



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
DNRB12095

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER 304-558-2316

RFQ COPY
 TYPE NAME/ADDRESS HERE

VENDOR

SHIP TO

DIVISION OF NATURAL RESOURCES
 PARKS & RECREATION SECTION
 324 4TH AVENUE
 SOUTH CHARLESTON, WV
 25303-1228 304-558-3397

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
01/26/2012				

BID OPENING DATE: 02/14/2012 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
***** ADDENDUM NO. 2 *****						
THIS ADDENDUM IS ISSUED TO:						
1.) PROVIDE ADDITIONS TO THE BIDDING DOCUMENTS,						
2.) PROVIDE ANSWERS TO TECHNICAL QUESTIONS						
3.) PROVIDE REVISED DRAWINGS						
**REVISED DRAWINGS ARE AVAILABLE BY VISITING						
HTTP://WWW.FILESANYWHERE.COM/FS/V.ASPX?V=8A6E67895E647						
A970A0. THEY ARE NOT CONTAINED IN HARD COPY FORMAT						
IN THIS DOCUMENT.						
4.) EXTEND THE BID OPENING DATE						
BID OPENING DATE IS EXTENDED TO: 02/14/2012						
BID OPENING TIME REMAINS: 1:30 PM						
***** END ADDENDUM NO. 2 *****						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
5. Payment may only be made after the delivery and acceptance of goods or services.
6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.html and is hereby made part of the agreement provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

1.2 DEFINITIONS

- A. Protection Zone: Area surrounding individual trees to be protected during construction, and indicated on Drawings defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each type of organic mulch in sealed plastic bags labeled with composition of materials by percentage of weight, protection-zone fencing, and protection-zone signage].
- C. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
- D. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- E. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- F. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

1.4 QUALITY ASSURANCE

- A. Arborist Qualifications: Certified Arborist as certified by ISA, licensed arborist in jurisdiction where Project is located, current member of ASCA, or registered Consulting Arborist as designated by ASCA.
- B. Preinstallation Conference: Conduct conference at Canaan Valley Resort State Park.

1.5 PROJECT CONDITIONS

- A. The following practices are prohibited within protection zones:
 1. Storage of construction materials, debris, or excavated material.

2. Parking vehicles or equipment.
 3. Foot traffic.
 4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil: Natural or cultivated top layer of the soil profile or manufactured topsoil; containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch (25 mm)] in diameter; and free of weeds, roots, and toxic and other nonsoil materials.
- B. Topsoil: Contractor will provide topsoil.
- C. Organic Mulch: Shredded hardwood, free from deleterious materials.
- D. Protection-Zone Fencing: Fencing fixed in position and meeting one of the following requirements.
1. Chain-Link Protection-Zone Fencing: Galvanized-steel fencing fabricated from minimum 2-inch (50-mm) opening, 0.148-inch- (3.76-mm-) diameter wire chain-link fabric; with pipe posts, minimum 2-3/8-inch- (60-mm-) OD line posts, and 2-7/8-inch- (73-mm-) OD corner and pull posts; with 1-5/8-inch- (42-mm-) OD top rails and 0.177-inch- (4.5-mm-) diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.
 2. Plywood Protection-Zone Fencing: Plywood framed with four 2-by-4-inch (50-by-100-mm) rails, with 4-by-4-inch (100-by-100-mm) preservative-treated wood posts spaced not more than 8 feet (2.4 m) apart.
 3. Wood Protection-Zone Fencing: Constructed of two 2-by-4-inch (50-by-100-mm) horizontal rails, with 4-by-4-inch (100-by-100-mm) preservative-treated wood posts spaced not more than 8 feet (2.4 m) apart, and lower rail set halfway between top rail and ground.
 4. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch (50-mm) maximum opening in pattern and supported by tubular or T-shape galvanized-steel posts spaced not more than 8 feet (2.4 m) apart. High-visibility orange color, nonfading.
 5. Height of Fencing: 6 feet (1.8 m) or 8 feet (2.4 m).
 6. Gates: Swing access gates matching material and appearance of fencing, to allow for maintenance activities within protection zones.
- E. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Protection Zones: Mulch areas inside protection zones and other areas indicated with 4-inch (100-mm) to 6-inch (150-mm) average thickness of organic mulch. Do not place mulch within 1 foot of tree trunks.

3.2 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones in a manner that will prevent people from easily entering protected area except by entrance gates.
 - 1. Chain-Link Fencing: Install to comply with ASTM F 567 and with manufacturer's written instructions.
 - 2. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Architect.
 - 3. Access Gates: Install as needed.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect.
- C. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.
- D. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete and equipment has been removed from the site.

3.3 EXCAVATION

- A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Division 31 Section "Earth Moving."
- B. Trenching near Trees: Where utility trenches are required within protection zones, hand excavate under or around tree roots or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.
- C. Do not allow exposed roots to dry out before placing permanent backfill.

3.4 ROOT PRUNING

- A. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. Temporarily support and protect roots from damage until they are permanently covered with soil.
3. Cover exposed roots with burlap and water regularly.
4. Backfill as soon as possible according to requirements in Division 31 Section "Earth Moving."

B. Root Pruning at Edge of Protection Zone: Prune roots by cleanly cutting all roots to the depth of the required excavation.

C. Root Pruning within Protection Zone: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

3.5 CROWN PRUNING

A. Prune branches that are affected by temporary and permanent construction. Prune branches as follows:

1. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
2. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
3. Cut branches with sharp pruning instruments; do not break or chop.
4. Do not apply pruning paint to wounds.

B. Chip removed branches and stockpile in areas approved by Architect.

3.6 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

C. Minor Fill within Protection Zone: Where existing grade is 2 inches (50 mm) or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.7 FIELD QUALITY CONTROL

A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.8 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

1. Have arborist perform the root cutting, branch pruning, and damage repair of trees and shrubs.
2. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
3. Perform repairs within 24 hours.

4. Replace vegetation that cannot be repaired and restored to full-growth status, as determined by Architect.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 015639

SECTION 22 1113 - FACILITY WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes water-distribution piping and related components outside the building for combined water service and fire-service mains.
- B. Utility-furnished products include water meters that will be furnished to the site, ready for installation.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Detail precast concrete vault assemblies and indicate dimensions, method of field assembly, and components.

1.3 INFORMATIONAL SUBMITTALS

- A. Field quality-control test reports.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.
 - 2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.
 - 3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- C. Comply with ASTM F 645 for selection, design, and installation of thermoplastic water piping.
- D. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.

E. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.

F. NSF Compliance:

1. Comply with NSF 14 for plastic potable-water-service piping. Include marking "NSF-pw" on piping.
2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of service.
2. Do not proceed with interruption of water-distribution service without Owner's written permission.

1.7 COORDINATION

A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. Soft Copper Tube: ASTM B 88, Type K and ASTM B 88, Type L, water tube, annealed temper.

1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.

B. Hard Copper Tube: ASTM B 88, Type K and ASTM B 88, Type L, water tube, drawn temper.

1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.

C. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.
- D. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated.
1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 2. Gaskets: AWWA C111, rubber.
- E. Grooved-Joint, Ductile-Iron Pipe: AWWA C151, with cut, rounded-grooved ends.
1. Grooved-End, Ductile-Iron Pipe Appurtenances:
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Anvil International, Inc.
 - 2) Victaulic Company of America.
- F. PE, Fire-Service Pipe: ASTM F 714, AWWA C906, or equivalent for PE water pipe; FMG approved, with minimum thickness equivalent to FMG Class 200.
1. Molded PE Fittings: ASTM D 3350, PE resin, socket- or butt-fusion type, made to match PE pipe dimensions and class.
- G. PVC, AWWA Pipe: AWWA C900, Class 200, with bell end with gasket, and with spigot end.
1. Comply with UL 1285 for fire-service mains if indicated.
 2. PVC Fabricated Fittings: AWWA C900, Class 200, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
 3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
 4. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - a. Gaskets: AWWA C111, rubber.
 5. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

2.2 JOINING MATERIALS

- A. Refer to Section 33 0500 "Common Work Results for Utilities" for commonly used joining materials.

- B. Brazing Filler Metals: AWS A5.8, BCuP Series.
- C. Bonding Adhesive for Fiberglass Piping: As recommended by fiberglass piping manufacturer.
- D. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

2.3 PIPING SPECIALTIES

- A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- B. Tubular-Sleeve Pipe Couplings:
 - 1. Description: Metal, bolted, sleeve-type, reducing or transition coupling, with center sleeve, gaskets, end rings, and bolt fasteners and with ends of same sizes as piping to be joined.
 - a. Standard: AWWA C219.

2.4 GATE VALVES

- A. AWWA, Cast-Iron Gate Valves:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 3. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:
 - a. American AVK Co.; Valves & Fittings Div.
 - b. American Cast Iron Pipe Co.; American Flow Control Div.
 - c. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
 - d. Crane Co.; Crane Valve Group; Stockham Div.
 - e. East Jordan Iron Works, Inc.
 - f. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - g. McWane, Inc.; Kennedy Valve Div.
 - h. McWane, Inc.; M & H Valve Company Div.
 - i. McWane, Inc.; Tyler Pipe Div.; Utilities Div.
 - j. Mueller Co.; Water Products Div.
 - k. NIBCO INC.
 - l. U.S. Pipe and Foundry Company.
 - 4. Nonrising-Stem, Metal-Seated Gate Valves:
 - a. Description: Gray- or ductile-iron body and bonnet; with cast-iron or bronze double-disc gate, bronze gate rings, bronze stem, and stem nut.

- 1) Standard: AWWA C500.
 - 2) Minimum Pressure Rating: 200 psig.
 - 3) End Connections: Mechanical joint.
 - 4) Interior Coating: Complying with AWWA C550.
5. Nonrising-Stem, Resilient-Seated Gate Valves:
- a. Description: Gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut.
 - 1) Standard: AWWA C509.
 - 2) Minimum Pressure Rating: 200 psig.
 - 3) End Connections: Mechanical joint.
 - 4) Interior Coating: Complying with AWWA C550.
6. Nonrising-Stem, High-Pressure, Resilient-Seated Gate Valves:
- a. Description: Ductile-iron body and bonnet; with bronze or ductile-iron gate, resilient seats, bronze stem, and stem nut.
 - 1) Standard: AWWA C509.
 - 2) Minimum Pressure Rating: 250 psig.
 - 3) End Connections: Push on or mechanical joint.
 - 4) Interior Coating: Complying with AWWA C550.
7. OS&Y, Rising-Stem, Metal-Seated Gate Valves:
- a. Description: Cast- or ductile-iron body and bonnet, with cast-iron double disc, bronze disc and seat rings, and bronze stem.
 - 1) Standard: AWWA C500.
 - 2) Minimum Pressure Rating: 200 psig.
 - 3) End Connections: Flanged.
8. OS&Y, Rising-Stem, Resilient-Seated Gate Valves:
- a. Description: Cast- or ductile-iron body and bonnet, with bronze or gray- or ductile-iron gate, resilient seats, and bronze stem.
 - 1) Standard: AWWA C509.
 - 2) Minimum Pressure Rating: 200 psig.
 - 3) End Connections: Flanged.
- B. UL/FMG, Cast-Iron Gate Valves:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

3. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:

- a. American Cast Iron Pipe Co.; American Flow Control Div.
- b. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
- c. Crane Co.; Crane Valve Group; Stockham Div.
- d. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).McWane, Inc.; Kennedy Valve Div.
- e. McWane, Inc.; M & H Valve Company Div.
- f. Mueller Co.; Water Products Div.
- g. NIBCO INC.
- h. U.S. Pipe and Foundry Company.

4. UL/FMG, Nonrising-Stem Gate Valves:

- a. Description: Iron body and bonnet with flange for indicator post, bronze seating material, and inside screw.
 - 1) Standards: UL 262 and FMG approved.
 - 2) Minimum Pressure Rating: 175 psig.
 - 3) End Connections: Flanged.

5. OS&Y, Rising-Stem Gate Valves:

- a. Description: Iron body and bonnet and bronze seating material.
 - 1) Standards: UL 262 and FMG approved.
 - 2) Minimum Pressure Rating: 175 psig.
 - 3) End Connections: Flanged.

C. Bronze Gate Valves:

- 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- 3. Basis-of-Design Product: Subject to compliance with requirements, provide or a comparable product by one of the following:
 - a. Crane Co.; Crane Valve Group; Crane Valves.
 - b. Crane Co.; Crane Valve Group; Jenkins Valves.
 - c. Crane Co.; Crane Valve Group; Stockham Div.
 - d. Hammond Valve.
 - e. Milwaukee Valve Company.
 - f. NIBCO INC.
 - g. Red-White Valve Corporation.

4. OS&Y, Rising-Stem Gate Valves:

- a. Description: Bronze body and bonnet and bronze stem.
 - 1) Standards: UL 262 and FMG approved.
 - 2) Minimum Pressure Rating: 175 psig.
 - 3) End Connections: Threaded.
- 5. Nonrising-Stem Gate Valves:
 - a. Description: Class 125, Type 1, bronze with solid wedge, threaded ends, and malleable-iron handwheel.
 - 1) Standard: MSS SP-80.

2.5 GATE VALVE ACCESSORIES AND SPECIALTIES

A. Tapping-Sleeve Assemblies:

- 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- 3. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:
 - a. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
 - b. East Jordan Iron Works, Inc.
 - c. Flowserve.
 - d. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - e. McWane, Inc.; Kennedy Valve Div.
 - f. McWane, Inc.; M & H Valve Company Div.
 - g. Mueller Co.; Water Products Div.
 - h. U.S. Pipe and Foundry Company.
- 4. Description: Sleeve and valve compatible with drilling machine.
 - a. Standard: MSS SP-60.
 - b. Tapping Sleeve: Cast- or ductile-iron or stainless-steel, two-piece bolted sleeve with flanged outlet for new branch connection. Include sleeve matching size and type of pipe material being tapped and with recessed flange for branch valve.
 - c. Valve: AWWA, cast-iron, nonrising-stem, resilient-seated gate valve with one raised face flange mating tapping-sleeve flange.

- B. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 inches in diameter.

1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.
- C. Indicator Posts: UL 789, FMG-approved, vertical-type, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of burial of valve.

2.6 CURB VALVES

A. Manufacturers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Amcast Industrial Corporation; Lee Brass Co.
 - b. Ford Meter Box Company, Inc. (The); Pipe Products Div.
 - c. Jones, James Company.
 - d. Master Meter, Inc.
 - e. McDonald, A. Y. Mfg. Co.
 - f. Mueller Co.; Water Products Div.
 - g. Red Hed Manufacturing & Supply.

B. Service-Saddle Assemblies: Comply with AWWA C800. Include saddle and valve compatible with tapping machine.

1. Service Saddle: Copper alloy with seal and AWWA C800, threaded outlet for corporation valve.
2. Corporation Valve: Bronze body and ground-key plug, with AWWA C800, threaded inlet and outlet matching service piping material.
3. Manifold: Copper fitting with two to four inlets as required, with ends matching corporation valves and outlet matching service piping material.

C. Curb Valves: Comply with AWWA C800. Include bronze body, ground-key plug or ball, and wide tee head, with inlet and outlet matching service piping material.

D. Service Boxes for Curb Valves: Similar to AWWA M44 requirements for cast-iron valve boxes. Include cast-iron telescoping top section of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over curb valve and with a barrel approximately 3 inches in diameter.

1. Shutoff Rods: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and slotted end matching curb valve.

2.7 CONCRETE VAULTS

- A. Description: Precast, reinforced-concrete vault, designed for A-16 load designation according to ASTM C 857 and made according to ASTM C 858.
1. Ladder: ASTM A 36/A 36M, steel or polyethylene-encased steel steps.
 2. Manhole: ASTM A 48/A 48M Class No. 35A minimum tensile strength, gray-iron traffic frame and cover.
 - a. Dimension: 24-inch minimum diameter, unless otherwise indicated.
 3. Manhole: ASTM A 536, Grade 60-40-18, ductile-iron traffic frame and cover.
 - a. Dimension: 24-inch- minimum diameter, unless otherwise indicated.
 4. Drain: ASME A112.6.3, cast-iron floor drain with outlet of size indicated. Include body anchor flange, light-duty cast-iron grate, bottom outlet, and integral or field-installed bronze ball or clapper-type backwater valve.

2.8 FIRE HYDRANTS

A. Dry-Barrel Fire Hydrants:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide or a comparable product by one of the following:
 - a. American AVK Co.; Valves & Fittings Div.
 - b. American Cast Iron Pipe Co.; American Flow Control Div.
 - c. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
 - d. American Foundry Group, Inc.
 - e. East Jordan Iron Works, Inc.
 - f. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - g. McWane, Inc.; Kennedy Valve Div.
 - h. McWane, Inc.; M & H Valve Company Div.
 - i. Mueller Co.; Water Products Div.
 - j. Troy Valve; a division of Penn-Troy Manufacturing, Inc.
 - k. U.S. Pipe and Foundry Company.
4. Description: Freestanding, with one NPS 4-1/2 and two NPS 2-1/2 outlets, 5-1/4-inch main valve, drain valve, and NPS 6 mechanical-joint inlet. Include interior coating according to AWWA C550. Hydrant shall have cast-iron body, compression-type valve opening against pressure and closing with pressure.
 - a. Standard: AWWA C502.

- b. Pressure Rating: 250 psig.
5. Description: Freestanding, with one NPS 4-1/2 and two NPS 2-1/2 outlets, 5-1/4-inch main valve, drain valve, and NPS 6 mechanical-joint inlet. Hydrant shall have cast-iron body, compression-type valve opening against pressure and closing with pressure.
- a. Standards: UL 246, FMG approved.
 - b. Pressure Rating: 250 psig.
 - c. Outlet Threads: NFPA 1963, with external hose thread used by local fire department. Include cast-iron caps with steel chains.
 - d. Operating and Cap Nuts: Pentagon, 1-1/2 inches point to flat.
 - e. Direction of Opening: Open hydrant valve by turning operating nut to left or counterclockwise.
 - f. Exterior Finish: Red alkyd-gloss enamel paint, unless otherwise indicated.

B. Wet-Barrel Fire Hydrants:

- 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- 3. Basis-of-Design Product: Subject to compliance with requirements, provide or a comparable product by one of the following:
 - a. American AVK Co.; Valves & Fittings Div.
 - b. Jones, James Company.
 - c. McWane, Inc.; Clow Valve Co. Div. (Corona).
 - d. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - e. Mueller Co.; Water Products Div.
- 4. Description: Freestanding, with one NPS 4-1/2 and two NPS 2-1/2 outlets, NPS 6 threaded or flanged inlet, and base section with NPS 6 mechanical-joint inlet. Include interior coating according to AWWA C550.
 - a. Standard: AWWA C503.
 - b. Pressure Rating: 150 psig minimum.
- 5. Description: Freestanding, with one NPS 4-1/2 and two NPS 2-1/2 outlets, NPS 6 threaded or flanged inlet, and base section with NPS 6 mechanical-joint inlet.
 - a. Standards: UL 246 and FMG approved.
 - b. Pressure Rating: 150 psig minimum.
 - c. Outlet Threads: NFPA 1963, with external hose thread used by local fire department. Include cast-iron caps with steel chains.
 - d. Operating and Cap Nuts: Pentagon, 1-1/2 inches point to flat.
 - e. Direction of Opening: Open hydrant valves by turning operating nut to left or counterclockwise.
 - f. Exterior Finish: Red alkyd-gloss enamel paint, unless otherwise indicated.

2.9 FIRE DEPARTMENT CONNECTIONS

A. Fire Department Connections:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide or a comparable product by one of the following:
 - a. Elkhart Brass Mfg. Co., Inc.
 - b. Fire End & Croker Corporation.
 - c. Guardian Fire Equipment, Inc.
 - d. Kidde Fire Fighting.
 - e. Potter Roemer.
 - f. Reliable Automatic Sprinkler Co., Inc.
4. Description: Freestanding, with cast-bronze body, thread inlets according to NFPA 1963 and matching local fire department hose threads, and threaded bottom outlet. Include lugged caps, gaskets, and chains; lugged swivel connection and drop clapper for each hose-connection inlet; 18-inch- high brass sleeve; and round escutcheon plate.
 - a. Standard: UL 405.
 - b. Connections: Two NPS 2-1/2 inlets and one NPS 4 outlet.
 - c. Connections: Three NPS 2-1/2 inlets and one NPS 6 outlet.
 - d. Connections: Six NPS 2-1/2 inlets and one NPS 6 outlet.
 - e. Inlet Alignment: Inline, horizontal.
 - f. Finish Including Sleeve: Polished bronze.
 - g. Escutcheon Plate Marking: "AUTO SPKR & STANDPIPE."

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Refer to Section 31 2000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

- A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.
- B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
- C. Do not use flanges or unions for underground piping.

- D. Flanges, unions, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.
- E. Underground water-service piping NPS 3/4 to NPS 3 shall be soft copper tube, ASTM B 88, Type K ASTM B 88, Type L; wrought-copper, solder-joint fittings; and brazed joints.
- F. Underground water-service piping NPS 4 and NPS 6 shall be the following:
 - 1. Ductile-iron, push-on-joint pipe; ductile-iron, push-on-joint fittings; and gasketed joints or
 - 2. NPS 4 and NPS 6: NPS 6 PVC, AWWA Class 150 pipe; PVC, AWWA Class 150 molded fittings; and gasketed joints.
- G. Aboveground and Vault Water-Service Piping NPS 3/4 to NPS 3 shall be hard copper tube, ASTM B 88, Type K ASTM B 88, Type L; wrought-copper, solder-joint fittings; and brazed joints.
- H. Aboveground and vault water-service piping NPS 4 and NPS 6 shall be the any of following:
 - 1. Hard copper tube, ASTM B 88, Type K ASTM B 88, Type L; wrought-copper, solder-joint fittings; and brazed joints.
 - 2. Ductile-iron, grooved-end pipe; ductile-iron, grooved-end appurtenances; and grooved joints.
- I. Underground Fire-Service-Main Piping NPS 4 to NPS 8 shall be any of the following:
 - 1. Ductile-iron, push-on-joint pipe; ductile-iron, push-on-joint fittings; and gasketed joints.
 - 2. PE, Class 200, fire-service pipe; molded PE fittings; and heat-fusion joints.
 - 3. PVC, AWWA Class 150 pipe listed for fire-protection service; PVC Class 150 fabricated or molded fittings; and gasketed joints.
 - 4. PVC, AWWA Class 200 pipe listed for fire-protection service; PVC Class 200 fabricated fittings; and gasketed joints.
- J. Aboveground and Vault Fire-Service-Main Piping NPS 4 to NPS 8 shall be ductile-iron, grooved-end pipe; ductile-iron-pipe appurtenances; and grooved joints.
- K. Underground Combined Water-Service and Fire-Service-Main Piping NPS 6 to NPS 10 shall be any of the following:
 - 1. Ductile-iron, push-on-joint pipe; ductile-iron, push-on-joint fittings; and gasketed joints.
 - 2. PVC, AWWA Class 200 pipe listed for fire-protection service; PVC fabricated or molded fittings of same class as pipe; and gasketed joints.
- L. Aboveground and Vault Combined Water Service and Fire-Service-Main Piping NPS 6 to NPS 10 shall be ductile-iron, grooved-end pipe; ductile-iron-pipe appurtenances; and grooved joints.

3.3 VALVE APPLICATIONS

- A. General Application: Use mechanical-joint-end valves for NPS 3 and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FMG,

nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 and smaller installation.

- B. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
1. Underground Valves, NPS 3 and Larger: AWWA, cast-iron, nonrising-stem, resilient-seated gate valves with valve box.
 2. Underground Valves, NPS 4 and Larger, for Indicator Posts: UL/FMG, cast-iron, nonrising-stem gate valves with indicator post.
 3. Use the following for valves in vaults and aboveground:
 - a. Gate Valves, NPS 2 and Smaller: Bronze, rising stem.
 - b. Gate Valves, NPS 3 and Larger: AWWA, cast iron, OS&Y rising stem, resilient seated.

3.4 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. See Section 33 0500 "Common Work Results for Utilities" for piping-system common requirements.

3.5 PIPING INSTALLATION

- A. Water-Main Connection: Arrange with utility company for tap of size and in location indicated in water main.
- B. Water-Main Connection: Tap water main according to requirements of water utility company and of size and in location indicated.
- C. Make connections larger than NPS 2 with tapping machine according to the following:
1. Install tapping sleeve and tapping valve according to MSS SP-60.
 2. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
 3. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.
 4. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.
- D. Make connections NPS 2 and smaller with drilling machine according to the following:
1. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
 2. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
 3. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
 4. Install corporation valves into service-saddle assemblies.
 5. Install manifold for multiple taps in water main.
 6. Install curb valve in water-service piping with head pointing up and with service box.

- E. Comply with NFPA 24 for fire-service-main piping materials and installation.
 - 1. Install copper tube and fittings according to CDA's "Copper Tube Handbook."
- F. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.
- G. Install PE pipe according to ASTM D 2774 and ASTM F 645.
- H. Install PVC, AWWA pipe according to ASTM F 645 and AWWA M23.
- I. Bury piping with depth of cover over top at least 42 inches, with top at least 12 inches below level of maximum frost penetration.
- J. Extend water-service piping and connect to water-supply source and building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.
 - 1. Terminate water-service piping at building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.
- K. Sleeves are specified in Section 22 0517 "Sleeves and Sleeve Seals for Plumbing Piping."
- L. Mechanical sleeve seals are specified in Section 22 0517 "Sleeves and Sleeve Seals for Plumbing Piping."
- M. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.6 JOINT CONSTRUCTION

- A. See Section 33 0500 "Common Work Results for Utilities" for basic piping joint construction.
- B. Make pipe joints according to the following:
 - 1. Ductile-Iron Piping, Gasketed Joints for Water-Service Piping: AWWA C600 and AWWA M41.
 - 2. Ductile-Iron Piping, Gasketed Joints for Fire-Service-Main Piping: UL 194.
 - 3. Ductile-Iron Piping, Grooved Joints: Cut-groove pipe. Assemble joints with grooved-end, ductile-iron-piping couplings, gaskets, lubricant, and bolts according to coupling manufacturer's written instructions.
 - 4. PE Piping Insert-Fitting Joints: Use plastic insert fittings and fasteners according to fitting manufacturer's written instructions.
 - 5. PVC Piping Gasketed Joints: Use joining materials according to AWWA C900. Construct joints with elastomeric seals and lubricant according to ASTM D 2774 or ASTM D 3139 and pipe manufacturer's written instructions.
 - 6. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, with OD, and with system working pressure.

3.7 ANCHORAGE INSTALLATION

- A. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:
 - 1. Concrete thrust blocks.
 - 2. Locking mechanical joints.
 - 3. Set-screw mechanical retainer glands.
 - 4. Bolted flanged joints.
 - 5. Heat-fused joints.
 - 6. Pipe clamps and tie rods.

- B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:
 - 1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
 - 2. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.
 - 3. Fire-Service-Main Piping: According to NFPA 24.

- C. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

3.8 VALVE INSTALLATION

- A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.
- B. UL/FMG, Gate Valves: Comply with NFPA 24. Install each underground valve and valves in vaults with stem pointing up and with vertical cast-iron indicator post.
- C. MSS Valves: Install as component of connected piping system.
- D. Corporation Valves and Curb Valves: Install each underground curb valve with head pointed up and with service box.

3.9 CONCRETE VAULT INSTALLATION

- A. Install precast concrete vaults according to ASTM C 891.

3.10 FIRE HYDRANT INSTALLATION

- A. General: Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.
- B. Wet-Barrel Fire Hydrants: Install with valve below frost line. Provide for drainage.
- C. AWWA Fire Hydrants: Comply with AWWA M17.

- D. UL/FMG Fire Hydrants: Comply with NFPA 24.

3.11 FIRE DEPARTMENT CONNECTION INSTALLATION

- A. Install protective pipe bollards on two sides of each fire department connection. Pipe bollards are specified in Section 05 5000 "Metal Fabrications."

3.12 CONNECTIONS

- A. See Section 33 0500 "Common Work Results for Utilities" for piping connections to valves and equipment.
- B. Connect water-distribution piping to existing water main where indicated on Contract Documents. Use tapping sleeve and tapping valve.
- C. Connect water-distribution piping to interior domestic water and fire-suppression piping.
- D. Connect waste piping from concrete vault drains to storm-drainage system. See Section 33 4100 "Storm Utility Drainage Piping" for connection to storm-sewer piping.

3.13 FIELD QUALITY CONTROL

- A. Piping Tests: Conduct piping tests before joints are covered and after concrete thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.
- B. Hydrostatic Tests: Test at not less than one-and-one-half times working pressure for two hours.
 1. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for 1 hour; decrease to . Slowly increase again to test pressure and hold for 1 more hour. Maximum allowable leakage is per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.
- C. Prepare reports of testing activities.

3.14 IDENTIFICATION

- A. Install continuous underground detectable warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Section 31 2000 "Earth Moving."
- B. Permanently attach equipment nameplate or marker indicating plastic water-service piping, on main electrical meter panel. See Section 33 0500 "Common Work Results for Utilities" for identifying devices.

3.15 CLEANING

- A. Clean and disinfect water-distribution piping as follows:
1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
 2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.
 3. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or do as follows:
 - a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
 - b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
 - c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.
- B. Prepare reports of purging and disinfecting activities.

END OF SECTION 22 1113

SECTION 22 1313 - FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Pipe and fittings.
 2. Nonpressure and pressure couplings.
 3. Expansion joints.
 4. Cleanouts.
 5. Encasement for piping.
 6. Manholes.

1.2 ACTION SUBMITTALS

- A. Product Data: For expansion joints.
- B. Shop Drawings: For manholes. Include plans, elevations, sections, details, and frames and covers.

1.3 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Show pipe sizes, locations, and elevations. Show other piping in same trench and clearances from sewer system piping. Indicate interface and spatial relationship between manholes, piping, and proximate structures.
- B. Product Certificates: For each type of cast-iron soil pipe and fitting, from manufacturer.
- C. Field quality-control reports.

PART 2 - PRODUCTS

2.1 PVC PIPE AND FITTINGS

- A. PVC Corrugated Sewer Piping:
1. Pipe: ASTM F 949, PVC corrugated pipe with bell-and-spigot ends for gasketed joints.
 2. Fittings: ASTM F 949, PVC molded or fabricated, socket type.
 3. Gaskets: ASTM F 477, elastomeric seals.
- B. PVC Type PSM Sewer Piping:

1. Pipe: ASTM D 3034, SDR 35, PVC Type PSM sewer pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: ASTM D 3034, PVC with bell ends.
3. Gaskets: ASTM F 477, elastomeric seals.

2.2 NONPRESSURE-TYPE TRANSITION COUPLINGS

- A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant-metal tension band and tightening mechanism on each end.
- B. Sleeve Materials:
 1. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
 2. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.
- C. Unshielded, Flexible Couplings:
 1. Description: Elastomeric sleeve with corrosion-resistant-metal tension band and tightening mechanism on each end.
- D. Ring-Type, Flexible Couplings: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.3 EXPANSION JOINTS

- A. Ductile-Iron, Flexible Expansion Joints:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide comparable product by one of the following:
 - a. EBAA Iron, Inc.
 - b. Romac Industries, Inc.
 - c. Star Pipe Products.
 - d. .
 3. Description: Compound fitting with combination of flanged and mechanical-joint ends complying with AWWA C110 or AWWA C153. Include two gasketed ball-joint sections and one or more gasketed sleeve sections, rated for 250-psig minimum working pressure and for offset and expansion indicated.

2.4 CLEANOUTS

- A. Cast-Iron Cleanouts: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.

1. Top-Loading Classification(s): Light Duty Medium Duty Heavy Duty and Extra-Heavy Duty.
2. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

2.5 ENCASEMENT FOR PIPING

- A. Standard: ASTM A 674 or AWWA C105.
- B. Material: high-density, cross-laminated polyethylene film of 0.004-inch minimum thickness.
- C. Form: tube.
- D. Color: Black.

2.6 MANHOLES

- A. Standard Precast Concrete Manholes:
 1. Description: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
 2. Diameter: 48 inches minimum unless otherwise indicated.
 3. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
 4. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section; with separate base slab or base section with integral floor.
 5. Riser Sections: 4-inch minimum thickness, of length to provide depth indicated.
 6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated; with top of cone of size that matches grade rings.
 7. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
 8. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
 9. Steps: Individual FRP steps or FRP ladder; wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.
 10. Adjusting Rings: Interlocking HDPE rings, with level or sloped edge in thickness and diameter matching manhole frame and cover, and with height as required to adjust manhole frame and cover to indicated elevation and slope. Include sealant recommended by ring manufacturer.
 11. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, with diameter matching manhole frame and cover, and with height as required to adjust manhole frame and cover to indicated elevation and slope.
- B. Manhole Frames and Covers:

1. Description: Ferrous; 24-inch ID by 7- to 9-inch riser, with 4-inch- minimum-width flange and 26-inch- diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "SANITARY SEWER."
2. Material: ASTM A 536, Grade 60-40-18 ductile iron unless otherwise indicated.

2.7 CONCRETE

- A. General: Cast-in-place concrete complying with ACI 318, ACI 350/350R, and the following:
 1. Cement: ASTM C 150, Type II.
 2. Fine Aggregate: ASTM C 33, sand.
 3. Coarse Aggregate: ASTM C 33, crushed gravel.
 4. Water: Potable.
- B. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio.
 1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.
 2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.
- C. Manhole Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio. Include channels and benches in manholes.
 1. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.
 - a. Invert Slope: 1 percent through manhole.
 2. Benches: Concrete, sloped to drain into channel.
 - a. Slope: 4 percent.
- D. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water/cementitious materials ratio.
 1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.
 2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Section 31 2000 "Earth Moving."

3.2 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground sanitary sewer piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.
- F. Install gravity-flow, nonpressure, drainage piping according to the following:
 - 1. Install piping pitched down in direction of flow, at minimum slope of 1 percent unless otherwise indicated.
 - 2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place-concrete supports or anchors.
 - 3. Install piping with 42 inches minimum cover.
 - 4. Install hub-and-spigot, cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
 - 5. Install hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
 - 6. Install PVC corrugated sewer piping according to ASTM D 2321 and ASTM F 1668.
 - 7. Install PVC Type PSM sewer piping according to ASTM D 2321 and ASTM F 1668.
 - 8. Install nonreinforced-concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."
 - 9. Install reinforced-concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."
- G. Install corrosion-protection piping encasement over the following underground metal piping according to ASTM A 674 or AWWA C105:
 - 1. Hub-and-spigot, cast-iron soil pipe.
 - 2. Hubless cast-iron soil pipe and fittings.
 - 3. Expansion joints.
- H. Clear interior of piping and manholes of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.3 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure, drainage piping according to the following:
1. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
 2. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.
 3. Join hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-coupling joints.
 4. Join PVC corrugated sewer piping according to ASTM D 2321.
 5. Join PVC Type PSM sewer piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-seal joints or ASTM D 3034 for elastomeric-gasket joints.
 6. Join nonreinforced-concrete sewer piping according to ASTM C 14 and ACPA's "Concrete Pipe Installation Manual" for rubber-gasket joints.
 7. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasket joints.
 8. Join dissimilar pipe materials with nonpressure-type, flexible couplings.
- B. Pipe couplings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.
1. Use nonpressure flexible couplings where required to join gravity-flow, nonpressure sewer piping unless otherwise indicated.
 - a. Unshielded flexible couplings for pipes of same or slightly different OD.
 - b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.
 - c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

3.4 MANHOLE INSTALLATION

- A. General: Install manholes complete with appurtenances and accessories indicated.
- B. Install precast concrete manhole sections with sealants according to ASTM C 891.
- C. Install FRP manholes according to manufacturer's written instructions.
- D. Form continuous concrete channels and benches between inlets and outlet.
- E. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 3 inches above finished surface elsewhere unless otherwise indicated.
- F. Install manhole-cover inserts in frame and immediately below cover.

3.5 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318.

3.6 CLEANOUT INSTALLATION

- A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts, and use cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
 - 1. Use Light-Duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.
 - 2. Use Medium-Duty, top-loading classification cleanouts in paved foot-traffic areas.
 - 3. Use Heavy-Duty, top-loading classification cleanouts in vehicle-traffic service areas.
 - 4. Use Extra-Heavy-Duty, top-loading classification cleanouts in roads.
- B. Set cleanout frames and covers in earth in cast-in-place-concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding grade.
- C. Set cleanout frames and covers in concrete pavement and roads with tops flush with pavement surface.

3.7 CONNECTIONS

- A. Connect nonpressure, gravity-flow drainage piping to building's sanitary building drains specified in Section 22 1316 "Sanitary Waste and Vent Piping."
- B. Make connections to existing piping and underground manholes.
 - 1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye fitting plus 6-inch overlap with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
 - 2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
 - 3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes by cutting opening into existing unit large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe or manhole wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.
 - a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.
 - b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.
 - 4. Protect existing piping and manholes to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

3.8 IDENTIFICATION

- A. Materials and their installation are specified in Section 31 2000 "Earth Moving." Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.
1. Use warning tape or detectable warning tape over ferrous piping.
 2. Use detectable warning tape over nonferrous piping and over edges of underground manholes.

3.9 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
1. Submit separate report for each system inspection.
 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
 4. Reinspect and repeat procedure until results are satisfactory.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
1. Do not enclose, cover, or put into service before inspection and approval.
 2. Test completed piping systems according to requirements of authorities having jurisdiction.
 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 4. Submit separate report for each test.
 5. Hydrostatic Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction and the following:
 - a. Fill sewer piping with water. Test with pressure of at least 10-foot head of water, and maintain such pressure without leakage for at least 15 minutes.
 - b. Close openings in system and fill with water.
 - c. Purge air and refill with water.
 - d. Disconnect water supply.
 - e. Test and inspect joints for leaks.
 6. Air Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction, UNI-B-6, and the following:

- a. Option: Test plastic gravity sewer piping according to ASTM F 1417.
- b. Option: Test concrete gravity sewer piping according to .

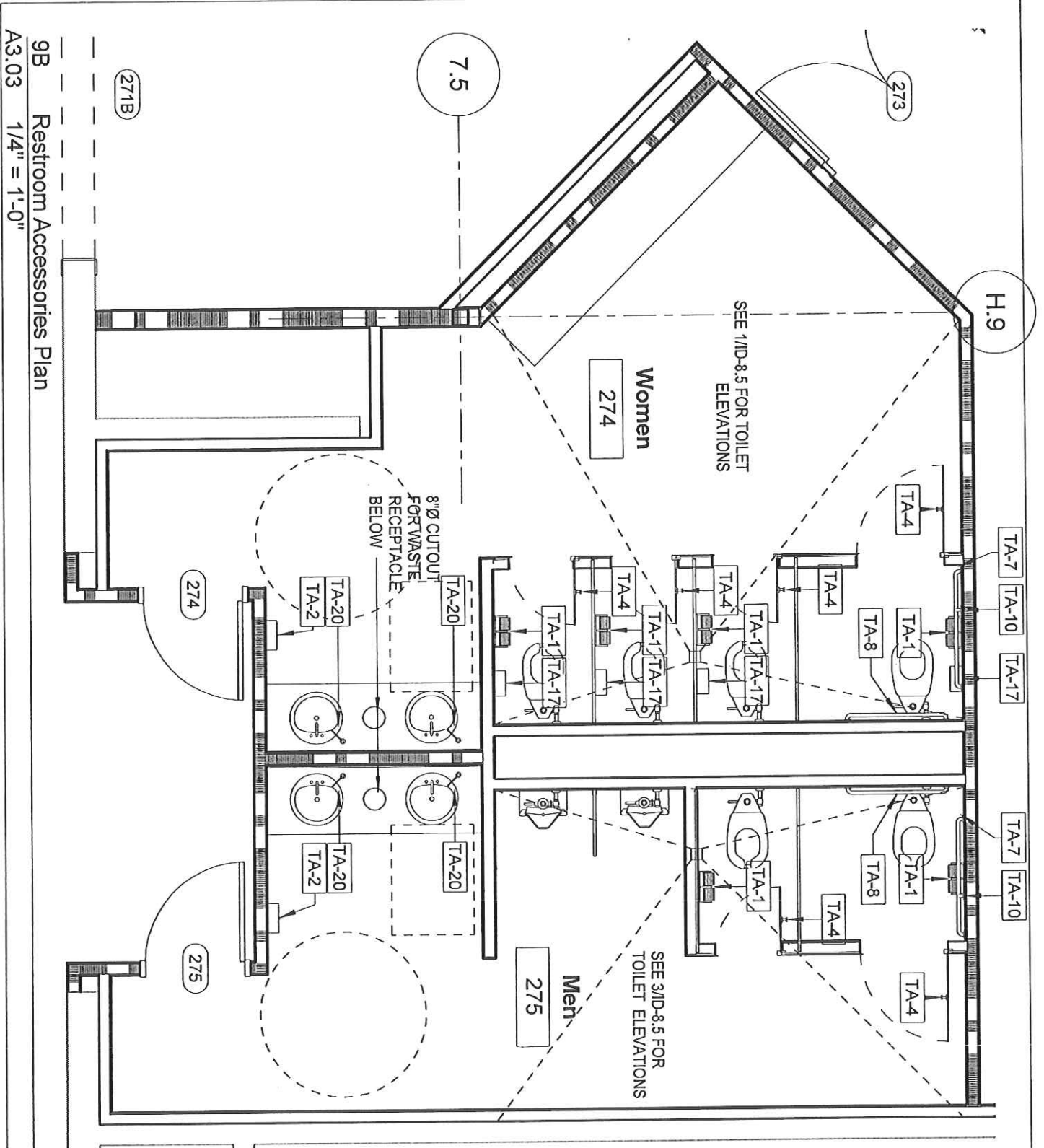
7. Manholes: Perform hydraulic test according to .

- C. Leaks and loss in test pressure constitute defects that must be repaired.
- D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.10 CLEANING

- A. Clean dirt and superfluous material from interior of piping. Flush with potable water.

END OF SECTION 22 1313



9B Restroom Accessories Plan
 A3.03 1/4" = 1'-0"



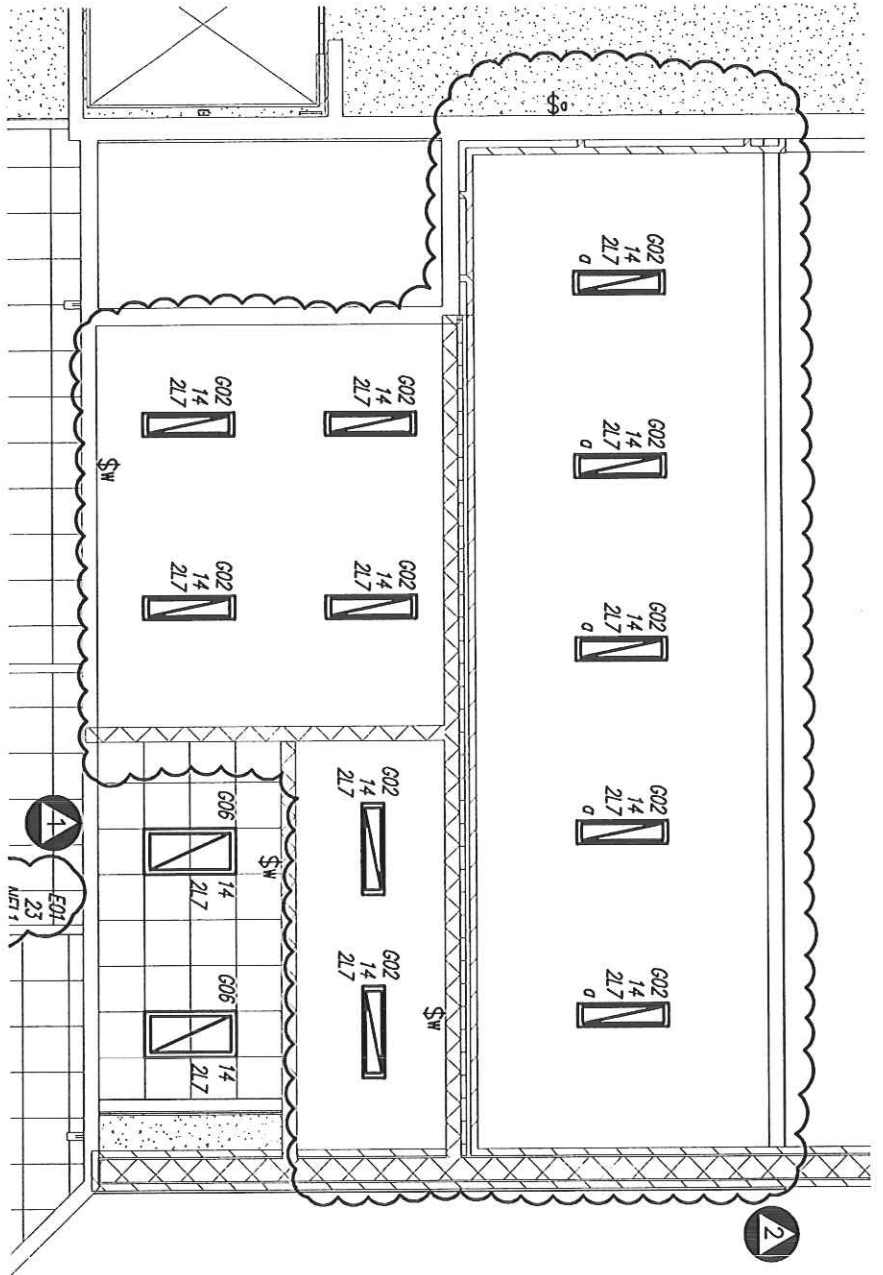
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BD10

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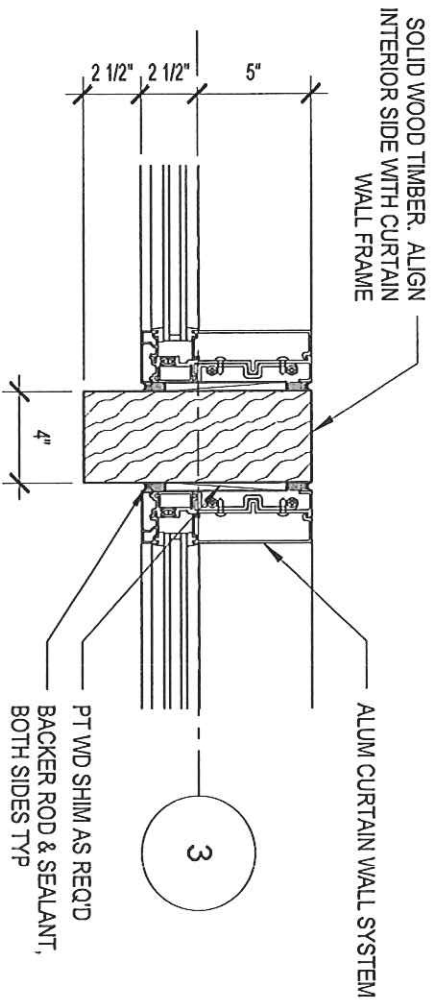


TOWER ENGINEERING

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1H Plan Detail
 A9.00 1 1/2" = 1'-0"



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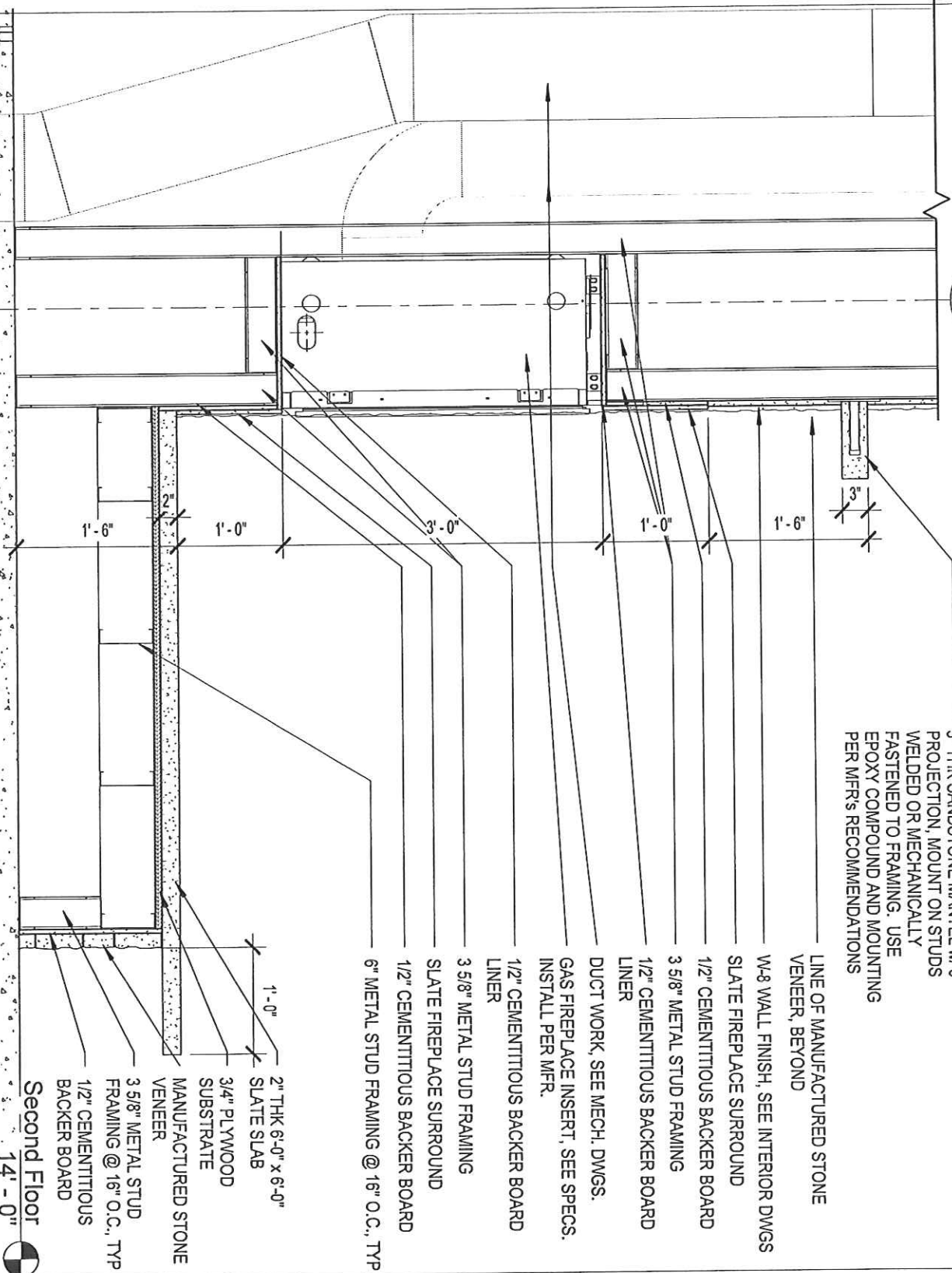
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B



3" THK SANDSTONE MANTEL w/ 8" PROJECTION, MOUNT ON STUDS WELDED OR MECHANICALLY FASTENED TO FRAMING. USE EPOXY COMPOUND AND MOUNTING PER MFR'S RECOMMENDATIONS

LINE OF MANUFACTURED STONE VENEER, BEYOND

W-8 WALL FINISH, SEE INTERIOR DWGS

SLATE FIREPLACE SURROUND

1/2" CEMENTITIOUS BACKER BOARD

3 5/8" METAL STUD FRAMING

1/2" CEMENTITIOUS BACKER BOARD LINER

DUCT WORK, SEE MECH. DWGS.

GAS FIREPLACE INSERT, SEE SPECS. INSTALL PER MFR.

1/2" CEMENTITIOUS BACKER BOARD LINER

3 5/8" METAL STUD FRAMING

SLATE FIREPLACE SURROUND

1/2" CEMENTITIOUS BACKER BOARD

6" METAL STUD FRAMING @ 16" O.C., TYP

1'-0" 2" THK 6'-0" x 6'-0" SLATE SLAB

3/4" PLYWOOD SUBSTRATE

MANUFACTURED STONE VENEER

3 5/8" METAL STUD FRAMING @ 16" O.C., TYP

1/2" CEMENTITIOUS BACKER BOARD

Second Floor 14' - 0"

4H Section @ Lobby Fireplace
A3.02 3/4" = 1'-0"



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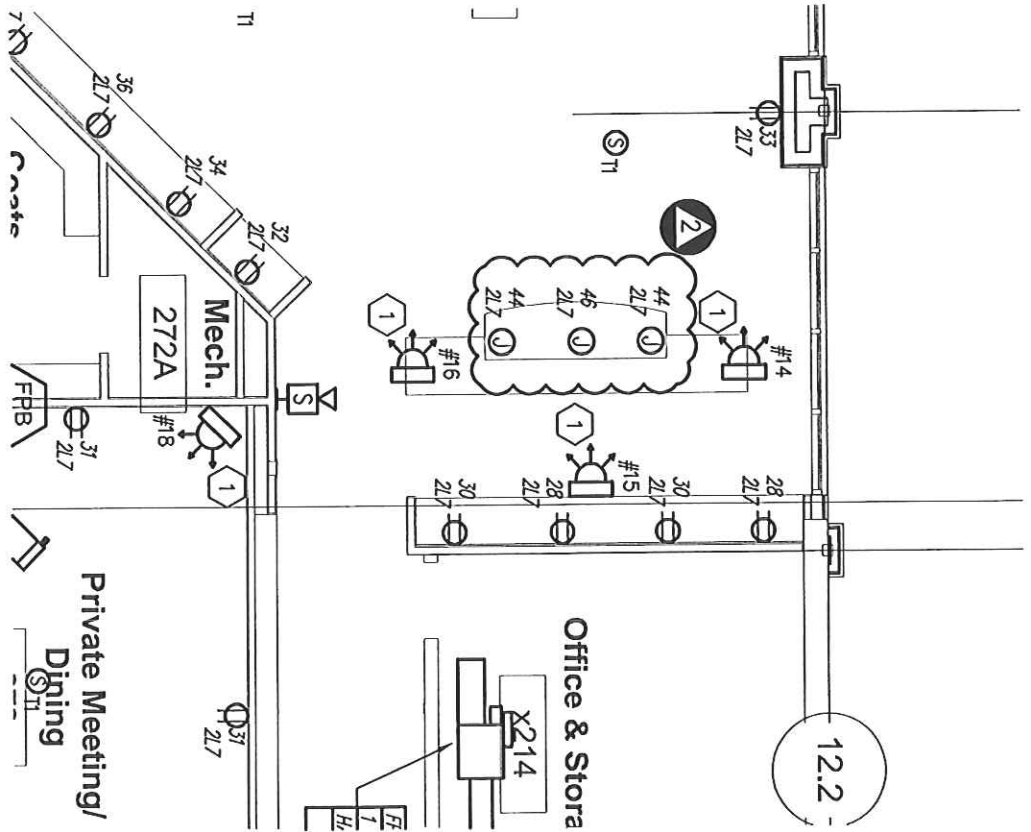
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PANEL BOARD SCHEDULE

VOLTAGE: 208Y/120V, 3PH, 4W
 SIZE /TYPE BUS: 200A COPPER
 SIZE /TYPE MAIN: 125A/3P MCB



PANEL TAG: 2L7
 LOCATION:

MIN. AIC: 22K
 MOUNTING: SURFACE
 OPTIONS:

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A#	B#	C#	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
RECEPTACLES	263	720	20A/1P	1	*			2	20A/1P	360	260,261A	RECEPTACLES
RECEPTACLES	265	360	20A/1P	3	*			4	20A/1P	540	261	RECEPTACLES
RECEPTACLES	262	720	20A/1P	5	*			6	20A/1P	720	264	RECEPTACLES
LIGHTING	EXT.		20A/1P	7	*			8	20A/1P	360	264	RECEPTACLES
LIGHTING			20A/1P	9	*			10	20A/1P	1180		LIGHTING
LIGHTING			20A/1P	11	*			12	20A/1P	720		LIGHTING
LIGHTING		1260	20A/1P	13	*			14	20A/1P	840		LIGHTING
LIGHTING		1260	20A/1P	15	*			16	20A/1P	1125		CAFE
LIGHTING			20A/1P	17	*			18	20A/1P	864		CAFE
CUH-1,2	259	300	20A/1P	19	*			20	20A/1P	864		EF-10
CUH-3	278	150	20A/1P	21	*			22	20A/1P	1725		CAFE
LIGHTING		420	20A/1P	23	*			24	20A/1P	600		CAFE
RECEPTACLES	271	720	20A/1P	25	*			26	20A/1P	1056		LIGHTING
RECEPTACLES	271	900	20A/1P	27	*			28	20A/1P	1200		RECEPTACLES
RECEPTACLES	273	720	20A/1P	29	*			30	20A/1P	1200		RECEPTACLES
RECEPTACLES	269	900	20A/1P	33	*			34	20A/1P	500		RECEPTACLES
RECEPTACLES	266,268	540	20A/1P	35	*			36	20A/1P	500		RECEPTACLES
RECEPTACLES	269A	864	20A/1P	37	*			38	20A/1P	500		RECEPTACLES
CU-4	ROOF	1352	20A/2P	39	*			40	20A/1P	1200		RECEPTACLES
		1352		41	*			42	20A/1P	500		RECEPTACLES
CU-6	ROOF	1872	30A/2P	43	*			44	20A/1P	200		BAKERY CASE
		1872		45	*			46	20A/1P	1200		ICE CREAM CASE
DOCK LEVELER	LOADING DOCK	1656	30A/1P	47	*			48	20A/1P			SPARE
SPARE			20A/1P	49	*			50	20A/1P			SPARE
SPARE			20A/1P	51	*			52	20A/1P			SPARE
SPARE			20A/1P	53	*			54	20A/1P			SPARE
CONNECTED LOAD (KW) - A#		11.14										TOTAL CONNECTED LOAD (KW)
CONNECTED LOAD (KW) - B#		15.46										TOTAL DEMAND LOAD (KW)
CONNECTED LOAD (KW) - C#		10.15										TOTAL CONNECTED LOAD (AMPS)



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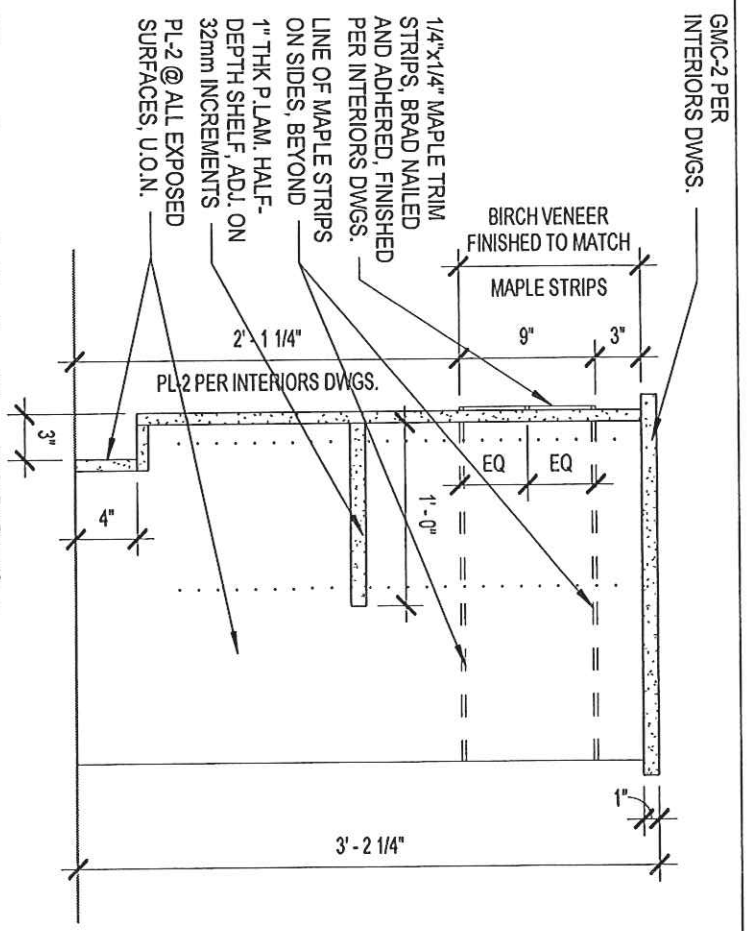
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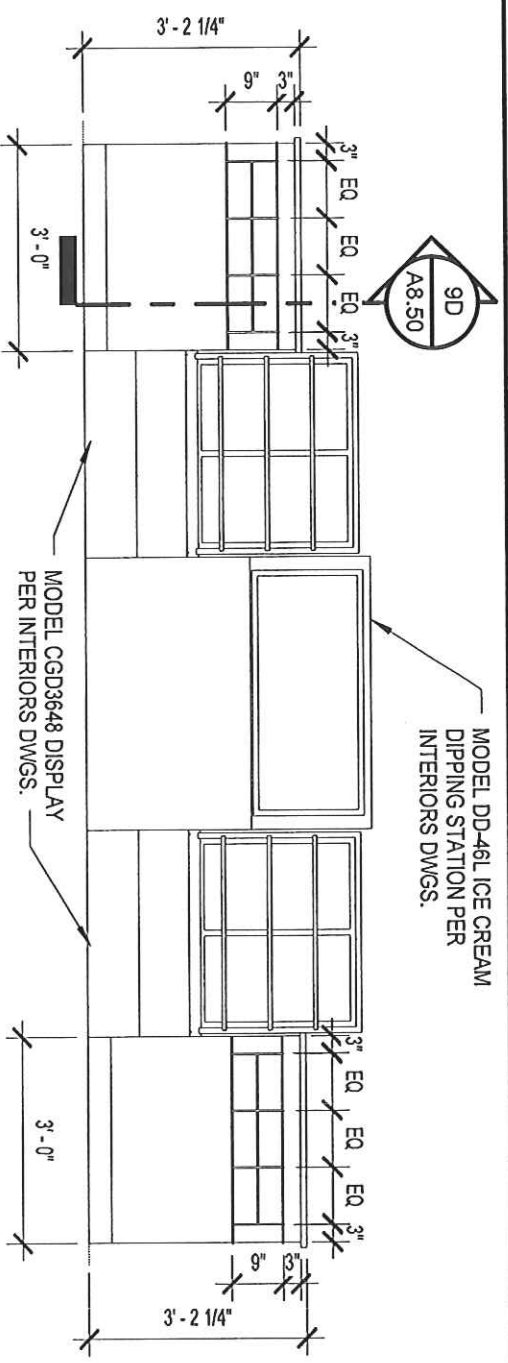
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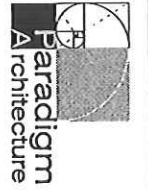
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9D Casework Section Thru POS Station
A8.50 1" = 1'-0"



6B 250 POS Station
A3.03 3/8" = 1'-0"



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Canaan Valley Resort Renovations and Additions

Davis, West Virginia

Job number: 1078

sheet number: BD16

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ADDENDUM NUMBER 2

Dated: January 23, 2012

Re: Canaan Valley Resort Renovations & Additions
 Division of Natural Resources
 Davis, WV
 RFQ# DNRB12095

From: Paradigm Architecture
 2223 Cheat Road
 Suite 300
 Morgantown, WV 26508
 (304) 284-5015

This Addendum forms a part of the Contract Documents and modifies the original bidding Documents dated December 19, 2011, as noted below.

This Addendum consists of:

Items and Questions	nine (9) pages
Specification Section 01 5639 Temporary Tree and Plant Protection	five (5) pages
Specification Section 22 1113 Facility Water Distribution Piping	seventeen (17) pages
Specification Section 22 1313 Facility Sanitary Sewers	nine (9) pages
BD10 Bulletin Drawing 10	
BD11 Bulletin Drawing 11	
BD12 Bulletin Drawing 12	
BD13 Bulletin Drawing 13	
BD14 Bulletin Drawing 14	
BD15 Bulletin Drawing 15	
BD16 Bulletin Drawing 16	

Drawings

C2.0	E4.01	P0.01
E2.01	E5.02	

The above will be available on the architect's FTP site – see link below.

To open the shared files, click or copy the link below:

<http://www.filesanywhere.com/fs/v.aspx?v=8a6e67895e6474a970a0>

Item 1: The bid date is changed to Thursday, February 9, 2012. The time and location remain unchanged.

- Item 2:** The last date for the submission of questions to be included in the final addendum will be Thursday, January 26, 2012.
- Item 3:** Section 220500 – General Provisions and Common Work Results for Plumbing.
Units:
a. Article 1.23 – Coordination
i. Add, plumbing contractor responsible for all saw cutting, core drilling and general penetrations in floor slab. Contractor to coordinate all work with structural contractor before escutcheon.
- Item 4:** Drawing P0.01 – updated domestic water heater diagrams to show outlet piping between water heaters and storage tank.
- Item 5:** Drawing E1.11, change Coded Note No. 2 to read as follows: “EXISTING RECEPTACLES TO BE DISCONNECTED AND REMOVED. REMOVE ALL WIRING, CONDUIT AND BOXES BACK TO SOURCE.”
- Item 6:** Drawing E2.03, change the (3) G10 fixtures in the room 174 to G13.
- Item 7:** Drawing E2.11, Stairwell S21, change the recessed 2x4 lighting tag from G02 to G06.
- Item 8:** Drawing E2.11, change the (5) D14 fixtures over the stairs to D15.
- Item 9:** Drawing E2.11, add a 3-way switch adjacent to the door in Support 265 leading to the Lobby.
- Item 10:** Drawing E3.01, eliminate the mechanical equipment tag for EWH-16 that is pointing to the wall shared with Standard Queen 126.
- Item 11:** Drawing E3.01, change the generator tag from “NEW 40KW GENERATOR” to “NEW 85KW GENERATOR.”
- Item 12:** Drawing E3.01, Housekeeping 104, change the Photoelectric Detector to a Heat Detector.
- Item 13:** Drawing E3.02, add the coded note No. 5 to read as follows: “PROVIDE A NEW 90A/3P CIRCUIT BREAKER IN EXISTING PANELBOARD HB FOR HP-2.”
- Item 14:** Drawing E3.02, add the coded note No. 6 to read as follows: “PROVIDE A NEW 30A/3P CIRCUIT BREAKER IN EXISTING PANELBOARD HB FOR HP-9.”
- Item 15:** Drawing E3.02, Housekeeping 134, change the Photoelectric Detector to a Heat Detector.
- Item 16:** Drawing E3.03, delete coded notes no. 5 and 6.
- Item 17:** Drawing E3.12, change the Mechanical Equipment tag with the circuit no. 44/46, from “CU-2” to “CU-5.”

- Item 18:** Drawing E3.12, change the Mechanical Equipment tag with the circuit no. 48/50, from "CU-2" to "CU-6."
- Item 19:** Drawing E3.12, Housekeeping 234, change the Photoelectric Detector to a Heat Detector.
- Item 20:** Drawing E3.21, Housekeeping 304, change the Photoelectric Detector to a Heat Detector.
- Item 21:** Drawing E3.22, Housekeeping 334, change the Photoelectric Detector to a Heat Detector.
- Item 22:** Drawing E3.31, Housekeeping 404, change the Photoelectric Detector to a Heat Detector.
- Item 23:** Drawing E3.32, Housekeeping 434, change the Photoelectric Detector to a Heat Detector.
- Item 24:** Drawing E5.01, Single-line Diagram, change the distribution panelboard designation from "GDL1" to "1DL1."
- Item 25:** Drawing E5.01, Single-line Diagram, change the distribution panelboard designation from "GDL2" to "1DL2."
- Item 26:** Drawing E5.01, Coded Note No. 2, change the text "OFFICE 319A" to "MECH X144."
- Item 27:** Drawing H2.11, connect a 7-inch diameter flue to fireplace in King w/ Fireplace Room 403. Extend flue to end of chimney and terminate with a bird screen. Coordinate with structure in chimney. Wrap flue in 2-inch thick fire rated insulation.
- Item 28:** Drawing H2.12, connect a 7-inch diameter flue to fireplace in King w/ Fireplace Room 433. Extend flue to end of chimney and terminate with a bird screen. Coordinate with structure in chimney. Wrap flue in 2-inch thick fire rated insulation.
- Item 29:** BD15, add power supply for café equipment as noted.

The following requests for information have been received from contractors. Answers are provided.

Question 1: Sheet A6.06 shows drainage plane and weather resistive membrane and mortar setting bed between manufactured stone and CMU, but not metal lathe. Doesn't metal lathe have to be put over drainage plane?

Answer: *Yes. Metal lathe is required at all exterior stone installation conditions.*

Question 2: Is drainage plane and drainage matting the same thing?

Answer: *Yes.*

Question 3: Can manufactured stone be put directly to CMU surfaces?

Answer: *For exterior construction, apply weather-resistant membrane on the CMU walls. Then install drainage plane, metal lathe, and typical stone construction per manufacturer.*

Question 4: Sheet A9.02 8F shows manufactured stone to be put directly on ½” rigid insulation. Please clarify where drainage matting and metal lathe are required.

Answer: *Install exterior sheathing, then ½” rigid insulation, weather-resistant membrane, drainage plane, metal lathe, and typical stone construction per manufacturer.*

Question 5: Manufactured stone is shown being put directly to ½” cement board on A9.02 10H. Is that correct?

Answer: *Yes, for interior installations.*

Question 6: 1/ID-13.0 and 1/A4.01 provide different wood trim requirements for the guest room corridors, which one is correct. Both drawing as labeled as base bid finishes.

Answer: *Use detail provided on 1/A4.01.*

Question 7: No specifications have been provided for the fire pump that is required to achieve automatic class 1 stand pipe system. Please provide specifications for the required fire pump.

Answer: *A fire pump is not required for the building. Manual standpipes are acceptable for the building as was determined from our meeting with the State Fire Marshal back in June. The incoming water pressure and flow rates are required to provide the demand required by the sprinkler system, which the flow test results are shown on drawing F0.00. The fire department pump truck will take care of the rest of the standpipe requirements. Keep in mind that the attic space is following under NFPA 13 R so there are no sprinkler heads up there. The highest floor level the sprinkler heads will be on is the 4th level.*

Question 8: Addendum #1 RFI Q&A #19, the answer provided states that we the GC are responsible for moisture mitigation of concrete slabs on grade. Please provide specifications for the product that is required and what level of mitigation needs to be included. Please clarify slabs to be included: New slabs placed under this contract, new guest wing slabs placed under early package, existing slabs in lodge to receive new flooring?

Answer: *The intent of this issue is to assure that concrete slabs are properly prepared to allow adhesives to bond without the concern of failure due to excessive moisture. Our primary concern involves slabs-on-grade and application of vinyl composite tile. Therefore, we are modifying this requirement by this Addendum to require contractors to assume that 2,000 square feet of floor slabs will need to be treated with a moisture barrier product such as Koster*

Waterproofing Systems or equal. The unit price included in Addendum #1 will be applied based on field test results during construction.

Question 9: Please confirm the US Foodservices display cases and refrigerators shown on Drawing ID-8.2 elevations 10 & 14 are by the owner or included in the allowance for FF&E.

Answer: *This cost is included in the FF&E allowance.*

Question 10: Addendum #1 states that WD-1 is wood flooring material as scheduled on the ID drawings. Please provide construction details of how it is to be attached to the ceiling under the alternate as shown on ID-6.0.

Answer: *Where WD-1 is designated for a ceiling finish, replace with knotty pine tongue and groove, clear satin finish. Use 1/2" plywood for a substrate in lieu of 5/8" gypsum board. Toe nail or staple and use appropriate construction adhesive to attach boards to substrate.*

Question 11: Addendum #1, Q&A 27, C4.0 does not indicate the routing of any new 8" site gas line or the any proposed tie in location. C4.0 indicates what appears to be an existing site gas line entering the building adjacent to the pool. Based on this information, I assume the new gas line shown exiting the building on drawing P2.00 will be connected to the existing site gas line within 5 feet of the building. If this is not correct, please provide the proposed routing plan for the new site gas line.

Answer: *Your description of the proposed work is correct.*

Question 12: BD09, provide specifications for LED tape light.

Answer: *See revised Drawing E5.02 issued with this addendum.*

Question 13: BD09, provide design for structural support frame.

Answer: *Use 3/8" all-thread rods at four corners. Suspend from Unistrut at structure and use washer/bolted connections at the top and bottom. Paint all rods black.*

Question 14: ALUMINUM (084313 / 084413)

- a. Please clarify the desired aluminum finish.
 - i. 084313-2.02A-2 calls for painted. Color to be selected from manufacturer's standards. 084413-2.05A also calls for painted finish. However, 084413-2.03A/8 designates the finish to be Class I Natural Anodized.
- b. Is there a specification / desired product to be used for the floor line plenum firesafing at the curtainwalls? (Mentioned @ 084413-1.09A and 084413-3.02H.)

Answer:

- a. *Omit 08 4413-2.03 (A)(8) all finishes shall comply with 08 4413-2.05 'High Performance Organic Finish: AAMA 2604; multiple coats, thermally cured fluoropolymer system.'*
- b. *Omit 08 4413-1.09(A) and 3.02 (H)*

Question 15: GLAZING (088000) - PAI

- a. Please clarify the following regarding glass types. (Please refer to 088000-2.01 for questions.)
 - i. IG-1 / IG-3 – What type of Low-E coating is required? No model name or performance data has been provided to make a determination.
 - ii. S-2 – What type of fire rated glass is required? Note 3.06 designates S-2 to be wire glass; but hasn't the IBC ruled out using wire glass for this application?
- b. SPANDREL – The glass type legend on drawings A4.50 & A4.51 states that spandrel is marked "S." However, there appears to be no spandrel used on this project. Furthermore, the glazing specification does not reference anything regarding spandrel glass either. Please confirm.

Answer:

- a. *Omit reference to Spandrel glazing on drawings A4.50 & A4.51-no spandrel glazing is required.*
 - i. *Low 'E' shall be SunGuard by Guardian or equivalent by other acceptable manufacturers.*
 - ii. *Omit all reference to 'wire glass' in 08 8000-3.06; Use paragraph 2.03 (D) to determine glass type.*
- b. *No spandrel glazing is required.*

Question 16: In restrooms 274 & 275, the toilet accessories are not designated. Please advise.

Answer: *See bulletin drawing BD10 included in this addendum.*

Question 17: Doors EXT-F and 284 are scheduled to have an aluminum "SF" Frame, but no "SF" number is shown to designate a frame type, and an elevation that indicates a frame type cannot be located. Should we assume SF34?

Answer: *Correct. Both door frames are SF34.*

Question 18: "D5" Security Grills are shown on A4.10, but not shown on the door schedules. "D6" Roll up door is shown on A4.10, and at Doors 269B and 269C on A4.13 Schedule. H15 on A4.11 shows a roll up wood door. Enlarged Plan on A3.03 indicates "rolling grill" at these locations. Should these be D5 security grills or D6 roll up wood? If D6, are D5 required on the project?

Answer: *D5 is not used on this project. The doors 269B and 269C are wood rolling doors. The basis of design is Woodfold Mfg., Inc. maple veneer, motorized operation, field stained to match project stain color, slidebolt latch.*

Question 19: Elevation 7H on A5.01 and Elevation 7H on A5.02 each indicate an undesignated louver. What size/type louver is required?

Answer: *Regarding 7H/A5.01, The large louver on the existing lodge building is an existing louver. Refer to Note 14, H2.08 for work associated with this area. Other louvers on this elevation are shown and referenced on 6D/ A5.04. The louver indicated on 7H/A5.02 should be labeled as L8 and represented on A/4.53. Note that two (2) of this louver type are required in the Mechanical Room 158. See H4.02 for additional information.*

Question 20: There are no specifications for the shower curtains or curtain rungs. Is this to be included under the FF&E? If not, is that under this project? If so, please provide a spec.

Answer: *The curved shower rod shall be included in the general construction budget, not the FF&E Allowance. The basis of design is Bradley Corporation Model 9530-600000 (60") satin finish. Include Shower Curtain Hooks Model 9540 (12 per curtain rod).*

Question 21: Will the elevators be on an emergency power generator if there is a power failure?

Answer: *Elevators E1-4 (4 total) as specified in 14 2015 shall have emergency power. E5 shall not be connected to the emergency generator. Refer to electrical drawings for additional information.*

Question 22: Specification Section 2.08 A. 2 & 3 – Please verify the main floor entrances are power coat finish and the typical upper floor entrances are stainless steel.

Answer: *Delete Note 2 of Paragraph 2.08.A in Specification Sections 14 2010 & 14 2015. All elevator doors and frames shall be stainless steel finish.*

Question 23: Specification Section 2.10 C. calls for an auxiliary car operating panel. With single slide side opening doors, there is no room for the auxiliary panel. The entrances would have to be center opening which would then not accommodate an EMS stretcher. Is the auxiliary panel necessary?

Answer: *Delete Paragraph 2.10 C of Sections 14 2014 and 14 2015. Auxiliary car operating panel is not required.*

Question 24: Type D29 fixture shown on Sheet E2.13 represents the length of the suspended wiring only. There is no indication as to how many fixtures are being required on each run.

Answer: *Thirty-two (32) heads on the D29 fixtures.*

Question 25: Division 27 Specifications: Is Hubbell Premise wiring devices an acceptable equal under products or data and communications?

Answer: *Hubbell Premise wiring is acceptable.*

Question 26: Specification Sections 01 5639, 22 1113, 22 1313, and 23 8213 are missing from the specifications. Please provide for bidding purposes.

Answer: *Delete Section 23 8213, "Valance Heating Units." See attached Specification Sections 01 5639, 22 1113, 22 1313.*

Question 27: 084313-2.03B DOORS

a. The specification calls for Kawneer 500, medium stile. 500 is actually the designation for WIDE stile. The remaining description in this section also describes a WIDE stile

- door. However, when utilizing the door schedule (A4.10) it dimensions out a MEDIUM stile door. Please clarify.
- b. Also, the specification calls for a 10" bottom rail; whereas the door schedule dimensions a 12" bottom rail. Please clarify.

Answer: *Omit 08 4313-2.03 lines 1 and 5 and insert the following:*
(1) Kawneer 350: Medium Stile.
(5) Door Rail: 12 inches

Question 28: At the two main curtainwall elevations, please provide information as to the building material. At the vertical intersection of curtainwalls SF5 / SF5a and SF6 / SF6a respectively (1H / A5.04); there is a building element that separates the two curtainwall sections. However, details, blow ups, etc. cannot be found to inform what materials are to be used. Specifically, is this to be wrapped in aluminum to match the curtainwall (This condition also presents itself at SF11 / SF12; SF16 / SF17 (1D & 1H / A5.01)?

Answer: *Refer to attached bulletin drawing BD12 for information.*

Question 29: Who was the steel contractor that completed the first portion of work installing the structural steel framing at the two wings for the guest room additions?

Answer: *Wiseman Construction was the General Contractor. Kinsley Manufacturing provided steel fabrication and erection.*

Question 30: 5/IF6.01 – provide specifications for safety deposit boxes. Specifications not required if they included in the FF&E allowances.

Answer: *Basis of design is Allied Safe & Vault. One section each of the following design: SC-AB10/35, SC-AB6/55, SC-AB 5/310 as indicated on 5-1D/8.1. Provide complete and operable system including five (5) sets of keys for each box and individual number plates for each box.*

Question 31: Is the mini refrigerator in room 265 covered by the FF&E allowance. If not, provide specifications.

Answer: *The mini-refrigerator will be purchased separately and is not included in the General Construction pricing.*

Question 32: 6/ID-8.4 – provide section through slate hearth slab showing support structure for the hearth and stone veneer below.

Answer: *Refer to attached bulletin drawing BD13 for information.*

Question 33: 6/ID8.4 – provide wall section through fireplace? Fireplace construction appears to extend beyond column line B, as detailed in Section 7/ID8.4.

Answer: *Refer to attached bulletin drawing BD13 for information.*

Question 34: Provide specifications for custom roll down wood doors, per 1/ID-8.2. (Specification Section 83326 issued is for a standard aluminum grille.)

Answer: *The basis of design is Woodfold Mfg., Inc. Maple veneer, motorized operation, field stained to match project stain color, slidebolt latch.*

Question 35: Clarify the use of WD-1 on Drawing ID-8.2, per the schedule on ID1.1. WD-1 is flooring, not wall paneling. WD-1 appears on both walls and ceilings - is it always the same material?

Answer: *See question 10 where WD-1 is designated for a ceiling finish. Where WD-1 is designated as a wall finish, yes, use WD-1 as specified. Use 1/2" plywood for a substrate in lieu of 5/8" gypsum board. Toe nail or staple and use appropriate construction adhesive to attach boards to substrate.*

Question 36: 10/ID8.2 – provide sections/details for POS station construction.

Answer: *Refer to attached BD16 for information.*

Question 37: The specification appears to be an unedited master spec and it is calling for the both ATs to be bypass isolation and closed transition. This is not common in this application, but the engineer may want them. The generator specification calls for both a 24hr sub-base tank and 150 gallon day tank with pumps and motors. Another issue is the specification calls for a 350W diesel generator and the drawing calls for a 85kW natural gas unit. Can you ask these questions and get the issues resolved?

Answer: *No bypass isolation or closed transition. The generator is an 85KW natural gas.*

End of Addendum