Steven.Latais@terracon.com	3187873269	9:45	10:14
23	EDDIE BLOSSOM	GLOBAL CONTRACTING	eblossman@hellsouth.net	(601) 7953401	9:50	10:15
24	Steele McDaniel	Steele R Development LLC	Steele@S-red.com	945 234-0621	9:58	10:15
25	Bryan Jaeger	All-Temp	Rjaeger@McCGroup.com	(504) 382-8085	9:58	10:13

Carlos Pearce Trison Construction LLC carlosp@trisoninteriors.com (504) 503/453 9:59 10:19

Cline Mathies

St Tammy Group

Greg Richardson Trison Construction GRichardson@McCGroup.com 504-503-1373 9:58 10:13

## SECTION 08 33 13 - COILING COUNTER DOORS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Fire-rated counter doors, as indicated on the drawings.
- B. Related Requirements:
  - 1. Section 05 50 00 "Metal Fabrications" for door-opening framing and corner guards.
  - 2. Section 09 91 23 "Interior Painting" for finish painting of factory-primed doors.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type and size of coiling counter door and accessory.
  - 1. Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.
  - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.
  - 3. Include description of automatic closing device and testing and resetting instructions.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
  - 1. Include plans, elevations, sections, and mounting details.
  - 2. Include details of equipment assemblies, and indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.
  - 3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
  - 4. Show locations of controls, locking devices, detectors or replaceable fusible links, and other accessories.
  - 5. Include diagrams for power, signal, and control wiring.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For coiling counter doors to include in maintenance manuals.
- B. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.



## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.
- B. Fire-Rated Door Inspector Qualifications: Inspector for field quality control inspections of fire-rated door assemblies shall meet the qualifications set forth in NFPA 80, section 5.2.3.1 and the following:
  - 1. Door and Hardware Institute Fire and Egress Door Assembly Inspector (FDAI) certification.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain coiling counter doors from single source from single manufacturer.
  - 1. Obtain operators and controls from coiling counter door manufacturer.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Door Assemblies: Complying with NFPA 80; listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.
  - 1. Temperature-Rise Limit: Provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
  - 2. Smoke Control: Provide doors that are listed and labeled with the letter "S" on the fire-rating label by a qualified testing agency for smoke- and draft-control based on testing according to UL 1784; with maximum air-leakage rate of 3.0 cfm/sq. ft. (0.01524 cu. m/s x sq. m) of door opening at 0.10 inch wg (24.9 Pa) for both ambient and elevated temperature tests.

### 2.3 FIRE-RATED COUNTER DOOR ASSEMBLY

- A. Fire-Rated Counter Door: Overhead fire-rated coiling door formed with curtain of interlocking metal slats.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Cookson Company.
    - b. Overhead Door Corporation.
    - c. Raynor.
- B. Operation Cycles: Door components and operators capable of operating for not less than 20,000 cycles. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
- C. Fire Rating: 3/4 hour.
- D. Door Curtain Material: Factory painted aluminum.
- E. Door Curtain Slats: Flat profile slats of 1-1/4-inch (32-mm) center-to-center height.
- F. Curtain Jamb Guides: Galvanized steel with exposed painted finish matching curtain slats.

- G. Hood: Match curtain material and finish.
  - 1. Shape: Square.
  - 2. Mounting: Face of wall, and as indicated on drawings.
- H. Integral Frame, Hood, and Fascia: Shop painted aluminum.
  - 1. Mounting: Face of wall.
- I. Sill Configuration: No sill. Provide closure channel or method for complete fire rating.
- J. Manual Door Operator: Manufacturer's standard crank operator.
- K. Curtain Accessories: Equip door with smoke seals and automatic closing device.
- L. Door, Track, and Hood Finish:
  - 1. Baked-Enamel or Powder-Coated Finish: Color as selected by Architect from manufacturer's full range.

## 2.4 MATERIALS, GENERAL

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.5 DOOR CURTAIN MATERIALS AND CONSTRUCTION

- A. Door Curtains: Fabricate coiling counter door curtain of interlocking metal slats in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
  - 1. Aluminum Door Curtain Slats: ASTM B209 (ASTM B209M) sheet or ASTM B221 (ASTM B221M) extrusions, alloy and temper standard with manufacturer for type of use and finish indicated; thickness of 0.050 inch (1.27 mm); and as required.
  - 2. Metal Interior Curtain-Slat Facing: Match metal of exterior curtain-slat face.
- B. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

## 2.6 HOODS

- A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.
  - 1. Aluminum: 0.040-inch- (1.02-mm-) thick aluminum sheet complying with ASTM B209 (ASTM B209M), of alloy and temper recommended by manufacturer and finisher for type of use and finish indicated.
  - 2. Include automatic drop baffle on fire-rated doors to guard against passage of smoke or flame.
  - 3. Finish to match prefinished door slats.

## 2.7 CURTAIN ACCESSORIES

- A. Smoke Seals: Equip each fire-rated door with replaceable smoke-seal perimeter gaskets or brushes for smoke and draft control as required for door listing and labeling by a qualified testing agency.
- B. Poll Hooks: Provide pole hooks and poles for doors more than 84 inches (2130 mm) high.
- C. Automatic-Closing Device: Equip each fire-rated door with an automatic-closing device or holder-release mechanism and governor unit complying with NFPA 80 and an easily tested and reset release mechanism. Testing for manually operated doors shall allow resetting by opening the door without retensioning the counterbalance mechanism. Automatic-closing device shall be designed for activation by the following:
  - 1. Building fire-detection, smoke-detection, and -alarm systems.

## 2.8 COUNTERBALANCE MECHANISM

- A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.
- B. Counterbalance Barrel: Fabricate spring barrel of manufacturer's standard hot-formed, structural-quality, seamless or welded carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03 in./ft. (2.5 mm/m) of span under full load.
- C. Counterbalance Spring: One or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Secure ends of springs to barrel and shaft with cast-steel barrel plugs.
  - 1. Fire-Rated Doors: Equip with auxiliary counterbalance spring and prevent tension release from main counterbalance spring when automatic closing device operates.
- D. Torsion Rod for Counterbalance Shaft: Fabricate of manufacturer's standard cold-rolled steel, sized to hold fixed spring ends and carry torsional load.
- E. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

## 2.9 MANUAL DOOR OPERATORS

- A. General: Equip door with manual door operator by door manufacturer.
- B. Crank Operator: Consisting of crank and crank gearbox, steel crank drive shaft, and gear-reduction unit, of type indicated. Size gears to require not more than 25-lbf (111-N) force to turn crank. Fabricate gearbox to be oiltight and to completely enclose operating mechanism. Provide manufacturer's standard crank-locking device.

## 2.10 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.11 ALUMINUM AND STEEL FINISHES

- A. Baked-Enamel or Powder-Coat Finish: AAMA 2603. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Examine locations of electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install coiling counter doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- B. Install coiling counter doors, hoods, controls, and operators at the mounting locations indicated for each door.
- C. Fire-Rated Doors: Install according to NFPA 80.

### 3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and to furnish reports to Architect.
- B. Perform the following tests and inspections[ with the assistance of a factory-authorized service representative]:
  - 1. Test door release, closing, and alarm operations when activated by smoke detector or building's fire-alarm system. Test manual operation of closed door. Reset door-closing mechanism after successful test.
  - 2. Fire-Rated Door Inspections: Inspect each fire-rated door in accordance with NFPA 80, section 5.2.
- C. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- D. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
- E. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80 and NFPA 101.

### 3.4 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
  - 1. Complete installation and startup checks according to manufacturer's written instructions.

2. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

### 3.5 ADJUSTING

- A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
- B. Lubricate bearings and sliding parts as recommended by manufacturer.
- C. Adjust seals to provide tight fit around entire perimeter.

### 3.6 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of coiling-door Installer. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
  1. Perform maintenance, including emergency callback service, during normal working hours.

### 3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain coiling counter doors.

END OF SECTION 08 33 13