SECTION 221319 - SANITARY WASTE PIPING SPECIALTIES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			1. SUMMARY
				1. Section Includes:

Backwater valves.

Cleanouts.

Air-admittance valves.

Miscellaneous sanitary drainage piping specialties.

* + - 1. DEFINITIONS

Retain terms that remain after this Section has been edited for a project.

* + - * 1. ABS: Acrylonitrile butadiene styrene.
				2. PVC: Polyvinyl chloride.
			1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are submitted and tabbed (for combined submittals).
				4. Product Data: For each type of product.
				5. Shop Drawings:

Retain subparagraph below if retaining "Frost-Resistant Vent Terminals" paragraph in "Miscellaneous Sanitary Drainage Piping Specialties" Article.

Show fabrication and installation details for frost-resistant vent terminals.

Retain "Field quality-control reports" paragraph below if Contractor is responsible for field quality-control testing and inspecting.

* + - * 1. Field quality-control reports.
			1. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: For sanitary waste piping specialties to include in emergency, operation, and maintenance manuals.
1. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. ASSEMBLY DESCRIPTIONS
				1. Sanitary waste piping specialties shall bear label, stamp, or other markings of specified testing agency.
				2. Comply with NSF 14 for plastic sanitary waste piping specialty components.
			2. BACKWATER VALVES

Copy this article and re-edit for each product.

If more than one configuration of each valve is required, insert drawing designation for each valve required. Use these designations on Drawings to identify each product.

* + - * 1. Horizontal, Cast-Iron Backwater Valves <**Insert drawing designation, if any**>:

Standard: ASME A112.14.1.

Size: Same as connected piping.

Body: Cast iron.

Cover: Cast iron with [**bolted**] [**or**] [**threaded**] access check valve.

End Connections: [**Hub and spigot**] [**Hub and spigot or hubless**] [**Hubless**].

Type Check Valve: Removable, bronze, swing check, factory assembled or field modified to hang [**closed**] [**open for airflow unless subject to backflow condition**].

Extension: ASTM A74, Service Class; full-size, cast-iron, soil-pipe extension to field-installed cleanout at floor; replaces backwater valve cover.

* + - * 1. Drain-Outlet Backwater Valves <**Insert drawing designation, if any**>:

Size: Same as floor drain outlet .

Body: Cast iron or bronze; made for vertical installation in bottom outlet of floor drain.

Check Valve: Removable ball float.

Inlet: Threaded.

Outlet: Threaded or spigot.

Floor drains with integral backwater valves are specified as floor drains.

Plastic backwater valves in "Horizontal, Plastic Backwater Valves" paragraph below are available in NPS 2 to NPS 6 (DN 50 to DN 150). Most are made of PVC.

* + - * 1. Horizontal, Plastic Backwater Valves <**Insert drawing designation, if any**>:

Size: Same as connected piping .

Body: [**ABS**] [**PVC**].

Cover: Same material as body with threaded access to check valve.

Check Valve: Removable swing check.

End Connections: Socket type.

* + - 1. CLEANOUTS

Copy this article and re-edit for each product.

If more than one configuration of each cleanout is required, insert drawing designation for each cleanout required. Use these designations on Drawings to identify each product.

* + - * 1. Cast-Iron Exposed Cleanouts <**Insert drawing designation, if any**>:

Standard: ASME A112.36.2.

Size: Same as connected drainage piping

Body Material: [**Hub-and-spigot, cast-iron soil pipe T-branch**] [**Hubless, cast-iron soil pipe test tee**] as required to match connected piping.

Closure: [**Countersunk**] [**Countersunk or raised-head**] [**Raised-head**], [**brass**] [**cast-iron**] [**plastic**] plug.

Closure Plug Size: Same as or not more than one size smaller than cleanout size.

* + - * 1. Stainless Steel Exposed Cleanouts:

Standard: ASME A112.3.1.

Size: Same as connected drainage piping.

Body Material: Stainless steel tee with side cleanout as required to match connected piping.

Closure: Stainless steel plug with seal.

* + - * 1. Cast-Iron Exposed Floor Cleanouts <**Insert drawing designation, if any**>:

Standard: ASME A112.36.2 for [**adjustable housing**] [**cast-iron soil pipe with cast-iron ferrule**] [**heavy-duty, adjustable housing**] [**threaded, adjustable housing**] cleanout .

Size: Same as connected branch.

Type: [**Adjustable housing**] [**Cast-iron soil pipe with cast-iron ferrule**] [**Heavy-duty, adjustable housing**] [**Threaded, adjustable housing**].

Body or Ferrule: Cast iron.

Clamping Device: [**Not required**] [**Required**].

Outlet Connection: [**Inside calk**] [**Spigot**] [**Threaded**].

Closure: [**Brass plug with straight threads and gasket**] [**Brass plug with tapered threads**] [**Cast-iron plug**] [**Plastic plug**].

Adjustable Housing Material: [**Cast iron**] [**Plastic**] <**Insert material**> with [**threads**] [**setscrews or other device**].

Frame and Cover Material and Finish: [**Nickel-bronze, copper alloy**] [**Painted cast iron**] [**Polished bronze**] [**Rough bronze**] [**Stainless steel**] <**Insert material and finish**>.

Frame and Cover Shape: [**Round**] [**Square**] <**Insert shape**>.

Top-Loading Classification: [**Extra Heavy**] [**Heavy**] [**Light**] [**Medium**] Duty.

Riser: ASTM A74, [**Extra-Heavy**] [**Service**] Class, cast-iron drainage pipe fitting and riser to cleanout.

Vandal proof fasteners for cover.

* + - * 1. Stainless Steel Exposed Floor Cleanouts:

Standards: ASME A112.3.1[**; NSF listed]**.

Not all manufacturers offer NSF listing. Consult manufacturers if NSF listing is a Project requirement.

Size: Same as connected branch.

Type 304 is standard for all manufacturers. Some manufacturers offer Type 316. Consult manufacturers.

Housing: [**Type 304 stainless steel**] [**Type 316 stainless steel**].

Closure: [**Stainless steel with seal**] [**Plastic plug**].

Riser: ASTM A74, [**Extra-Heavy**] [**Service**] Class, [**stainless steel**] [**cast-iron**] drainage pipe fitting and riser to cleanout.

Body or Ferrule: Stainless steel.

Clamping Device: [**Not required**] [**Required**].

Outlet Connection: [**Inside caulk**] [**Spigot**] [**Threaded**] [**Butt-weld**].

Adjustable Housing Material: [**Cast iron**] [**Plastic**] <**Insert material**> with [**threads**] [**setscrews or other device**].

Frame and Cover Material and Finish: Stainless steel.

Frame and Cover Shape: [**Round**] [**Square**] <**Insert shape**>.

Top-Loading Classification: [**Extra Heavy**] [**Heavy**] [**Light**] [**Medium**] Duty.

Vandal proof fasteners for cover.

* + - * 1. Cast-Iron Wall Cleanouts <**Insert drawing designation, if any**>:

Standard: ASME A112.36.2. Include wall access .

Size: Same as connected drainage piping.

Body: [**Hub-and-spigot, cast-iron soil pipe T-branch**] [**Hubless, cast-iron soil pipe test tee**] as required to match connected piping.

Closure Plug:

[**Brass**] [**Cast iron**].

[**Countersunk**] [**or**] [**raised**] head.

Drilled and threaded for cover attachment screw.

Size: Same as or not more than one size smaller than cleanout size.

Retain "Wall Access, Cover Plate" subparagraph below for cover plate, or retain "Wall Access, Frame and Cover" subparagraph below for frame and cover to be installed in drywall. Retain both if either is acceptable.

Wall Access, Cover Plate: Round, [**deep, chrome-plated bronze**] [**flat, chrome-plated brass or stainless steel**] cover plate with screw.

Wall Access, Frame and Cover: [**Round**] [**Square**], [**nickel-bronze, copper-alloy, or stainless steel**] <**Insert material**> wall-installation frame and cover.

Vandal proof fasteners for cover.

* + - * 1. Plastic Floor Cleanouts <**Insert drawing designation, if any**>:

Size: Same as connected branch.

Body: PVC.

Closure Plug: PVC.

Riser: Drainage pipe fitting and riser to cleanout of same material as drainage piping.

* + - 1. AIR-ADMITTANCE VALVES

Copy this article and re-edit for each product.

If more than one configuration of air-admittance valve is required, insert drawing designation for each valve required. Use these designations on Drawings to identify each product.

Valves in "Fixture Air-Admittance Valves" paragraph below are available in NPS 1-1/2 and NPS 2 (DN 40 and DN 50). Valves NPS 1-1/4 to NPS 4 (DN 32 to DN 100) are allowed by ASSE 1051.

* + - * 1. Fixture Air-Admittance Valves <**Insert drawing designation, if any**>:

Standard: ASSE 1051, Type A for single fixture or Type B for branch piping.

Housing: Plastic.

Operation: Mechanical sealing diaphragm.

Size: Same as connected fixture or branch vent piping.

Valves in "Stack Air-Admittance Valves" paragraph below are available in NPS 1-1/2, NPS 2, and NPS 3 (DN 40, DN 50, and DN 80). There are no size limitations in ASSE 1050.

* + - * 1. Stack Air-Admittance Valves <**Insert drawing designation, if any**>:

Standard: ASSE 1050 for vent stacks.

Housing: Plastic.

Operation: Mechanical sealing diaphragm.

Size: Same as connected stack vent or vent stack.

* + - * 1. Wall Box for Air-Admittance Valves <**Insert drawing designation, if any**>:

Description: White plastic housing with white plastic grille, made for recessed installation. Include bottom pipe connection and space to contain one air-admittance valve.

Size: Approximately 6 inches wide by 6 inches high by 4 inches deep.

* + - 1. MISCELLANEOUS SANITARY DRAINAGE PIPING SPECIALTIES

Copy this article and re-edit for each product.

If more than one configuration of each specialty is required, insert drawing designation for each specialty required. Use these designations on Drawings to identify each product.

* + - * 1. Open Drains <**Insert drawing designation, if any**>:

Description: Shop or field fabricate from ASTM A74, 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 C564 rubber gaskets.

Size: Same as connected waste piping[**with increaser fitting of size indicated**].

* + - * 1. Deep-Seal Traps <**Insert drawing designation, if any**>:

Description: Cast-iron or bronze casting, with inlet and outlet matching connected piping and cleanout trap-seal primer valve connection.

Size: Same as connected waste piping.

NPS 2: 4-inch- minimum water seal.

NPS 2-1/2 and Larger: 5-inch- minimum water seal.

* + - * 1. Floor-Drain, Trap-Seal Primer Fittings <**Insert drawing designation, if any**>:

Description: Cast iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.

Size: Same as floor drain outlet with NPS 1/2 side inlet.

* + - * 1. Floor-Drain, Inline Trap Seal <**Insert drawing designation, if any**>:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=13826) Subject to compliance with requirements, provide products by one of the following:

[Jay R. Smith Mfg Co; a division of Morris Group International](http://www.specagent.com/Lookup?uid=123457164286).

[Josam Company](http://www.specagent.com/Lookup?uid=123457164288).

[RectorSeal Plumbing; A CSW Industrials Company](http://www.specagent.com/Lookup?uid=123457164285).

Or equal.

Description: Inline floor drain trap seal, forming a physical barrier to slow trap evaporation while not impeding flow from drain.

Material: Polymer.

Standard: Tested and certified in accordance with ASSE 1072.

Listing: [**UNIFORM CODE-ES**] [**or**] [**IAPMO**] listed.

Size: Same as floor drain outlet or strainer throat.

Design Consultant to review code references and verify that the referenced sections/tables are current. Note that code references shall be based on the current version of the Uniform Code.

* + - * 1. Air-Gap Fittings <**Insert drawing designation, if any**>:

Standard: ASME A112.1.2, for fitting designed to ensure fixed, positive air gap between installed inlet and outlet piping.

Body: Bronze or cast iron.

Inlet: Opening in top of body.

Outlet: Larger than inlet.

Size: Same as connected waste piping and with inlet large enough for associated indirect waste piping.

* + - * 1. Sleeve Flashing Device <**Insert drawing designation, if any**>:

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**] [**2 inches**] <**Insert dimension**> above finished floor and galvanized-steel pipe extension in bottom of fitting that will extend through floor slab.

Size: As required for close fit to riser or stack piping.

* + - * 1. Stack Flashing Fittings <**Insert drawing designation, if any**>:

Description: Counterflashing-type, cast-iron fitting, with bottom recess for terminating roof membrane, and with threaded or hub top for extending vent pipe.

Size: Same as connected stack vent or vent stack.

* + - * 1. Vent Caps <**Insert drawing designation, if any**>:

Description: Cast-iron body with threaded or hub inlet and vandal-proof design. Include vented hood and setscrews to secure to vent pipe.

Size: Same as connected stack vent or vent stack.

* + - * 1. Frost-Resistant Vent Terminals <**Insert drawing designation, if any**>:

Description: Manufactured or shop-fabricated assembly constructed of copper, lead-coated copper, or galvanized steel.

Design: To provide 1-inch enclosed air space between outside of pipe and inside of flashing collar extension, with counterflashing.

Fittings in "Expansion Joints" paragraph below are designed for use with roof drains but may also be used with conductors and sanitary drainage and vent systems if required.

* + - * 1. Expansion Joints <**Insert drawing designation, if any**>:

Standard: ASME A112.6.4.

Body: Cast iron with bronze sleeve, packing, and gland.

End Connections: Matching connected piping.

Size: Same as connected soil, waste, or vent piping.

1. EXECUTION
	* + 1. INSTALLATION

Additional instructions may be required for special applications. Show locations of specialties in plans, details, and schematics on Drawings.

* + - * 1. Install backwater valves in building drain piping.

For interior installation, provide cleanout deck plate flush with floor and centered over backwater valve cover, and of adequate size to remove valve cover for servicing.

* + - * 1. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.

Locate at each change in direction of piping greater than 45 degrees.

Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.

Locate at base of each vertical soil and waste stack.

* + - * 1. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.
				2. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

Air-admittance valves in first two paragraphs below cannot replace all vent piping. They should be used only where normal venting is difficult. If used, they should be indicated on Drawings.

* + - * 1. Install fixture air-admittance valves on fixture drain piping.
				2. Install stack air-admittance valves at top of stack vent and vent stack piping.
				3. Install air-admittance-valve wall boxes recessed in wall.
				4. Assemble open drain fittings and install with top of hub [**1 inch**] [**2 inches**] <**Insert dimension**> above floor.
				5. Install deep-seal traps on floor drains and other waste outlets, if indicated.
				6. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.

Exception: Fitting may be omitted if trap has trap-seal primer connection.

Size: Same as floor drain inlet.

* + - * 1. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.
				2. Install sleeve and sleeve seals with each riser and stack passing through floors with waterproof membrane.

Retain first paragraph below to reduce vandalism.

* + - * 1. Install vent caps on each vent pipe passing through roof.

Retain first paragraph below for freezing climates. These units may be used to prevent frost closure instead of increasing vent size if permitted by authorities having jurisdiction.

* + - * 1. Install frost-resistant vent terminals on each vent pipe passing through roof. Maintain 1-inch clearance between vent pipe and roof substrate.
				2. Install expansion joints on vertical stacks and conductors. Position expansion joints for easy access and maintenance.

Retain first paragraph below for freezing climates. These units may be used to prevent frost closure instead of increasing vent size if permitted by authorities having jurisdiction.

* + - * 1. Install frost-proof vent caps on each vent pipe passing through roof. Maintain 1-inch clearance between vent pipe and roof substrate.
				2. Install wood-blocking reinforcement for wall-mounting-type specialties.
				3. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.
			1. PIPING CONNECTIONS

Coordinate piping installations and specialty arrangements with schematics on Drawings and with requirements specified in piping systems. If Drawings are explicit enough, these requirements may be reduced or omitted.

* + - * 1. Comply with requirements in Section 221316 "Sanitary Waste and Vent Piping" for piping installation requirements. Drawings indicate general arrangement of piping, fittings, and specialties.
				2. Install piping adjacent to equipment, to allow service and maintenance.
			1. LABELING AND IDENTIFYING
				1. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit.

Nameplates and signs are specified in Section 220553 "Identification for Plumbing Piping and Equipment."

* + - 1. PROTECTION
				1. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
				2. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 221319