PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Roof drains.
2. Miscellaneous storm drainage piping specialties.
3. Cleanouts.
4. Backwater valves.
5. Through-penetration firestop assemblies.
6. Flashing materials.

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

1.04 QUALITY ASSURANCE

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

PART 2 - PRODUCTS

2.01 METAL ROOF DRAINS

A. Cast-Iron, Large-Sump, General-Purpose Roof Drains:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

a. Josam Company.
b. Marathon Roofing Products.
c. MIFAB, Inc.
d. Smith, Jay R. Mfg. Co.
e. Tyler Pipe.
f. Watts Water Technologies, Inc.
g. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.6.4, for general-purpose roof drains.
4. Body Material: Cast iron
5. Dimension of Body: Nominal 14-inch (357-mm) diameter.
6. Combination Flashing Ring and Gravel Stop: Required.
7. Flow-Control Weirs: Not required.
8. Outlet: Bottom.
9. Extension Collars: Required.
10. Underdeck Clamp: Required.
11. Expansion Joint: Required.
12. Sump Receiver Plate: Required.
13. Dome Material: Cast iron.
14. Perforated Gravel Guard: Stainless steel.
15. Vandal-Proof Dome: Not required.
16. Water Dam: Not required.

B. Cast-Iron, Medium-Sump, General-Purpose Roof Drains:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. Josam Company.
    b. Marathon Roofing Products.
    c. MIFAB, Inc.
    d. Portals Plus; Commercial Products Group of Hart & Cooley, Inc.
    e. Smith, Jay R. Mfg. Co.
    f. Tyler Pipe.
    g. Watts Water Technologies, Inc.
    h. Zurn Plumbing Products Group; Light Commercial Products Operation.
    i. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.6.4, for general-purpose roof drains.
4. Body Material: Cast iron.
5. Dimension of Body: 8- to 12-inch (203- to 305-mm) diameter.
6. Combination Flashing Ring and Gravel Stop: Required.
7. Flow-Control Weirs: Not required.
8. Outlet: Bottom.
9. Extension Collars: Required.
10. Underdeck Clamp: Required.
11. Expansion Joint: Required]
12. Sump Receiver Plate: Required.
13. Dome Material: Cast iron
14. Wire Mesh: Stainless steel or brass over dome.
15. Perforated Gravel Guard: Stainless steel.
16. Vandal-Proof Dome: Not required
17. Water Dam: Not required.

C. Cast-Iron, Small-Sump, General-Purpose Roof Drains:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. Josam Company.
    b. Marathon Roofing Products.
    c. MIFAB, Inc.
    d. Smith, Jay R. Mfg. Co.
    e. Tyler Pipe.
    f. Watts Water Technologies, Inc.
    g. Zurn Plumbing Products Group; Light Commercial Products Operation.
    h. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.6.4, for general-purpose roof drains.
4. Body Material: Cast iron.
5. Dimension of Body: Nominal 8-inch (203-mm) diameter.
6. Combination Flashing Ring and Gravel Stop: Required.
7. Outlet: Bottom
8. Extension Collars: Required.
9. Underdeck Clamp: Required.
10. Expansion Joint: Required.
11. Sump Receiver Plate: Required.
12. Dome Material: Cast iron.
13. Wire Mesh: Stainless steel or brass over dome.
14. Vandal-Proof Dome: Not required.

2.02 CLEANOUTS

A. Floor Cleanouts :

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. Josam Company.
    b. Oatey.
    c. Sioux Chief Manufacturing Company, Inc.
    d. Smith, Jay R. Mfg. Co.
    e. Tyler Pipe.
    f. Watts Water Technologies, Inc.
    g. Zurn Plumbing Products Group; Light Commercial Products Operation.
    h. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.36.2M, for heavy-duty, adjustable housing cleanouts.
4. Size: Same as connected branch.
5. Type: Heavy-duty, adjustable housing.
6. Body or Ferrule Material: Cast iron.
7. Clamping Device: Required.
8. Outlet Connection: Threaded.
9. Closure: Brass plug with straight threads and gasket.
10. Adjustable Housing Material: Cast iron with threads.
11. Frame and Cover Material and Finish: Polished bronze.

12. Frame and Cover Shape: Round.
13. Top-Loading Classification: Heavy Duty.
14. Riser: ASTM A 74, Service class, cast-iron drainage pipe fitting and riser to cleanout.

B. Test Tees :

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. Josam Company.
    b. MIFAB, Inc.
    c. Smith, Jay R. Mfg. Co.
    d. Tyler Pipe.
    e. Watts Water Technologies, Inc.
    f. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.36.2M and ASTM A 74, ASTM A 888, or CISPI 301, for cleanout test tees.
4. Size: Same as connected drainage piping.
5. 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.
6. Closure Plug: Countersunk or raised head.
7. Closure Plug Size: Same as or not more than one size smaller than cleanout size.

C. Wall Cleanouts:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. Josam Company.
    b. MIFAB, Inc.
    c. Smith, Jay R. Mfg. Co.
    d. Tyler Pipe.
    e. Watts Water Technologies, Inc.
    f. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.36.2M, for cleanouts. Include wall access.
4. Size: Same as connected drainage piping.
5. Body Material: Hub-and-spigot, cast-iron soil-pipe T-branch as required to match connected piping.
6. Closure: Countersunk brass plug.
7. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
8. Wall Access: Round, deep, chrome-plated bronze cover plate with screw.
9. Wall Access: Round, nickel-bronze, wall-installation frame and cover.

2.03 BACKWATER VALVES

A. Cast-Iron, Horizontal Backwater Valves :

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. Josam Company.
    b. MIFAB, Inc.
    c. Smith, Jay R. Mfg. Co.
    d. Tyler Pipe.
    e. Watts Water Technologies, Inc.
    f. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Standard: ASME A112.14.1, for backwater valves.
4. Size: Same as connected piping.
5. Body Material: Cast iron.
6. Cover: Cast iron with bolted access check valve.
7. End Connections: Hub and spigot.
8. Check Valve: Removable, bronze, swing check, factory assembled or field modified to hang closed.
9. Extension: ASTM A 74, Service class; full-size, cast-iron soil-pipe extension to field-installed cleanout at floor; replaces backwater valve cover.

B. Cast-Iron, Drain-Outlet Backwater Valves :

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. Josam Company.
    b. Smith, Jay R. Mfg. Co.
    c. Watts Water Technologies, Inc.
    d. Zurn Plumbing Products Group; Specification Drainage Operation.

3. Size: Same as floor drain outlet.
4. Body Material: Cast iron or bronze made for vertical installation in bottom outlet of floor drain.
5. Check Valve: Removable ball float.
6. Inlet: Threaded.
7. Outlet: Threaded or spigot.

2.04 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

A. Through-Penetration Firestop Assemblies :

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

    a. ProSet Systems Inc.

3. Standard: ASTM E 814, for through-penetration firestop assemblies.
4. Certification and Listing: Intertek Testing Service NA for through-penetration firestop assemblies.
5. Size: Same as connected pipe.
6. 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.
7. 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.
8. Special Coating: Corrosion resistant on interior of fittings.

2.05 FLASHING MATERIALS

A. Copper Sheet: ASTM B 152/B 152M, 12 oz./sq. ft. (3.7 kg/sq. m or 0.41-mm thickness).

B. Zinc-Coated Steel Sheet: ASTM A 653/A 653M, with 0.20 percent copper content and 0.04-inch (1.01-mm) minimum thickness unless otherwise indicated. Include G90 (Z275) hot-dip galvanized, mill-phosphatized finish for painting if indicated.

C. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil (1.01-mm) minimum thickness.

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

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

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

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions. Roofing materials are specified in Division 07 Sections.

1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
2. Install expansion joints, if indicated, in roof drain outlets.
3. Position roof drains for easy access and maintenance.

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

1. Use cleanouts the same size as drainage piping up to NPS 4 (DN 100). Use NPS 4 (DN 100) for larger drainage piping unless larger cleanout is indicated.
2. Locate cleanouts at each change in direction of piping greater than 45 degrees.
3. Locate cleanouts at minimum intervals of 50 feet (15 m) for piping NPS 4 (DN 100) and smaller and 100 feet (30 m) for larger piping.
4. Locate cleanouts at base of each vertical soil and waste stack.

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

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

E. Install horizontal backwater valves in floor with cover flush with floor.

F. Install drain-outlet backwater valves in outlet of drains.

G. Install test tees in vertical conductors and near floor.

H. Install wall cleanouts in vertical conductors. Install access door in wall if indicated.

I. Install through-penetration firestop assemblies in plastic conductors at concrete floor penetrations.

J. Install sleeve flashing device with each conductor passing through floors with waterproof membrane.

3.02 CONNECTIONS

A. Comply with requirements for piping specified in Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

3.03 FLASHING INSTALLATION

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

1. Lead Sheets: Burn joints of 6.0-lb/sq. ft. (30-kg/sq. m) lead sheets, 0.0938-inch (2.4-mm) thickness or thicker. Solder joints of 4.0-lb/sq. ft. (20-kg/sq. m) lead sheets, 0.0625-inch (1.6-mm) 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 the pipe size, with a minimum length of 10 inches (250 mm) and with skirt or flange extending at least 8 inches (200 mm) around pipe.
2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches (200 mm) around sleeve.
3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches (200 mm) 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. Fabricate and install flashing and pans, sumps, and other drainage shapes.

3.04 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****