

SECTION 15412
SOIL AND WASTE SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of soil and waste systems work is indicated on drawings and schedules, and by requirements of this section.
- B. Exterior sanitary sewer system is specified in applicable Division-2 sections.
- C. Refer to appropriate Division-2 sections for exterior sanitary sewer system required in conjunction with soil and waste systems; not work of this section.
- D. Insulation for soil and waste systems is specified in applicable Division-15 sections, and is included as work of this section.
- E. Trenching and backfilling required in conjunction with underground building drain piping is specified in applicable Division-15 sections, and is included as work of this section.

1.3 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Firms regularly engaged in manufacturer of soil and waste systems products of types, materials and sizes required, whose products have been in satisfactory use in similar service for not less than five years.
- B. Codes and Standards:
 - 1. Plumbing Code Compliance: Comply with applicable portions of the Florida Building Code pertaining to plumbing materials, construction and installation of products.
 - 2. ANSI Compliance: Comply with applicable ANSI standards pertaining to materials, products, and installation of soil and waste systems.
 - 3. ASSE Compliance: Comply with applicable ASSE standards pertaining to materials, products, and installation of soil and waste systems.
 - 4. PDI Compliance: Comply with applicable PDI standards pertaining to products and installation of soil and waste systems.
 - 5. Comply with the City of Melbourne Requirements.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data for soil and waste systems materials and products.
- B. Record Drawings: At project closeout, submit record drawings of installed soil and waste systems, in accordance with requirements of Division 1.
- C. Maintenance Data: Submit maintenance data and parts lists for soil and waste systems materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual, in accordance with requirements of Division 1.

PART 2 PRODUCTS

2.1 MATERIALS AND PRODUCTS

- A. General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated in section 15420. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials that match pipe materials used in soil and waste systems. Where more than one type of materials or products are indicated, selection is Installer's option.

2.2 BASIC DESCRIPTION

- A. General: Provide identification complying with Division-15 Basic Mechanical Materials and Methods section "Mechanical Identification" listing:

2.3 BASIC PIPING SPECIALTIES

- A. General: Provide piping specialties complying with Division-15 Basic Mechanical Materials and Methods section "Piping Specialties", in accordance with the following listing:
 1. Pipe Escutcheons.
 2. Mechanical Sleeve Seals.
 3. Fire Barrier Penetration Seals.
 4. Pipe Sleeves.
 5. Sleeve Seals.

2.4 BASIC SUPPORTS AND ANCHORS

- A. General: Provide supports and anchors complying with Division-15 Basic Mechanical Materials and Methods section "Pipe Hangers and Supports" in accordance with the following listing:
 1. Adjustable steel clevis hangers, steel pipe clamps, and pipe saddle supports for horizontal piping hangers and supports.
 2. Two-bolt riser clamps for vertical piping supports. Concrete inserts, C-clamps, and steel brackets for building attachments.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine substrates and conditions under which soil and waste systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION OF BASIC IDENTIFICATION

- A. General: Install mechanical identification in accordance with Division-15 Basic Mechanical Materials and Methods section "Mechanical Identification".

3.3 INSTALLATION OF ABOVE GROUND PIPING

- A. General: Install soil and waste piping in accordance with Division-15 Basic Mechanical Materials and Methods section "Pipe and Pipe Fittings", and with The Florida Building Code. Do not install drain piping over electrical equipment rooms. PVC piping shall not be installed in HVAC air plenums.

3.4 INSTALLATION OF BUILDING DRAIN PIPING

- A. General: Install underground building drains as indicated and in accordance with The Florida Building Code. Lay underground building drains beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream.
- B. Install required gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements. Clean interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed. Place plugs in ends of uncompleted piping at end of day or whenever work stops.
- C. Install soil and vent piping pitched to drain at minimum slope of ¼" per foot (2%) for piping 2" and smaller, and 1/8" per foot (1%) for piping 3" and larger.

3.5 INSTALLATION OF PIPING SPECIALTIES

- A. Install piping specialties in accordance with Division-15 Basic Mechanical Materials and Methods section "Piping Specialties".

3.6 INSTALLATION OF SUPPORTS AND ANCHORS

- A. Install supports and anchors in accordance with Division-15 Basic Mechanical Materials and Methods section "Supports and Anchors".

3.7 INSTALLATION OF DRAINAGE PIPING PRODUCTS

- A. Cleanouts: Install in above ground piping and building drain piping as indicated, as required by The Florida Building Code. Install floor and wall cleanout covers for concealed piping, select type to match adjacent building and provide a finish, which is flush with the building surface.
- B. Flashing Flanges: Install flashing flange and clamping device with each stack and cleanout passing through waterproof membranes.
- C. Vent Flashing Sleeves: Vent flashing sleeves shall be provided by Plumbing contractor and installed by Roofing contractor. See Architectural specifications and details for type of flashing required.

3.8 INSTALLATION OF FLOOR DRAINS

- A. General: Install floor drains in accordance with manufacturer's written instructions and in locations indicated.
- B. Coordinate flashing work with work of waterproofing and adjoining substrate work.
- C. Coordinate with soil and waste piping as necessary to interface floor drains with drainage piping systems.
- D. Install floor drains at low points of surface areas to be drained, or as indicated. Set tops of drains flush with finished floor.

- E. Install drain flashing collar or flange so that no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes, where penetrated.
- F. Position drains so that they are accessible and easy to maintain.
- G. Floor drains should be required in all mechanical rooms, HW heater rooms and rooms with washing machine hook ups.

3.9 INSTALLATION OF TRAP PRIMERS

- A. General: Install trap primers as indicated, and in accordance with manufacturer's installation instruction. Pitch piping towards drain trap, a minimum of 1/8" per foot (1%). Adjust trap primer for proper flow.

3.10 EQUIPMENT CONNECTIONS

- A. Piping Run outs to Fixtures: Provide soil and waste piping run outs to plumbing fixtures and drains, with approved trap, of sizes indicated; but in no case smaller than required by The Florida Building Code.
- B. Locate piping run outs as close as possible to bottom of floor slab supporting fixtures or drains.

3.11 FIELD QUALITY CONTROL

- A. TESTING
 1. Flush out piping systems with clean water before proceeding with required tests. Inspect each run of each system for completion of joints, support and accessory items.
 2. Hydraulically pressure test each section or segment of the system prior to backfilling, encasing, enclosing or otherwise preventing visual observation or the section or segment being tested. Backfill underground systems. Exposing joints only, is permitted on all systems and required on systems having a pressure test exceeding 30 psig.
 3. Water test soil, waste and vent system at 10' of head for 4 hours. Test stand pipe to be a minimum of 10' above the highest point or section being tested.
- B. PROTECTION
 1. Protect drains during remainder of construction period, to avoid clogging with construction materials and debris, and to prevent damage from traffic and construction work.

END OF SECTION