SECTION 22 13 00 - DRAINAGE SYSTEMS

PART 1 - GENERAL

1.01 REFERENCE

A. Refer to Section 22 05 00 for requirements which are applicable to this section.
B. Requirements of the International codes and authorities having jurisdiction shall be made a part of these specifications.
C. Where the contract documents are more stringent but not in conflict with the applicable codes, the more stringent requirement shall be followed.

1.02 QUALITY ASSURANCE:

A. Install piping to meet requirements of International Plumbing Code.
B. Provide manufacturer's certificate that materials meet or exceed minimum requirements as specified.
C. All Piping and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute.

1.03 SUBMITTALS:

A. Certificates: Submit manufacturer's certificates of conformance to applicable codes.
B. Test Reports: Submit copies of test reports.
C. Manufacturer's Recommendations: Submit "PVC" manufacturer's materials, installation support and expansion joint recommendations for review by Architect/Engineer.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

A. Cast Iron no-hub ASTM-A88 and CISPI-301 with heavy duty banded stainless steel sleeves and rubber sleeve joints for all above ground sanitary drainage and storm drainage piping 2" and larger. Cast iron soil pipe and fittings shall bear the markings of the Cast Iron Soil Pipe Institute and conform to CISPI Standard 301. Copper type DWV for up to 1 1/2".
B. Cast iron bell and spigot for all underground soil, waste, and storm piping. Tyton type gaskets are acceptable. Contractor may use PVC underground with solvent welded joints when acceptable to the local authority.
C. Exposed drainage systems shall be schedule 40 galvanized steel, copper tube type "L", or standard weight cast iron.
D. Dishwasher drainage piping to be cast iron no-hub.

2.02 CLEANOUTS:

A. Slab on grade; J. R. Smith 433OV with nickel bronze cover and rim.
B. Concrete Floors; J. R. Smith 4020 with nickel bronze cover. Provide flashing flange where floor is

waterproofed.
C. Tile Floors; J. R. Smith 4140 with 1/8" recess. Provide flashing flange where floor is waterproofed.
D. Carpet Floors; J. R. Smith 4020 with carpet marker.
E. Walls; J. R. Smith 4510-4725 cover plate chrome finish.
F. Equivalents by Josam, Zurn, Watts and Wade are acceptable.

2.03 FLOOR DRAINS

A. Finished spaces unless otherwise noted on plans; J. R. Smith 2010-A with nickel bronze strainer. Provide trap primer connection and heel proof grate. Flashing collar. In traffic areas provide heel proof strainer.
B. Unfinished spaces; J. R. Smith 2110 with cast iron grate and flashing flange.

2.04 TRAP PRIMERS

A. Smith No. 2699 cast bronze trap primer with 1/2" connections. Provide primered drains with Smith No. 2695 or 2696 cast iron trap primer adaptors.
B. Trap primers for multiple floor drains shall consist of the appropriate model with distribution unit as manufactured by Precision Plumbing Products.
C. All trap primers shall be accessibly located and installed in strict accordance with the manufacturer's recommendations.

2.05 BACKWATER VALVE

A. The contractor shall provide a backwater valve on any sanitary branch below street level and above the site sanitary main.
B. The valve shall conform to ASME A112.14.1.
C. Signage shall be provided and posted at the location of the valve.
D. Provide a sleeve extension and cover to access the valve below the slab.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine areas to receive piping for:
   1. Defects that adversely affect execution and quality of work.
   2. Deviations beyond allowable tolerance for piping clearances.
B. Start work only when conditions are satisfactory.

3.02 INSTALLATION

A. Piping Layout:
   1. Complete installation to present a neat, orderly appearance.
   2. Do not block openings or passageways with piping.
   3. Run piping parallel to walls of building, unless otherwise indicated.
   4. Keep piping free from contact with structure or installed items.
   5. All changes in direction to be made with "Y" branches or 1/8 bends.
   6. Provide cleanouts at base of all stacks, at changes in direction of piping and at 50 foot

intervals. Cleanouts shall be line size up to 4 inch and 4 inch for piping over 4 inch.

B. Workmanship:
   1. Examine pipe and fittings before installation and assure no defective materials are incorporated.
   2. Keep inside of pipes and fittings free of dirt and debris.
   3. Installation of cast iron soil pipe to conform to Cast Iron Soil Pipe Institute Standards Handbook.

C. Placement:
   1. Vertical Piping:
      a. Secure at sufficiently close intervals to keep pipe in alignment, and to support weight of pipe and contents.
      b. Install risers, stacks, etc. as directly as possible to roof.
      c. Install supports at each floor.
   2. Horizontal Piping, Suspended;
      a. Support at sufficiently close intervals to prevent sagging and to maintain alignment. Not to exceed: cast iron piping to be supported at pipe joints not to exceed 10'-0" spacing. Copper and steel piping to be supported on 12' spacing. PVC piping to be supported on 4'-0" spacing. Copper tubing up to 1 1/4" to be supported on 6' spacing, over 1 1/4" to be supported on 10'-0" spacing. Other piping to be supported per manufacturer.
      b. Install hangers and supports at least 18 inches from each joint regardless of pipe length.
      c. Install hangers at the ends of all runs or branches and at each change of direction or alignment.
      d. Gasketed or mechanical joints piping shall be securely braced or clamp and rod restrained to prevent horizontal movement where the transition from the vertical of the horizontal occurs. Branches must be secured to prevent movement in any direction by use of sway bracing.
   3. Horizontal Piping, Underground;
      a. Lay piping on firm bed for entire length of trench except where supports are provided.
      b. Employ partial backfilling and cradling to hold pipe in secure position during backfilling operations.
      c. Firmly brace piping laid on grade prior to embedment in concrete.

3.03 TESTING

A. Disconnect all equipment and devices which may be damaged by test pressures.
B. Plug or cap lines.
C. Test each piping system for leaks in accordance with the local inspector’s test code.
D. Repair all leaks noted.
E. Minimum test shall be to fill system to top vent stack and not show a drop of more than 3 inches for 1 hour. Test shall be performed before piping is concealed.
F. Secure certificate from municipal inspector of an acceptable test.

END OF SECTION