

## SECTION 15155 - SANITARY WASTE PIPING SPECIALTIES

Project Number 14-5006-39

Project Title Kansas City Area Transportation Authority  
Service Line Reversal (FOR INFORMATION ONLY)

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:

1. Backwater valves.
2. Cleanouts.
3. Floor drains.
4. Trench drains.
5. Channel drainage systems.
6. Through-penetration firestop assemblies.
7. Miscellaneous sanitary drainage piping specialties.
8. Flashing materials.
9. Solids interceptors.

## 1.3 DEFINITIONS

- A. ABS: Acrylonitrile-butadiene-styrene plastic.
- B. FRP: Fiberglass-reinforced plastic.
- C. HDPE: High-density polyethylene plastic.
- D. PE: Polyethylene plastic.
- E. PP: Polypropylene plastic.
- F. PVC: Polyvinyl chloride plastic.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and accessories for the following:
  - 1. Oil interceptors.
- B. Shop Drawings: Show fabrication and installation details for frost-resistant vent terminals.
  - 1. Wiring Diagrams: Power, signal, and control wiring.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer Seismic Qualification Certification: Submit certification that oil interceptors, accessories, and components will withstand seismic forces defined in Section 15073 "Vibration Controls for Plumbing Piping and Equipment." Include the following:
  - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
    - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
    - b. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
  - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
  - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- B. Field quality-control reports.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For drainage piping specialties to include in emergency, operation, and maintenance manuals.

#### 1.7 QUALITY ASSURANCE

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic sanitary piping specialty components.

## 1.8 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Section 03300 "Cast-in-Place Concrete."
- B. Coordinate size and location of roof penetrations.

## PART 2 - PRODUCTS

### 2.1 BACKWATER VALVES

#### A. Horizontal, Cast-Iron Backwater Valves:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. [Josam Company; Josam Div.](#)
  - b. [MIFAB, Inc.](#)
  - c. [Smith, Jay R. Mfr. Co.; Division of Smith Industries, Inc.](#)
  - d. [Tyler Pipe; Wade Div.](#)
  - e. [Watts Drainage Products Inc.](#)
  - f. [Zurn Plumbing Products Group; Specification Drainage Operation.](#)
- 2. Standard: ASME A112.14.1.
- 3. Size: Same as connected piping.
- 4. Body: Cast iron.
- 5. Cover: Cast iron with bolted or threaded access check valve.
- 6. End Connections: Hub and spigot or hubless.
- 7. Type Check Valve: Removable, bronze, swing check, factory assembled or field modified to hang closed.
- 8. Extension: ASTM A 74, Service class; full-size, cast-iron, soil-pipe extension to field-installed cleanout at floor; replaces backwater valve cover.

#### B. Drain-Outlet Backwater Valves:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. [Josam Company; Josam Div.](#)
  - b. [Smith, Jay R. Mfr. Co.; Division of Smith Industries, Inc.](#)
  - c. [Watts Drainage Products Inc.](#)

- d. [Zurn Plumbing Products Group; Specification Drainage Operation.](#)
  - 2. Size: Same as floor drain outlet.
  - 3. Body: Cast iron or bronze made for vertical installation in bottom outlet of floor drain.
  - 4. Check Valve: Removable ball float.
  - 5. Inlet: Threaded.
  - 6. Outlet: Threaded or spigot.
- C. Horizontal, Plastic Backwater Valves:
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. [Canplas LLC.](#)
    - b. [IPS Corporation.](#)
    - c. [NDS Inc.](#)
    - d. [Oatey.](#)
    - e. [Plastic Oddities; a division of Diverse Corporate Technologies.](#)
    - f. [Sioux Chief Manufacturing Company, Inc.](#)
    - g. [Zurn Plumbing Products Group; Light Commercial Operation.](#)
  - 2. Size: Same as connected piping.
  - 3. Body: PVC.
  - 4. Cover: Same material as body with threaded access to check valve.
  - 5. Check Valve: Removable swing check.
  - 6. End Connections: Socket type.

## 2.2 CLEANOUTS

- A. Exposed Metal Cleanouts:
- 1. ASME A112.36.2M, Cast-Iron Cleanouts:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) [Josam Company.](#)
      - 2) [MIFAB, Inc.](#)
      - 3) [Smith, Jay R. Mfg. Co.](#)
      - 4) [Tyler Pipe.](#)
      - 5) [Watts Drainage Products.](#)
      - 6) [Zurn Plumbing Products Group.](#)
    - 2. Standard: ASME A112.36.2M for cast iron for cleanout test tee.
    - 3. Size: Same as connected drainage piping
    - 4. Body Material: Hub-and-spigot, cast-iron soil pipe T-branch or Hubless, cast-iron soil pipe test tee as required to match connected piping.
    - 5. Closure: Countersunk, brass plug.

6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
7. Closure: Stainless-steel plug with seal.

B. Metal Floor Cleanouts:

1. ASME A112.36.2M, Cast-Iron Cleanouts:

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) [Josam Company.](#)
- 2) [Oatey.](#)
- 3) [Sioux Chief Manufacturing Co., Inc.](#)
- 4) [Smith, Jay R. Mfg. Co.](#)
- 5) [Tyler Pipe.](#)
- 6) [Watts Drainage Products.](#)
- 7) [Zurn Plumbing Products Group.](#)

2. Standard: ASME A112.36.2M for adjustable housing, heavy-duty, adjustable housing or threaded, adjustable housing cleanout.
3. Size: Same as connected branch.
4. Type: Adjustable housing, Heavy-duty, adjustable housing or Threaded, adjustable housing.
5. Body or Ferrule: Cast iron.
6. Clamping Device: Refer to details.
7. Outlet Connection: Spigot, Threaded.
8. Closure: Brass plug with straight threads and gasket or Brass plug with tapered threads.
9. Adjustable Housing Material: Cast iron with threads or set-screws or other device.
10. Frame and Cover Material and Finish: Rough bronze.
11. Frame and Cover Shape: Round.
12. Top Loading Classification: Extra Heavy Duty.
13. Riser: ASTM A 74, Extra-Heavy class, cast-iron drainage pipe fitting and riser to cleanout.
14. Standard: ASME A112.3.1.
15. Size: Same as connected branch.
16. Housing: Stainless steel.
17. Closure: Stainless steel with seal.
18. Riser: Stainless-steel drainage pipe fitting to cleanout.

C. Cast-Iron Wall Cleanouts:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. [Josam Company;](#) Josam Div.
  - b. [MIFAB, Inc.](#)
  - c. [Smith, Jay R. Mfg. Co.](#)
  - d. [Tyler Pipe;](#) Wade Div.

- e. [Watts Drainage Products](#).
  - f. [Zurn Plumbing Products Group](#); Specification Drainage Operation.
- 2. Standard: ASME A112.36.2M. Include wall access.
  - 3. Size: Same as connected drainage piping.
  - 4. Body: Hub-and-spigot, cast-iron soil pipe T-branch or Hubless, cast-iron soil pipe test tee as required to match connected piping.
  - 5. Closure: Countersunk brass plug.
  - 6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
  - 7. Wall Access: Round, flat, chrome-plated brass or stainless-steel cover plate with screw.
  - 8. Wall Access: Round, nickel-bronze, copper-alloy, or stainless-steel wall-installation frame and cover.

## 2.3 FLOOR DRAINS

### A. Cast-Iron Floor Drains:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. [Commercial Enameling Co.](#)
  - b. [Josam Company](#); Josam Div.
  - c. [MIFAB, Inc.](#)
  - d. [Prier Products, Inc.](#)
  - e. [Smith, Jay R. Mfg. Co.](#)
  - f. [Tyler Pipe](#); Wade Div.
  - g. [Watts Drainage Products](#).
  - h. [Zurn Plumbing Products Group](#); Light Commercial Operation.
- 2. Standard: ASME A112.6.3 with backwater valve.
- 3. Pattern: Area Floor Sanitary drain.
- 4. Body Material: Gray iron.
- 5. Seepage Flange: Required.
- 6. Anchor Flange: Required.
- 7. Clamping Device: Required.
- 8. Outlet: Refer to Schedule.
- 9. Backwater Valve: Drain-outlet type or Integral, ASME A112.14.1, swing-check type.
- 10. Coating on Interior and Exposed Exterior Surfaces: Acid-resistant enamel or as scheduled.
- 11. Sediment Bucket: As scheduled.
- 12. Top or Strainer Material: Bronze, Nickel bronze, Stainless steel.
- 13. Top of Body and Strainer Finish: Nickel bronze, Rough bronze, Stainless steel.
- 14. Top Shape: Round or Square.
- 15. Dimensions of Top or Strainer: As scheduled.
- 16. Top Loading Classification: Extra Heavy-Duty.
- 17. Funnel: As scheduled.

18. Inlet Fitting: Gray iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
19. Trap Material: As scheduled.
20. Trap Pattern: Standard P-trap.
21. Trap Features: Cleanout and trap-seal primer valve drain connection.

B. Stainless-Steel Floor Drains:

1. ASME A112.3.1, Stainless-Steel Floor Drains:
  - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - 1) [Josam Company.](#)
    - 2) Stainless Drains.
2. ASME A112.6.3, Stainless-Steel Floor Drains:
  - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - 1) [Josam Company.](#)
    - 2) [Kusel Equipment Co.](#)
    - 3) [Scherping Systems, Inc.](#)
    - 4) [Smith, Jay R. Mfg. Co.](#)
    - 5) [Tyler Pipe.](#)
    - 6) [Watts Drainage Products.](#)
    - 7) [Zurn Plumbing Products Group.](#)
3. Standard: ASME A112.3.1.
4. Outlet: As scheduled.
5. Top or Strainer Material: Stainless steel.
6. Top Shape: As scheduled.
7. Dimensions of Top or Strainer: As scheduled.
8. Seepage Flange: Required.
9. Anchor Flange: Required.
10. Clamping Device: Required.
11. Trap-Primer Connection: Required.
12. Trap Material: Stainless steel.
13. Trap Pattern: Cleanout with trap-seal primer valve drain connection.

2.4 TRENCH DRAINS

A. Trench Drains:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. [Josam Company; Josam Div.](#)
  - b. [MIFAB, Inc.](#)

- c. [Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.](#)
  - d. [Tyler Pipe; Wade Div.](#)
  - e. [Watts Drainage Products Inc.](#)
  - f. [Zurn Plumbing Products Group; Specification Drainage Operation.](#)
- 2. Standard: ASME A112.6.3 for trench drains.
  - 3. Material: Ductile or gray iron.
  - 4. Flange: Seepage.
  - 5. Clamping Device: Required.
  - 6. Outlet: As scheduled.
  - 7. Grate Material: As scheduled.
  - 8. Grate Finish: As scheduled.
  - 9. Dimensions of Frame and Grate: As scheduled.
  - 10. Top Loading Classification: Extra Heavy-Duty.
  - 11. Trap Material: As scheduled.
  - 12. Trap Pattern: Cleanout with trap-seal primer valve drain connection.

## 2.5 CHANNEL DRAINAGE SYSTEMS

### A. Stainless-Steel Channel Drainage Systems:

- 1. ASME A112.3.1, Stainless-Steel Channel Drainage Systems:
  - a. Manufacturers: Subject to compliance with requirements, provide products by the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - 1) [Josam Company.](#)
- 2. Type: Modular system of stainless-steel channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling.
  - a. Standard: ASME A112.3.1, for trench drains.
  - b. Channel Sections: Interlocking-joint, stainless-steel with level invert.
    - 1) Dimensions: As scheduled.
  - c. Grates: Manufacturer's designation "heavy duty," with slots or perforations, and of width and thickness that fit recesses in channels.
    - 1) Material: As scheduled.
    - 2) Locking Mechanism: Manufacturer's standard device for securing grates to channel sections.
  - d. Covers: Solid ductile or gray iron; stainless steel, of width and thickness that fit recesses in channels, and of lengths indicated.
  - e. Supports, Anchors, and Setting Devices: Manufacturer's standard, unless otherwise indicated.



- f. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.
- 3. Type: Modular system of stainless-steel channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling.
  - a. Channel Sections: Interlocking-joint, stainless steel with level invert.
    - 1) Dimensions: As scheduled.
  - b. Grates: Manufacturer's designation "heavy duty," with slots or perforations, and of width and thickness that fit recesses in channels.
    - 1) Material: As scheduled.
    - 2) Locking Mechanism: Manufacturer's standard device for securing grates to channel sections.
  - c. Covers: Solid ductile or gray iron; stainless steel, of width and thickness that fit recesses in channels, and of lengths indicated.
  - d. Supports, Anchors, and Setting Devices: Manufacturer's standard, unless otherwise indicated.
  - e. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

B. Polymer-Concrete Channel Drainage Systems:

- 1. Narrow, Sloped-Invert, Polymer-Concrete Channel Drainage Systems:
  - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - 1) [ABT, Inc.](#)
    - 2) [ACO Polymer Products, Inc.](#)
    - 3) [Forte Composites, Inc.](#)
    - 4) [Josam Company.](#)
    - 5) [Smith, Jay R. Mfg. Co.](#)
    - 6) [Strongwell Corporation.](#)
- 2. Narrow, Level-Invert, Polymer-Concrete Channel Drainage Systems:
  - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - 1) [ABT, Inc.](#)
    - 2) [ACO Polymer Products, Inc.](#)
    - 3) [Forte Composites, Inc.](#)
    - 4) [Josam Company.](#)
- 3. Wide, Level-Invert, Polymer-Concrete Channel Drainage Systems:

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1) [ABT, Inc.](#)
  - 2) [ACO Polymer Products, Inc.](#)
  - 3) [Josam Company.](#)
  - 4) [Strongwell Corporation.](#)
- 4. Type: Modular system of channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling.
  - a. Channel Sections: Narrow, interlocking-joint, sloped-invert, polymer-concrete modular units with end caps. Include rounded bottom, with built-in invert slope of 0.6 percent and with outlets in number, sizes, and locations indicated. Include extension sections necessary for required depth.
    - 1) Dimensions: 4-inch inside width. Include number of units required to form total lengths indicated.
    - 2) Frame: Gray-iron or galvanized steel for grates.
  - b. Grates: Manufacturer's designation "heavy duty," with slots or perforations, and of width and thickness that fit recesses in channel sections.
    - 1) Material: As scheduled.
    - 2) Locking Mechanism: Manufacturer's standard device for securing grates to channel sections.
  - c. Covers: Solid ductile or gray iron, of width and thickness that fit recesses in channel sections, and of lengths indicated.
  - d. Supports, Anchors, and Setting Devices: Manufacturer's standard, unless otherwise indicated.
  - e. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.
  - f. Channel Sections: Narrow, interlocking-joint, precast, polymer-concrete modular units with end caps. Include rounded bottom, with level invert and with NPS 4 outlets in number and locations indicated.
    - 1) Dimensions: As scheduled.
    - 2) Frame: Gray-iron or galvanized steel for grates.
  - g. Grates: Manufacturer's designation "heavy duty," with slots or perforations, and of width and thickness that fit recesses in channel sections.
    - 1) Material: As scheduled.
    - 2) Locking Mechanism: Manufacturer's standard device for securing grates to channel sections.
  - h. Covers: Solid ductile or gray iron, of width and thickness that fit recesses in channel sections, and of lengths indicated.

- i. Supports, Anchors, and Setting Devices: Manufacturer's standard, unless otherwise indicated.
- j. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.
- k. Channel Sections: Wide, interlocking-joint, precast, polymer-concrete modular units with end caps. Include flat or rounded bottom, with level invert and with outlets in number, sizes, and locations indicated.
  - 1) Dimensions: As scheduled.
  - 2) Frame: Gray-iron or galvanized steel for grates.
- l. Grates: Manufacturer's designation "heavy duty," with slots or perforations, and of width and thickness that fit recesses in channel sections.
  - 1) Material: As scheduled.
  - 2) Locking Mechanism: Manufacturer's standard device for securing grates to channel sections.
- m. Covers: Solid ductile or gray iron, of width and thickness that fit recesses in channel sections, and of lengths indicated.
- n. Supports, Anchors, and Setting Devices: Manufacturer's standard, unless otherwise indicated.
- o. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

C. FRP Channel Drainage Systems:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. [ACO Polymer Products, Inc.](#)
  - b. [Aquaduct, Inc.; an ACO Polymer Products, Inc. Company.](#)
  - c. [Josam Company; Mea-Josam Div.](#)
  - d. [Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.](#)
  - e. [Zurn Plumbing Products Group; Flo-Thru Operation.](#)
- 2. Description: Modular system of channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling.
  - a. Channel Sections: Interlocking-joint, sloped-invert, FRP modular units, with end caps. Include flat, rounded, or inclined inside bottom, with outlets in number, sizes, and locations indicated.
    - 1) Dimensions: As scheduled.
    - 2) Frame: Manufacturer's standard metal for grates.
  - b. Grates: With slots or perforations and widths and thickness that fit recesses in channel sections.
    - 1) Material: As scheduled.

- 2) Locking Mechanism: Manufacturer's standard device for securing grates to channel sections.
  - c. Covers: Solid ductile or gray iron, of width and thickness that fit recesses in channel sections, and of lengths indicated.
  - d. Supports, Anchors, and Setting Devices: Manufacturer's standard, unless otherwise indicated.
  - e. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.
- D. Plastic Channel Drainage Systems:
1. HDPE or PE Channel Drainage Systems:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) [Smith, Jay R. Mfg. Co.](#)
      - 2) [Tuf-Tite Corporation.](#)
      - 3) [Zurn Plumbing Products Group.](#)
  2. PP Channel Drainage Systems:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) [Infinity Plastics, Inc.](#)
      - 2) [Smith, Jay R. Mfg. Co.](#)
  3. PVC Channel Drainage Systems:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) [MultiDrain Systems.](#)
      - 2) [NDS Inc.](#)
  4. HDPE, PE, PP, or PVC Channel Drainage Systems:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) [Infinity Plastics, Inc.](#)
      - 2) [MultiDrain Systems.](#)
      - 3) [NDS Inc.](#)
      - 4) [Smith, Jay R. Mfg. Co.](#)
      - 5) [Tuf-Tite Corporation.](#)
      - 6) [Zurn Plumbing Products Group.](#)
  5. Type: Modular system of channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling.

- a. Channel Sections: Interlocking-joint, HDPE or PE, PP or PVC modular units, with end caps. Include flat, rounded, or inclined bottom, with level invert and with outlets in number, sizes, and locations indicated.
  - 1) Dimensions: 4 inches wide. Include number of units required to form total lengths indicated.
- b. Grates: With slots or perforations and widths and thickness that fit recesses in channel sections.
  - 1) Material: As scheduled.
  - 2) Color: As scheduled.
- c. Supports, Anchors, and Setting Devices: Manufacturer's standard, unless otherwise indicated.
- d. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

## 2.6 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

### A. Through-Penetration Firestop Assemblies:

- 1. Manufacturers: Subject to compliance with requirements, provide products by the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. [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.
- 6. Special Coating: Corrosion resistant on interior of fittings.

## 2.7 MISCELLANEOUS SANITARY DRAINAGE PIPING SPECIALTIES

### A. Open 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.

### B. Deep-Seal Traps:

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

2. Size: Same as connected waste piping.
  - a. NPS 2: 4-inch- minimum water seal.
  - b. NPS 2-1/2 and Larger: 5-inch- minimum water seal.
- 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 2 inches 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. Vent Caps:
  1. Description: Cast-iron body with threaded or hub inlet and vandal-proof design. Include vented hood and setscrews to secure to vent pipe.
  2. Size: Same as connected stack vent or vent stack.
- H. Frost-Resistant Vent Terminals:
  1. Description: Manufactured or shop-fabricated assembly constructed of copper, lead-coated copper, or galvanized steel.
  2. Design: To provide 1-inch enclosed air space between outside of pipe and inside of flashing collar extension, with counterflashing.
- I. 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.

## 2.8 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.

## 2.9 SOLIDS INTERCEPTORS

- A. Solids Interceptors:
1. Cast-Iron or Steel Solids Interceptors:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) [Josam Company.](#)
      - 2) [MIFAB, Inc.](#)
      - 3) [Rockford Sanitary Systems, Inc.](#)
      - 4) [Schier Products Company.](#)

- 5) [Smith, Jay R. Mfg. Co.](#)
- 6) [Tyler Pipe.](#)
- 7) [Watts Drainage Products.](#)
- 8) [Zurn Plumbing Products Group.](#)

2. Plastic Solids Interceptors:

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- b. following:

- 1) [Ashland Trap Distribution Co.](#)
- 2) [Schier Products Company.](#)
- 3) [Town & Country Plastics, Inc.](#)

3. Type: Factory-fabricated interceptor made for removing and retaining sediment from wastewater.
4. Body Material: As scheduled.
5. Interior Separation Device: As scheduled.
6. Interior Lining: As scheduled.
7. Exterior Coating: As scheduled.
8. Body Dimensions: As scheduled
9. Flow Rate: As scheduled.
10. Inlet and Outlet Size: As scheduled.
11. End Connections: As scheduled.
12. Mounting: As indicated on Drawings.

2.10 MOTORS

- A. General requirements for motors are specified in Section 15057 "Common Motor Requirements for Plumbing Equipment."
1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Equipment Mounting: Install solids interceptors on cast-in-place concrete equipment base(s). Comply with requirements for equipment bases specified in Section 03300 "Cast-in-Place Concrete.", Section 03301 "Miscellaneous Cast-in-Place Concrete."
1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct bases to withstand, without damage to equipment, seismic force required by code.



3. Construct concrete bases 4 inches high and extend base not less than 6 inches in all directions beyond the maximum dimensions of solids interceptors, unless otherwise indicated or unless required for seismic anchor support.
  4. Minimum Compressive Strength: 5000 psi at 28 days.
  5. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
  6. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base, and anchor into structural concrete floor.
  7. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  8. Install anchor bolts to elevations required for proper attachment to supported equipment.
- B. 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.
- C. 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.
- D. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.
- E. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.
- F. 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.
- G. Install trench drains at low points of surface areas to be drained. Set grates of drains flush with finished surface, unless otherwise indicated.
- H. Assemble and install ASME A112.3.1, stainless-steel channel drainage systems according to ASME A112.3.1. Install on support devices so that top will be flush with surface.
- I. Assemble non-ASME A112.3.1, stainless-steel channel drainage system components according to manufacturer's written instructions. Install on support devices so that top will be flush with adjacent surface.
- J. Assemble FRP channel drainage system components according to manufacturer's written instructions. Install on support devices so that top will be flush with adjacent surface.
- K. Assemble plastic channel drainage system components according to manufacturer's written instructions. Install on support devices so that top will be flush with adjacent surface.
- L. Install fixture air-admittance valves on fixture drain piping.
- M. Install stack air-admittance valves at top of stack vent and vent stack piping.
- N. Install air-admittance-valve wall boxes recessed in wall.
- O. Install roof flashing assemblies on sanitary stack vents and vent stacks that extend through roof.
- P. Install flashing fittings on sanitary stack vents and vent stacks that extend through roof.
- Q. Install through-penetration firestop assemblies in plastic conductors and stacks at floor penetrations.
- R. Assemble open drain fittings and install with top of hub 1 inch above floor.
- S. Install deep-seal traps on floor drains and other waste outlets, if indicated.
- T. 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.
- U. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.
- V. Install sleeve flashing device with each riser and stack passing through floors with waterproof membrane.

- W. Install vent caps on each vent pipe passing through roof.
- X. Install frost-resistant vent terminals on each vent pipe passing through roof. Maintain 1-inch clearance between vent pipe and roof substrate.
- Y. Install expansion joints on vertical stacks and conductors. Position expansion joints for easy access and maintenance.
- Z. Install frost-proof vent caps on each vent pipe passing through roof. Maintain 1-inch clearance between vent pipe and roof substrate.
- AA. Assemble components of FOG disposal systems and install on floor. Install trap, vent, fresh-air inlet, and flow-control fitting according to authorities having jurisdiction. Install shelf fastened to reinforcement in wall construction and adjacent to unit, unless otherwise indicated. Install culture bottle, culture metering pump, timer, and control on shelf. Install tubing between culture bottle, metering pump, and chamber.
- BB. Install grease interceptors, including trapping, venting, and flow-control fitting, according to authorities having jurisdiction and with clear space for servicing.
  - 1. Above-Floor Installation: Set unit with bottom resting on floor, unless otherwise indicated.
  - 2. Flush with Floor Installation: Set unit and extension, if required, with cover flush with finished floor.
  - 3. Recessed Floor Installation: Set unit in receiver housing having bottom or cradle supports, with receiver housing cover flush with finished floor.
  - 4. Install cleanout immediately downstream from interceptors not having integral cleanout on outlet.
- CC. Install grease removal devices on floor. Install trap, vent, and flow-control fitting according to authorities having jurisdiction. Install control panel adjacent to unit, unless otherwise indicated.
- DD. Install oil interceptors, including trapping, venting, and flow-control fitting, according to authorities having jurisdiction and with clear space for servicing.
- EE. Install solids interceptors with cleanout immediately downstream from interceptors that do not have integral cleanout on outlet. Install trap on interceptors that do not have integral trap and are connected to sanitary drainage and vent systems.
- FF. Install wood-blocking reinforcement for wall-mounting-type specialties.
- GG. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

### 3.2 CONNECTIONS

- A. Comply with requirements in Section 15150 "Sanitary Waste and Vent Piping" for piping installation requirements. Drawings indicate general arrangement of piping, fittings, and specialties.

- B. Install piping adjacent to equipment to allow service and maintenance.
- C. FOG Disposal Systems: Connect inlet and outlet to unit, connect flow-control fitting and fresh-air inlet piping to unit inlet piping, and connect vent piping between trap and media chamber. Connect electrical power.
- D. Grease Interceptors: Connect inlet and outlet to unit, and connect flow-control fitting and vent to unit inlet piping. Install valve on outlet of automatic drawoff-type unit.
- E. Grease Removal Devices: Connect controls, electrical power, factory-furnished accessories, and inlet, outlet, and vent piping to unit.
- F. Oil Interceptors: Connect inlet, outlet, vent, and gravity drawoff piping to unit; flow-control fitting and vent to unit inlet piping; and gravity drawoff and suction piping to oil storage tank.
- G. Ground equipment according to Section 16060 "Grounding and Bonding for Electrical Systems."
- H. Connect wiring according to Section 16123 "Low-Voltage Electrical Power Conductors and Cables."

### 3.3 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 07620 "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.

### 3.4 LABELING AND IDENTIFYING

- A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:
  - 1. FOG disposal systems.
  - 2. Grease interceptors.
  - 3. Grease removal devices.
  - 4. Oil interceptors.
  - 5. Solids interceptors.
- B. 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 15077 "Identification for Plumbing Piping and Equipment."

### 3.5 FIELD QUALITY CONTROL

- A. Tests and Inspections:
  - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
  - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

### 3.6 PROTECTION

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

END OF SECTION 15155

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