

SECTION 15410 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Water closets.
- B. Urinals
- C. Lavatories

1.2 RELATED REQUIREMENTS

- A. Section 07900 - Joint Sealers: Seal fixtures to walls and floors.

1.3 REFERENCE STANDARDS:

- A. ANSI Z124.2 - American National Standard for Plastic Shower Units: 1995.
- B. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2005.
- C. ASME A112.19.1M - Enameled Cast Iron Plumbing Fixtures; The American Society of Mechanical Engineers; 1994 (R2004).
- D. ASME A112.19.2 - Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals; The American Society of Mechanical Engineers; 2003.
- E. ASME A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use); The American Society of Mechanical Engineers; 2001 (R2004).
- G. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures; The American Society of Mechanical Engineers; 1994 (R2004).

PART 2 PRODUCTS

2.1 GENERAL

- A. The following specifications supplement the fixtures as scheduled on the drawings. See schedule for approved manufacturer's/models.
- B. Prior to ordering fixtures, confirm dimensional fit-up requirements for DWV piping layouts,

framing/millwork, faucet trim holes, etc., and coordinate any required adjustments to ensure proper fit, form and function of each fixture.

2.2 WATER CLOSETS (Flush Valve Type)

- A. Unless otherwise indicated, all water closets shall comply with the following requirements: 1.6 GPF floor mounted or wall mounted as scheduled vitreous china (ASME A112.19.2M), syphon jet with elongated rim. Provide open front, white plastic seat, hinged, without cover, compatible with toilet. Provide all required fittings for complete installation including, but not limited to, 1-1/2" top spud & bolt caps.
- B. All water closets identified on drawings as "ADA" or "Handicapped" shall have mounting height of 17" to 19" inches as measured from the finished floor to the top of seat.
- C. FLUSH VALVES
 - 1. Exposed Flush Valve:
 - a. ASME A112.18.1M; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, seat bumper, integral screwdriver stop and vacuum breaker; maximum 1.6 gallon flush volume. Trap Primer connection.

2.3 WALL HUNG URINALS

- A. Urinal:
 - 1. ASME A112.19.2M; vitreous china, wall hung washout urinal with shields, integral trap, removable stainless steel strainer, top spud, steel supporting hanger.
- B. FLUSH VALVES
- C. Exposed Flush Valve:
 - 1. ASME A112.18.1M; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, integral screwdriver stop, vacuum breaker; maximum 1 gallon flush volume.

2.4 LAVATORIES

- A. Unless otherwise indicated, all lavatories shall comply with the following requirements; Vitreous china (ASME A112.19.2M) with front overflow, drillings for required trim, 1/2" flexible supplies, escutcheon plates and stop valves. Countertop lavatories shall be sealed, self rimming. Exposed traps and arms shall be brass with cleanout. Provide removable P-traps. Faucets (ASME A112.18.1M) shall limit flow to 0.5 GPM at 80 PSI.
- B. All lavatories identified on drawings as "ADA" or "Handicapped" shall be mounted with rim or counter surface no higher than 34" above finished floor, with at least 29" height from finished floor to bottom of apron, and knee and toe clearance as identified in Florida Accessibility Code, Fig. 31. Provide offset waste as required. Controls shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist, and shall activate with less than 5 lbs. of force. Provide ADA

compliant protective shielding for piping and all sharp or abrasive surfaces under lavatory.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- B. Verify that electric power is available and of the correct characteristics.
- C. Confirm with cabinet makers and framers in advance to properly size cutouts and make other provisions necessary for the installation of counter top lavatories and sinks prior to purchasing.

3.1 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.3 INSTALLATION

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide rigid or flexible supplies to fixtures with screwdriver stops, reducers and escutcheons.
- C. Install components level and plumb.
- D. Install and secure fixtures in place with wall supports and bolts.
- E. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07900, color to match fixture.
- F. Solidly attach water closets to floor with lag screws. Lead flashing is not intended to hold fixture in place.

3.4 INTERFACE WITH WORK OF OTHER SECTIONS

- A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.5 ADJUSTING

- A. Adjust shower mixing valves to limit outlet temperature to 110 degrees F.
- B. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise or overflow.

3.6 CLEANING AND PROTECTION

- A. Clean plumbing fixtures and equipment.

3.7 SCHEDULES

- A. See Drawings for fixture schedule.

END OF SECTION

SECTION 15145 - PLUMBING PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Pipe, pipe fittings, valves, and connections for piping systems.
 - 1. Sanitary sewer.
 - 2. Domestic water.
 - 3. Gas.

1.2 REFERENCE STANDARDS

- A. ASME B16.3 - Malleable Iron Threaded Fittings; The American Society of Mechanical Engineers; 1998.
- B. ASME B31.1 - Power Piping; The American Society of Mechanical Engineers; 2004 (ANSI/ASME B31.1).
- C. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; 2004 (ANSI/ASME B31.9)
- D. ASTM A 53/1 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2004a.
- E. ASTM A 234/A 234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2004.
- F. ASTM D 2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems; 2004.
- G. ASTM D 2665 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2004a.
- H. ASTM D 2846/D 2846M - Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems; 1999.
- I. ASTM D 2855 - Standard Practice for Making solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings, 1996 (Reapproved 2002).
- J. ASTM D 3034 - Standard Specification for type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2004a.
- K. ASTM F 437 - Standard Specification for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80; 1999.
- L. ASTM F 438 - Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC)

Plastic Pipe Fittings, Schedule 40; 2004.

- M. ASTM F 439 - Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80; 2002.
- N. ASTM F 441/F 441M - Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80; 2002.
- O. ASTM F 442/F 442M - Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR); 1999.
- P. ASTM F 493 - Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings; 2004.
- Q. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; American Water Works Association; 1999 (ANSI/AWWA C105/A21.5).
- R. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 1996.
- S. NFPA 58 - Liquefied Petroleum Gas Code; National Fire Protection Association; 2004.

1.3 QUALITY ASSURANCE

- A. Valves: Manufacturer's name and pressure rating marked on valve body.

1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable code for installation of backflow prevention devices.
- B. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

PART 2 PRODUCTS

2.1 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. PVC Pipe: PVC DWV Schedule 40, ASTM D 2665.
 - 1. Fittings: PVC
 - 2. Joints: Solvent welded, with ASTM D 2564 solvent cement.

2.2 SANITARY SEWER PIPING, ABOVE GRADE

- A. PVC Pipe: ASTM D 2665.
 - 1. Fittings: PVC.
 - 2. Joints: Solvent welded, with ASTM D 2564 solvent cement.

2.3 WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. CPVC Pipe: 2" and smaller: ASTM D 2846; larger than 2"; F441 Sch 80.
 - 1. Fittings: ASTM F 437, ASTM F 438, ASTM F 439, CPVC.
 - 2. Joints: ASTM D 2855, solvent weld with ASTM D 2564 solvent cement. ASTM F 656 primer.

2.4 WATER PIPING, ABOVE GRADE

- A. CPVC Pipe: 2" and smaller: ASTM D 2846; larger than 2"; F441 Sch 80.
 - 1. Fittings: ASTM F 437, ASTM F 438, ASTM F 439, CPVC.
 - 2. Joints: ASTM D 2855, solvent weld with ASTM D 2564 solvent cement. ASTM F 656 primer.

2.5 PIPING INSULATION

- A. All insulation materials and coatings shall meet flame spread and smoke developed ratings per NFPA Bulletin 90-A when tested in accordance with ASTM Standard E 84. Smoke developed less than or equal to 50, and flame spread less than or equal to 25. All coatings and mastics shall be non-flammable in wet state.
- B. Piping insulation shall be fiberglass, ASTM C 547 and ASTM C 795; rigid molded, noncombustible installed in accordance with manufacturer's instructions. Vapor Barrier Jacket:: White kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E 96 of 0.02 perm-inches. Insulation thicknesses shall be as follows:
Insulation thicknesses shall be as follows:
 - 1. Cold Water: 1/2" thick (locations outside building insulation)
 - 2. Hot Water: Conductivity: 0.24 to 0.28 (Btu-in/(hr-ft³-degree F); thickness as follows:
 - a. Runouts up to 2" & 12' in length: 1/2"
 - b. Pipe sizes 2" and less: 1"
 - c. Pipe sizes 1-1/2" and greater: 1.5"

2.6 PROPANE GAS PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. Steel Pipe: ASTM A 53/A 53M Schedule 40 black.
 - 1. Fittings: ASME B16.2, malleable iron, or ASTM A 234/A 234M, wrought steel welding type.
 - 2. Joints: NFPA 58, threaded or welded to ASME B31.1.

2.7 PROPANE GAS PIPING, ABOVE GRADE

- A. Steel Pipe: ASTM A 53/A 53M Schedule 40 black.
 - 1. Fittings: ASME B16.3, malleable iron, or ASTM A 234/A 234M, wrought steel welding type.
 - 2. Joints: NFPA 58, threaded or welded to ASME B31.1.

2.8 FLANGES, UNIONS, COUPLINGS

- A. Unions for Pipe Sizes 3 Inches and Under:
 - 1. Ferrous pipe: Class 150 malleable iron threaded unions.

- B. Flanges for Pipe Size Over 1 Inch:
 - 1. Ferrous pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; performed neoprene gaskets.
- C. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.9 BALL VALVES

- A. Manufacturers:
 - 1. Nibco, Inc; Model 585-70-66; www.nibco.com.
 - 2. Appollo; Model 77-140.
- B. Construction: MSS SP-110, 150 psi SWP and 600 psi WOG, full port cast bronze two piece body (no yellow brass containing more than 15% zinc), ASTM B-61, ASTM B-62, or ASTM B-584, stainless steel ball and stem, TFE seats and seals, blow-out proof stem, lever handle, adjustable memory stops, solder or threaded ends with union. Where piping is insulated, provide protective sleeve that allows operation of valve without breaking vapor barrier.
- C. Valves handles in domestic water systems shall have the following colors: red for hot water service; blue for cold water service.

2.10 SLEEVES AND ESCUTCHEONS

- A. Sleeves shall be 18 gauge galvanized steel or pre-formed plastic. Sleeves shall be sized to allow approximately 1/8" gap around the pipe of its insulation.
- B. Sleeves through floor slabs shall be galvanized steel pipe of proper size, Sleeves through floor slabs shall extend 2" above the finished floor.
- C. Escutcheon plates for finished spaces will be nickel-plated.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls. unless otherwise indicated on drawings.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Final routing of all piping shall allow for expansion and contraction without stressing pipe, joints, or connected equipment. Vent piping roof penetrations shall be made using flashing collars which are designed to allow for expansion and contraction (Stoneman or equal). Where expansion of vent stack or stack vent exceeds flashing manufacturer's recommendations, provide suitable offset or approved expansion device to accommodate expansion. Provide expansion joints and/or loops or approved expansion fittings as required in all runs of domestic water and DMV lines to avoid sharing of branch lines at structural members or otherwise overstressing joints. Expansion shall be based on manufacturer's data for an 80 degree Fahrenheit temperature rise, and the individual length of pipe. Submit any specific concerns to Engineer for evaluation. Submit shop drawings of expansion loops and offsets when requested.
- G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- H. Provide access panels where valves and fittings are not exposed. Panels shall be provided in locations approved by the Architect and shall meet fire ratings of walls or ceilings. Adjust location of valves/piping when requested.
- I. Install all piping in lavatory cabinets and vanities as tight to the rear of the cabinet or vanity as possible to provide full utilization of the cabinet or vanity for storage.
- J. Install all piping so as not to interfere with any electric lighting outlets, duct work, other piping, or equipment. Do not install piping in front of any door or window and avoid interference with any such openings. Do not install any piping over any motors, transformers, electric panels, or other electrical equipment.
- K. Establish elevations of buried piping outside the building to ensure not less than 1.5 ft. of cover at all locations @ 1/4" per foot grade.
- L. Install vent piping penetrating roofed areas to maintain integrity of roof assembly. Flash all vents passing through roof.
- M. ALL FIRE RATED ASSEMBLY PIPING PENETRATIONS MUST BE MADE IN ACCORDANCE WITH THE FIRE RATED ASSEMBLY'S UL LISTING, AND APPROVED BY AUTHORITY HAVING JURISDICTION.
- N. Provide and install permanent metal tags identifying all valves and equipment.

- O. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- P. Refer to Section 15001 for excavation, backfilling and pumping requirements.
- Q. Install valves with stems upright or horizontal, not inverted.
- R. Pipe vents from gas pressure reducing valves to outdoors and terminate in weather proof hood.
- S. Install water piping to ASME B31.9.
- T. Buried water piping shall be at least 12" deep.
- U. Install trap primers in accessible locations. Provide access panels as necessary.
- V. Maintain water/sewer horizontal separation of 10'.
- W. PVC Pipe: Make solvent-welded joints in accordance with ASTM D 2855.
- X. Sleeve pipes passing through partitions, walls and floors with a schedule 40 pipe two sizes larger.
- Y. Prior to located building drain and branch lines, confirm piping will not be placed so as to run lengthwise under load bearing portions of or in footings. Adjust placement of pipe as necessary to avoid this condition.
- Z. Insulation
 - 1. Insulate all hot water distribution piping and all cold water piping exposed ambient temperatures including cold water piping in uninsulated attic space.
 - 2. Use application details in accordance with the insulating material supplies recommendations except where a higher standard is specified herein.
 - 3. Run covering for piping unbroken through hanger clevises, sleeves, etc. Use details for covering odd surfaces such that continuous covering with unbroken vapor barrier is provided. Use these same covering and hanging details for pipes connecting to vibrating equipment or carrying pulsating pressure to avoid metal-to-metal contact between pipes and hangers.
 - 4. Provide an insert, not less than 6" long, of the same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2" or larger, to prevent insulation from sagging at support points. Use heavy density insulation materials suitable for the specified temperature range and strong enough to prevent crushing.
 - 5. Cover surfaces of valves, fittings, stainers, and specialties with built-up insulation around irregular shapes to form smooth cylindrical surfaces. Cover such specialties in "cold" systems with special care to maintain continuous vapor barrier. Cover flanges and ground joint unions in "cold" systems.

AA. Sleeve and Escutcheon Installation

- 1. Accurately locate and set required sleeves in walls, foundations, floors, etc. Where more than

one pipe is necessarily passed through a single sleeve as to a unit piping enclosure or other conditions resulting in larger than 1/8" gap within the sleeve, tightly pack space with proper material to form a barrier against sound, vermin, fire, etc.

2. Provide escutcheons on all finished surfaces where exposed piping, bare or insulated, pass through floors, walls or ceiling, except in boiler, utility or equipment rooms. Fasten escutcheons securely to pipe or pipe covering.

3.3 APPLICATION

- A. Fixtures, Floor Drains and Cleanouts: Provide all fixtures and floor drains with traps to comply with local regulations and as hereinafter specified. Provide exposed traps with brass cleanout plugs. Provide cleanouts in soil and waste lines as shown on the Plans and as required by the governing codes. Extend cleanouts for piping concealed in floor or ceiling construction through the floor above and provide with adjustable floor level cleanout set flush with the finished floor. Use wall cleanouts for piping concealed in wall construction only were indicated on the Drawings.
- B. Install unions downstream of valves and at equipment or apparatus connections.
- C. Install gate valves or ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- D. Provide check valves on discharge of water pumps.
- E. Provide flow controls in water recirculating systems where indicated.

3.4 ERECTION TOLERANCES

- A. Drainage Piping: establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope.
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.5 TESTS

- A. Testing requirements are minimum and are not intended to be limiting where additional testing methods are required by the authority having jurisdiction.
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.
- C. Test all water supply piping before fixtures, equipment and/or hydrants are connected. Cap or plug the openings, fill the system with water and apply a hydrostatic pressure of 125 PSIG. Hold test pressure for at least 2 hours. Remake all leaking joints and retest.
- D. Test each fixture for soundness, stability of support and satisfactory operation of all its parts.

3.6 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Disinfect the domestic water piping system in accordance with local municipality requirements. In the absence of a locally adopted municipality procedure, after all plumbing work has been complete and the system tested, disinfect the system as follows:
 - 1. Prior to starting work, verify system is complete, flushed and clean.
 - 2. After tests are completed, fill all water supply systems with a solution containing 50 PPM of chlorine and allow to stand for a period of at least 24 hours. As an alternate, fill the system with a solution containing 200 PPM of chlorine and allow to stand for 3 hours.
 - 3. Following the standing time, the systems shall be flushed with clean potable water until the chlorine is purged from the system.
 - 4. The procedure shall be repeated where shown by a bacteriological examination that contamination remains present in the system.
- B. Deliver a dated letter certifying sterilization to the Architect.

3.7 SERVICE CONNECTIONS

- A. Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.
- B. Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves, and sand strainer.

END OF SECTION

SECTION 15146 - PLUMBING SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Floor drains.
- B. Cleanouts.
- C. Trap Primers.
- D. Hydrants.
- E. Water hammer arrestors.

1.2 REFERENCE STANDARDS

- A. ASSE 1019 - Vacuum Breaker Wall Hydrants, Freeze Resistant Automatic Draining Type; American Society of Sanitary Engineering; 2004 (ANSI/ASSE 1019).
- B. PDI-WH 201 - Water Hammer Arresters; Plumbing and Drainage Institute; 1992.

PART 2 PRODUCTS

2.1 DRAINS

- A. Manufacturers:
 - 1. Josam Company: www.josam.com.
 - 2. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
 - 3. Zurn Industries, Inc: www.zurn.com.
- B. Floor Drain (FD):
 - 1. ASME A112.21.1M; lacquered cast iron two piece body (adjustable housing) with double drainage flange, weep holes, and round, adjustable nickel-bronze strainer, trap primer connection. Outlet size shall match connecting waste pipe size.
 - 2. Where indicated, provide sediment bucket. For Clay County projects, provide 40 mesh screens on all floors?
 - 3. Polished bronze funnel or anti-splash rim for mechanical room applications.
 - 4. Provide trap primers below lavatories where indicated on drawings.
- C. Floor Sink (FS):
 - 1. Square lacquered cast iron body with integral seepage pan, epoxy coated interior, aluminum dome strainer, clamp collar, half grate or 3/4 Grate, deep seal trap.

2.2 CLEANOUTS

- A. Manufacturers:
 - 1. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
 - 2. Zurn Industries, Inc: www.zurn.com.
- B. All cleanouts shall have plugs of nylon or brass with raised or countersunk heads and shall conform to WW-P-401.
- C. Cleanouts at Exterior Surfaced Areas:
 - 1. Round cast nickel bronze access frame and non-skid cover.
- D. Cleanouts at Interior Finished Wall Areas:
 - 1. Line type with lacquered cast iron body and round epoxy coated gasketed cover, and round stainless steel access cover secured with machine screw.

2.3 HYDRANTS

- A. Wall Hydrants:
 - 1. ASSE 1019; freeze resistant, self-draining type with chrome plated wall plate hose thread spout, handwheel, and integral vacuum breaker.

2.4 WATER HAMMER ARRESTORS

- A. Manufacturers:
 - 1. Jay R. Smith Manufacturing Company: www.jayrsmith.com
 - 2. Watts Regulator Company: www.wattsregulator.com.
 - 3. Zurn Industries, Inc: www.zurn.com.
- B. Water Hammer Arrestors:
 - 1. Stainless steel or copper construction, bellows type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range - 100 to 300 degrees F and maximum 250 psi working pressure.

2.5 TRAP PRIMERS

- A. Trap primers shall conform to ANSI 1018, and shall be provided for all floor drains unless otherwise indicated on drawings.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of

graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

- C. Encase exterior cleanouts in concrete or cast iron access box (paved areas) or pvc access box (unpaved areas) flush with grade.
- D. Install floor cleanouts at elevation to accommodate finished floor.
- E. Install approved potable water protection devices on plumbing lines where contamination of domestic water may occur; on boiler feed water lines, janitor rooms, fire sprinkler systems, premise isolation, irrigation systems, flush valves, interior and exterior hose bibs.
- F. Pipe relief from backflow preventer to nearest drain.
- G. Install water hammer arrestors complete with accessible isolation valves on hot and cold water supply piping to lavatories, flush valves, sinks, washing machine outlets, dental equipment connections, makeup water connections and refrigerator outlets in accordance with PDI WH 201 guidelines as outlined in drawings.