	Title: YALE OFFICE OF FACILITIES PROCEDURE MANUAL Chapter: 01 - Yale Design Standard Division: Plumbing Standards	Section: 22 05 20 <b>Plumbing Specialties</b>
		Date: 08/05/2017
		Author: Office of Facilities
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## **PART 1 - INTRODUCTION**

- 1.1 This standard refers to the following plumbing specialties.
- A. Drains,
  - B. Hydrant and Hose Bibbs
  - C. Cleanouts
  - D. Water Hammer Arresters
  - E. Trap Primers
  - F. Water Meters


## **PART 2 - GENERAL DESIGN REQUIREMENTS**

- 2.1 Comply with Minimum product requirements.


## **PART 3 - MINIMUM PRODUCT REQUIREMENTS**

- 3.1 DRAINS (Floor, roof, and area)
- A. Provide floor drains in Lavatory's, Mechanical Rooms, and other locations where required.
  - B. Products at a minimum shall conform to the following.

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<b>Fixture Code</b>	<b>Description</b>	<b>General Use</b>
FD-A	Floor Drain J.R. Smith Model 2010-A; Josam Model 30000-A; Zurn Model Z-415 Nickel bronze finish	Toilet Cores Showers
FD-B	Floor Drain J.R. Smith Model 2230; Josam Model 32320; Zurn Model Z-540 Sediment bucket ductile iron grate Provide proset system trap guard.	Mechanical Room
FD-C	Floor sink J.R. Smith Model 3121C 8" deep; Josam Model 49040AS; Zurn Model ZN- 1901 Ported bucket with 1/8" stainless steel mesh screen and vandal-proof screws.	Kitchen
FD-D	Floor Drain with funnel J.R. Smith Model 3101; Josam Model 49000-31; Zurn -1960-KTC receptor with sediment bucket and grate with 4" funnel and vandal-proof screws.	Kitchen
FD-E	Floor Sink J.R. Smith Model 3101; Josam Model 49000-X-33-C-VP; Zurn Model ZN- 1815-25. Acid resistant interior, A.R. sediment bucket, clamp device and vandal- proof screws. Provide proset system trap guard.	Emergency Shower/ Eyewash Station
FD-F	Floor Sink J.R. Smith Model 3150; Josam Model 49040-15-43-X-C-VP; Zurn Model ZS- 1906. Acid resistant interior, Dome strainer, stainless steel rim and grate, clamp device and vandal-proof screws.	Holding Room
RD-1	Roof Drain J.R. Smith Model 1010AD-CRE; Josam Model 21500; Zurn Model ZA-100. Underdeck clamp sump receiver, extension and aluminum dome.	Roof
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Fixture Code	Description	General Use
RD-2	Overflow Roof Drain J.R. Smith Model 1070-AD-CRD; Josam Nodel 21500; Zurn Model ZA- 100-AW Underdeck clamp, sump receiver; extension; PVC standpipe and aluminum dome.	Roof
AD-1	Area Drain (traffic) J.R. Smith Model 2120-B; Josam Model 36000; Zurn Model Z-508-Y Bottom outlet with tractor grate and sediment bucket	Area Way
PD-1	Planting Area Drain J.R. Smith Model 2675; Josam Model 39600; Zurn Model Z-348 Dome strainer and stainless steel mesh Screen over dome	Planting Area
SD-1	Scupper Drain J.R. Smith Model 1510T; Josam Model 24700; Zurn Z-187 Angle bronze grate, flashing clamp and threaded outlet	Roof

### 3.2 HYDRANT AND HOSE BIBBS

- A. Provide hose bibb at interior of building.
  - 1. Hose bibb shall be chrome plated bronze or brass with replaceable hexagonal disc, hose thread spout and integral vacuum breaker in conformance to ANSI/ASSE 1011. Hose bibb shall be equal to Chicago No. 952, T&S Brass No. B-720 with removable tee handle.
  
- B. Provide wall hydrants at exterior of building
  - 1. Wall hydrant shall be recessed box anti-siphon, non-freeze, key-operated, 3/4". Hydrant shall be Zurn Z-1300; J.R. Smith Fig. No. 5509; Josam series 71000. Coordinate cover and plate finish, with Architect, prior to ordering any units.

### 3.3 CLEANOUTS

- A. Provide cleanouts in soil, waste and storm drainage piping on straight runs at changes in directions and at foot of stacks and other points where required by inspecting authorities. Cleanouts shall suit construction in which they are to be installed.
  
- B. Maximum horizontal distance on straight runs between cleanouts in piping 4" and smaller

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shall be 50 feet. In piping 5" and larger, maximum horizontal distance between cleanouts shall be 100 feet.


- C. Cleanouts shall be same size as pipe 4" and smaller. Cleanouts for piping larger than 4" shall be not less than 4" in diameter. No reduction in cleanout sizes for pipe 4" and smaller is permitted.
- D. Bodies of cleanout ferrules in bell and spigot piping shall be standard pipe sizes conforming in thickness to that required for pipe and fittings, and shall extend not less than 3/4" above hub of pipe.
  - 1. Cleanout plug shall be cast brass with raised nut 3/4" high.
  - 2. Cleanouts in copper waste piping shall be soldered brass cleanout fittings with extra heavy brass screw plugs of same size as line.
  - 3. Cleanouts in threaded waste piping shall be cast iron, drainage T pattern, 90 degree branch fitting with extra heavy brass screw plugs of same size as pipe.
  - 4. Floor cleanouts in finished areas shall be cast iron body and frame with round adjustable scoriated secured nickel bronze top, J. R. Smith No. 4020 or approved equal.
  - 5. Floor cleanouts in unfinished areas shall be cast iron body and frame with round adjustable scoriated secured cast iron top, J. R. Smith No. 4220 or approved equal.
  - 6. Cleanouts on vertical stacks at each floor shall be Dandy Cleanout.
  - 7. Cleanout plugs shall be sealed with Teflon tape

### 3.4 WATER HAMMER ARRESTORS

- A. Provide water hammer arrestors at fixtures with automatic solenoid or cylinder operated valves, automatic flush valves quick-closing valves, or solenoid valves. Water hammer arrestors shall be J.R. Smith series 5000, Zurn series 1700 or Josam series 75000.
- B. Fixtures and equipment in battery installation may use single water hammer arrestor properly sized for connected load.
- C. Provide proper access to water hammer arrestors in chases, utilizing a minimum 12" x 12" access panel furnished and installed by this contractor.
- D. Provide isolation ball valve at each water hammer arrestor.

### 3.5 TRAP PRIMERS

- A. Trap Primers: Precision Plumbing Products units with polypropylene body, stainless steel check valve, and strainer. Provide access panel with Allen wrench lock for trap primers installed behind walls or above hard ceilings.
- B. Provide 12x12 Access panels where required.
- C. Provide isolation valves for service and removal.

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### 3.6 WATER METER

- A. Various applications may require water sub-metering.
  - 1. Meter shall comply with either Option 1 or Option 2
  - 2. Verify sub metering requirement and type with Yale Engineering.
  
- B. Option 1: No Flow Transmitter
  - 1. Provide 3" turbine water meter that meets AWWA C701-70 requirements for cold water meter. Meter shall be by Rockwell, Hersey or Neptune Products and shall be approved by local water and sewer authority.
  - 2. Registers shall be straight reading, hermetically-sealed calibrated in cubic feet and shall meet Section 9.3 of AWWA Standard requirements. Provide center swept test hands.
  - 3. Meter shall register at least 98% and no more than 102% of water actually passing through meter at any rate of flow, within range of 5 gpm to 450 gpm.
  - 4. Main casing shall be bronze. Bolts shall be stainless steel.
  - 5. Meter shall permit easy removal of interior parts without disturbing meter connections to pipeline.
  - 6. Provide magnetic couplings to transmit motion from measuring chamber to register unit.
  - 7. Provide remote register unit. Remote register plug/jack to conform to and be compatible with municipal water authority standards.
  - 8. Measuring chamber shall be removable from main line case for repair and recalibration.
  
- C. Option 2: Flow Transmitter
  - 1. Water meter shall comply with Option 1
  - 2. Water meter shall include flow transmitter with 4-20 mA output signal.
  
- D. Option 3: Sub metering
  - 1. Meter shall comply with either Option 1 or Option 2
  - 2. Verify if submitting requirement and type with Yale Engineering.