SECTION 221319 - SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data (PD):

1. Provide product datasheets for all products specified under this section.
2. Clearly state model numbers on all submittals.

PART 2 - PRODUCTS

2.1 CLEANOUTS

A. Exposed Cleanouts:

1. Cast-iron Exposed Cleanouts:

a. Standard: ASME A112.36.2M for cast iron cleanout.
b. Provide product equal to Zurn ZN1400 cleanout with Dura-Coated cast iron body with gas and watertight ABS tapered thread plug.
c. 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:
   1) Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
   2) Watts Drainage Products Inc.
   3) Zurn Industries, LLC.

2. PVC Exposed Cleanouts:

a. Standard: ASME A112.36.2M for PVC cleanout.
b. Provide product equal to Zurn CO2410 cleanout body and plug watertight PVC tapered thread plug.
c. 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:
   1) Oatey.
   2) Sioux Chief Manufacturing Company, Inc.
   3) Zurn Industries, LLC.

B. Floor Cleanouts:

1. Cast-iron Floor Cleanouts:

a. Standard: ASME A112.36.2M for adjustable housing cleanout.
b. Provide product equal to Zurn ZN1400-BZ adjustable floor cleanout, Dura-Coated cast iron body with gas and watertight ABS tapered thread plug and round scoriated secured top in nickel bronze adjustable to finish floor.
c. 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:
    1) Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
    2) Watts Drainage Products Inc.
    3) Zurn Industries, LLC.

2. PVC Floor Cleanouts:

a. Provide product equal to Zurn EZC 6" top, adjustable PVC floor cleanout, solvent weld body, with gas and water tight ABS tapered plug and top assembly, round light duty scoriated cover in nickel bronze.
b. 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:
    1) Oatey.
    2) Sioux Chief Manufacturing Company, Inc.
    3) Zurn Industries, LLC.

3. Provide carpet markers on all floor cleanouts installed below carpeted floors.

C. Wall Cleanouts:

1. Cast-iron Wall Cleanouts:

a. Standard: ASME A112.36.2M. Include wall access.
b. Provide product equal to Zurn Z1445 cleanout body and plug complete with square wall access panel and frame equal to Zurn Z1460, smooth, stainless steel panel secured to frame, set flush to finish wall plane, complete with securing lugs.
c. 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:
    1) Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
    2) Watts Drainage Products Inc.
    3) Zurn Industries, LLC.

2. PVC Wall Cleanouts:

a. Standard: ASME A112.36.2M. Include wall access.
b. Provide product equal to Zurn CO-2411 cleanout body and plug complete with square wall access panel and frame equal to Zurn Z1460, smooth, stainless steel panel secured to frame, set flush to finish wall plane, complete with securing lugs.

c. 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:
   1) Oatey.
   2) Sioux Chief Manufacturing Company, Inc.
   3) Zurn Industries, LLC.

2.2 FLOOR DRAINS

A. Cast-iron Floor Drains:

1. Standard: ASME A112.6.3.
2. Refer to schedule on drawings for manufacturer and model number(s). If a load rating is not scheduled provide a heavy duty 'Class E' load rating.
3. All floor drains located in rooms with tile floors shall be provided with manufacturer's standard square grate.
4. 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:

   a. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
   b. Watts Drainage Products Inc.
   c. Zurn Industries, LLC.

B. PVC Floor Drains:

1. Standard: ASME A112.6.3.
2. Refer to schedule on drawings for manufacturer and model number(s). If a load rating is not scheduled provide a heavy duty 'Class E' load rating.
3. All floor drains located in rooms with tile floors shall be provided with manufacturer's standard square grate.
4. 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:

   a. Oatey.
   b. Sioux Chief Manufacturing Company, Inc.
   c. Zurn Industries, LLC.

2.3 ADDITIONAL REQUIREMENTS

A. If not expressly specified, the following drainage specialty products shall be equipped with and include, but are not limited to:

1. Floor Drains:

   a. Membrane clamp.
   b. Adjustable collar with weep holes.

c. Structural deck drain stabilizer.
d. Trap primer connection.
e. Heavy-duty slotted grate.

2.4 ROOF FLASHING ASSEMBLIES

A. Roof Flashing 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:

a. Acorn Engineering Company; Elmdor/Stoneman Div.
b. Thaler Metal Industries Ltd.
c. ProSet Systems Inc.
d. Josam Company; Josam Div.
e. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
f. Tyler Pipe; Wade Div.
g. Watts Drainage Products Inc.
h. Zurn Plumbing Products Group; Light Commercial Operation.
i. Zurn Plumbing Products Group; Specification Drainage Operation.

B. Description: Manufactured assembly made of 4.0-lb/sq. ft., 0.0625-inch-thick, lead flashing collar and skirt extending at least 6 inches from pipe, with galvanized-steel boot reinforcement and counterflashing fitting.

C. Frost-Resistant Vent Caps: Install frost-resistant vent caps on each vent pipe passing through roof, and elsewhere where indicated. Maintain 1" clearance between vent pipe and roof substrate. Coordinate vent penetrations with HVAC equipment. Maintain a minimum of 10 feet clearance from all outside air intakes, relief louvers, exhaust louvers and any other opening to the inside which could receive sewer gas infiltration.

2.5 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

A. Through-Penetration Firestop 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:

a. 3M.
b. Hilti, North America.
c. ProSet Systems Inc.

2. Standard: UL 1479 assembly of sleeve and stack fitting with firestopping plug.
3. Size: Same as connected soil, waste, or vent stack.
4. Sleeve: Molded PVC plastic, of length to match slab thickness and with integral nailing flange on one end for installation in cast-in-place concrete slabs.

5. Stack Fitting: ASTM A 48/A 48M, gray-iron, hubless-pattern, wye branch with neoprene O-ring at base and gray-iron plug in thermal-release harness. Include PVC protective cap for plug.

2.6 MISCELLANEOUS SANITARY DRAINAGE PIPING SPECIALTIES

A. No-hub Cast Iron Soil Pipe Fitting Restraints

1. Description: CISPI Designation 301-12, large diameter no-hub cast iron fittings, over 4 inches (102 mm) in size, shall be provided with supplemental support to minimize the risk of joints separation under high thrust conditions. Auxiliary restraint products used shall be manufactured assemblies with thrust pressure rating adequate for the specific installation. Field devised methods and materials shall not be used to accomplish this application solution.
2. 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:

    a. HOLDRITE
    b. EBAA Iron, Inc.
    c. Romac Industries, inc.

B. Open Hub Drains:

1. Description: Shop or field fabricate from ASTM A 74, Service class, hub-and-spigot, cast-iron, soil-pipe fittings. Include P-trap, hub-and-spigot riser section; and where required, increaser fitting joined with ASTM C 564, rubber gaskets.
2. Size: Same as connected waste piping with increaser fitting of size indicated.

C. Floor-Drain, Trap-Seal Primer Fittings:

1. Description: Cast iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
2. Size: Same as floor drain outlet with NPS 1/2 side inlet.

D. Air-Gap Fittings:

1. Standard: ASME A112.1.2, for fitting designed to ensure fixed, positive air gap between installed inlet and outlet piping.
2. Body: Bronze or cast iron.
3. Inlet: Opening in top of body.
4. Outlet: Larger than inlet.
5. Size: Same as connected waste piping and with inlet large enough for associated indirect waste piping.

E. Sleeve Flashing Device:

1. Description: Manufactured, cast-iron fitting, with clamping device, that forms sleeve for pipe floor penetrations of floor membrane. Include galvanized-steel pipe extension in top of fitting that will extend 1 inch above finished floor and galvanized-steel pipe extension in bottom of fitting that will extend through floor slab.
2. Size: As required for close fit to riser or stack piping.

F. Stack Flashing Fittings:

1. Description: Counterflashing-type, cast-iron fitting, with bottom recess for terminating roof membrane, and with threaded or hub top for extending vent pipe.
2. Size: Same as connected stack vent or vent stack.

G. Expansion Joints:

1. Standard: ASME A112.21.2M.
2. Body: Cast iron with bronze sleeve, packing, and gland.
3. End Connections: Matching connected piping.
4. Size: Same as connected soil, waste, or vent piping.

2.7 FLASHING MATERIALS

A. Lead Sheet: ASTM B 749, Type L51121, copper bearing, with the following minimum weights and thicknesses, unless otherwise indicated:

1. General Use: 4.0-lb/sq. ft., 0.0625-inch thickness.
2. Vent Pipe Flashing: 3.0-lb/sq. ft., 0.0469-inch thickness.
3. Burning: 6-lb/sq. ft., 0.0938-inch thickness.

B. Copper Sheet: ASTM B 152/B 152M, of the following minimum weights and thicknesses, unless otherwise indicated:

1. General Applications: 12 oz./sq. ft..
2. Vent Pipe Flashing: 8 oz./sq. ft..

C. Zinc-Coated Steel Sheet: ASTM A 653/A 653M, with 0.20 percent copper content and 0.04-inch minimum thickness, unless otherwise indicated. Include G90 hot-dip galvanized, mill-phosphatized finish for painting if indicated.

D. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil minimum thickness.

E. Fasteners: Metal compatible with material and substrate being fastened.

F. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

G. Solder: ASTM B 32, lead-free alloy.

H. Bituminous Coating: SSPC-Paint 12, solvent-type, bituminous mastic.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
2. Locate at each change in direction of piping greater than 45 degrees.
3. Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.
4. Locate at base of each vertical soil and waste stack.

B. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.

C. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

D. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.

1. Position floor drains for easy access and maintenance.
2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:

    a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.
    b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.
    c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.

3. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.

E. Install trench drains at low points of surface areas to be drained. Set grates of drains flush with finished surface, unless otherwise indicated. Trench drains shall be provided a minimum 6-inch reinforced concrete encasement at 5000 psi around all sides of drain body. Vibrate concrete encasement to remove air bubbles.

F. Install roof flashing assemblies on sanitary stack vents and vent stacks that extend through roof.

G. Install flashing fittings on sanitary stack vents and vent stacks that extend through roof.

H. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.

1. Exception: Fitting may be omitted if trap has trap-seal primer connection.
2. Size: Same as floor drain inlet.

I. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.

J. Install sleeve flashing device with each riser and stack passing through floors with waterproof membrane.

K. Install expansion joints on vertical stacks and conductors. Position expansion joints for easy access and maintenance.

3.2 FLASHING INSTALLATION

A. Fabricate flashing from single piece unless large pans, sumps, or other drainage shapes are required. Join flashing according to the following if required:

1. Lead Sheets: Burn joints of lead sheets 6.0-lb/sq. ft., 0.0938-inch thickness or thicker. Solder joints of lead sheets 4.0-lb/sq. ft., 0.0625-inch thickness or thinner.
2. Copper Sheets: Solder joints of copper sheets.

B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.

1. Pipe Flashing: Sleeve type, matching pipe size, with minimum length of 10 inches, and skirt or flange extending at least 8 inches around pipe.
2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches around sleeve.
3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches around specialty.

C. Set flashing on floors and roofs in solid coating of bituminous cement.

D. Secure flashing into sleeve and specialty clamping ring or device.

E. Install flashing for piping passing through roofs with counterflashing or commercially made flashing fittings, according to Section 076200 "Sheet Metal Flashing and Trim."

F. Extend flashing up vent pipe passing through roofs and turn down into pipe, or secure flashing into cast-iron sleeve having calking recess.

G. Fabricate and install flashing and pans, sumps, and other drainage shapes.

END OF SECTION 221319