Department of Licenses and Inspection
1 Hour Webinar

8/25/20

Goals

- The goal of this 1 hour Webinar is to provide some of the key elements of the 2018 Philadelphia Plumbing Code

Scope 101.2

- *Code applies to:*
  - *Erection*
  - *Installation*
  - *Alterations*
  - *Repairs*
  - *Relocation*
  - *Replacement*
  - *Addition to*
  - *Use or maintenance*
- *Code doesn't apply to:*
- *Fuel gas systems*
- *Plumbing systems located beyond the curb line of the street*

P-101.2.1 Jurisdiction outside of property lines.

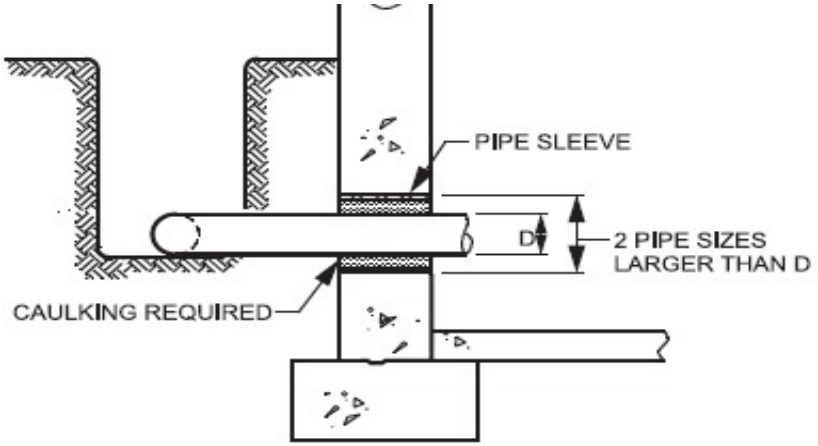
- *All plumbing systems leading from a structure or premises and extending to the curb line of the street shall be regulated by this code*
- *Sanitary, Storm, and Domestic Water piping in the street is regulated by Philadelphia Water Department.(PWD)*

Section 303.4 – Third-party certification

- *This requires all plumbing products and materials be listed by a third-party certification agency such are the ICC-ES PMG Listing Program*

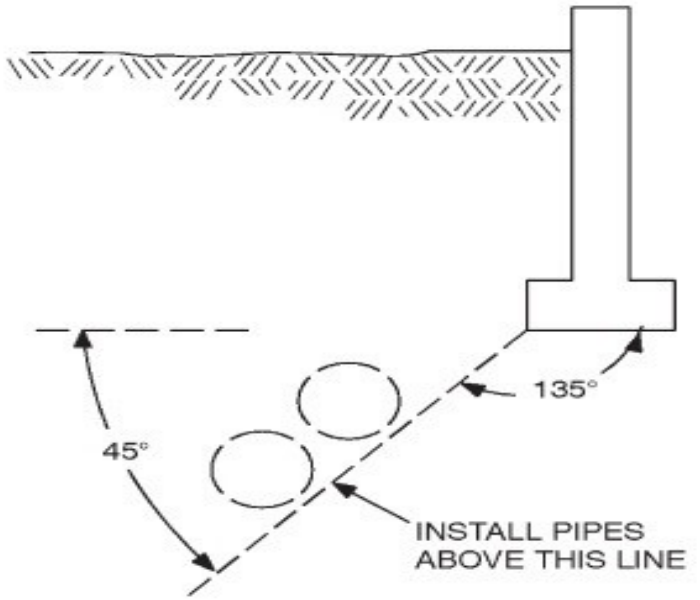
305 .3 Pipes Through Foundation Walls

- *A pipe sleeve or relieving are is required when a pipe passes through a foundation wall. The sleeve shall be 2 pipe sizes greater than the pipe passing through the wall.*



Section 307.5 Protection of footings

- *Trenches installed parallel to footings must remain outside the bearing plane of the bottom of the footing*

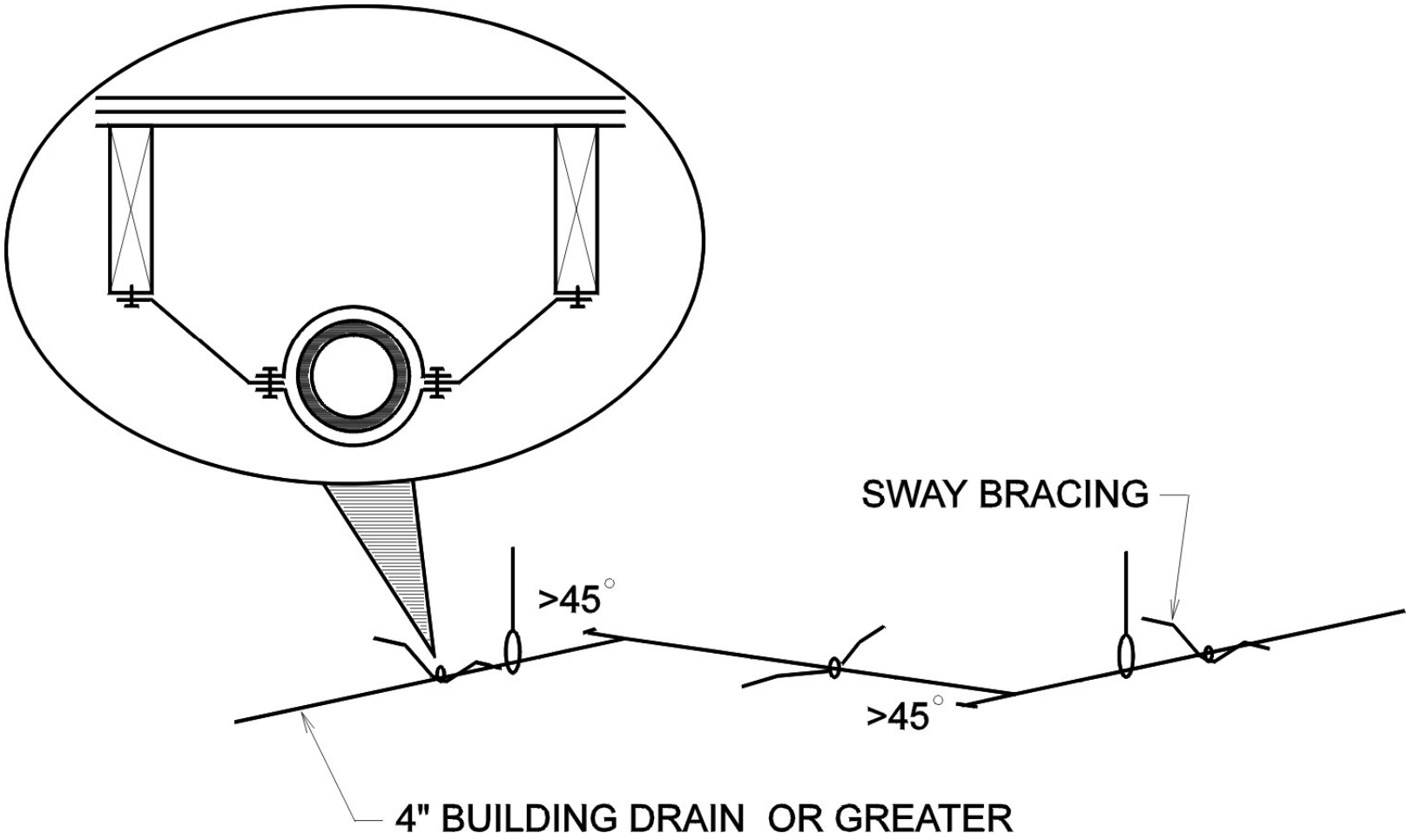


308.6 Sway bracing

- *Where horizontal pipes 4 inches and larger convey drainage or waste, and where a pipe*

fitting in that piping changes the flow direction greater than 45 degrees

Section 308.6 –Sway bracing (continued)



308.9 Parallel water distribution systems. Pex piping

- *Piping bundles for manifold systems shall be supported in accordance with Table 308.5*

Support at changes in direction shall be in accordance with the manufacturer's instructions. Where hot water piping is bundled with cold or hot water piping, each hot water pipe shall be insulated.

Section 309.2 – Flood hazard

- *The code refers to an elevation as required by Section 1612 of the International Building Code as such required elevations may be above the actual design flood elevation.*
- *309.3 restricts plumbing from penetrating or being mounted to walls that are designed to break away in flood conditions.*

Table 403.1 — Minimum Number of Plumbing Fixtures

- *The number of fixtures provided shall be determined based on the actual use of the building*
  - *Ex. A gymnasium with a stage for assemblies at a school without permanent seating would be an A-3*

Table 403.1 — Minimum Number of Plumbing Fixtures

2018 PPC Table 403.1

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

Section 405.3.1 — Fixture Clearances

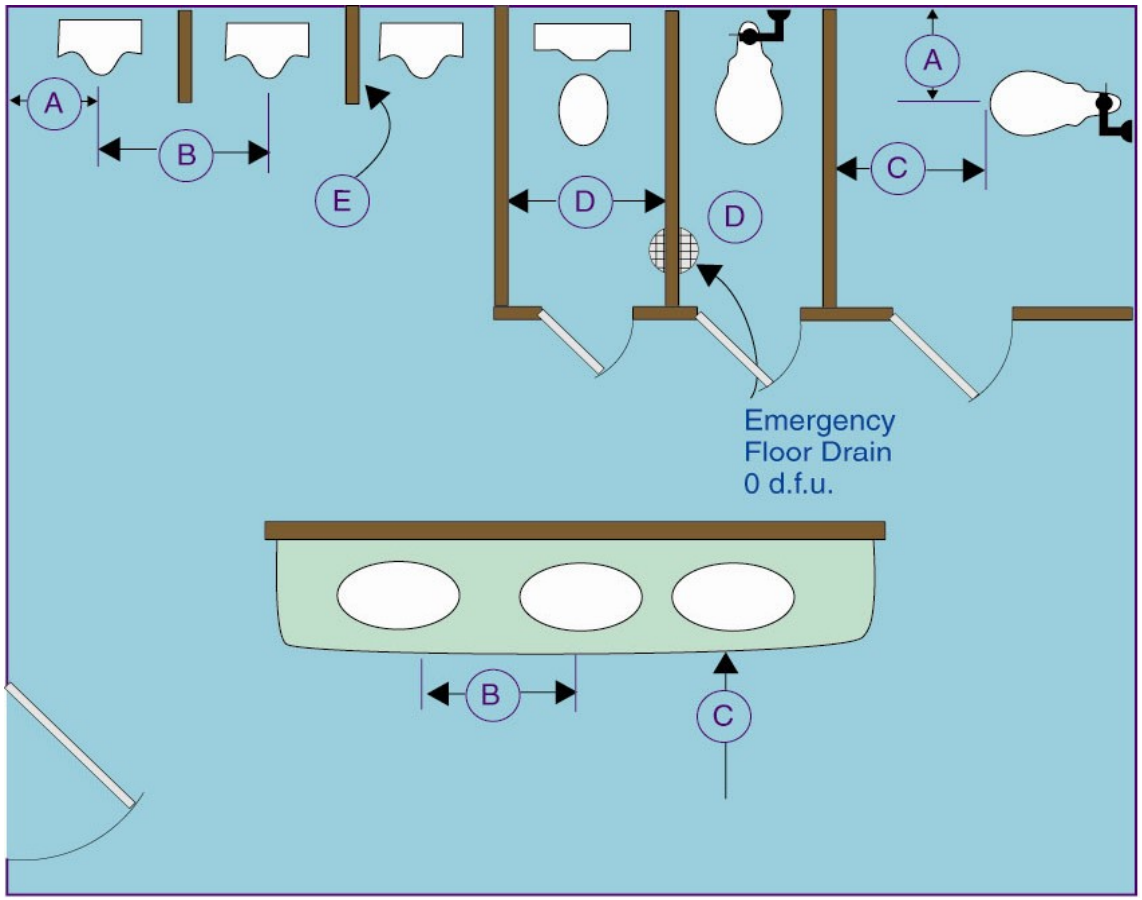
A. All fixtures shall not be closer than 15” from center to sidewall.

B. All fixtures shall not be closer than 30’’ center to center between adjacent fixtures.

C. All fixtures shall have at least 21“ of clearance in front.

D. Water closet compartments shall not be less than 30“ wide and 60’’ deep.

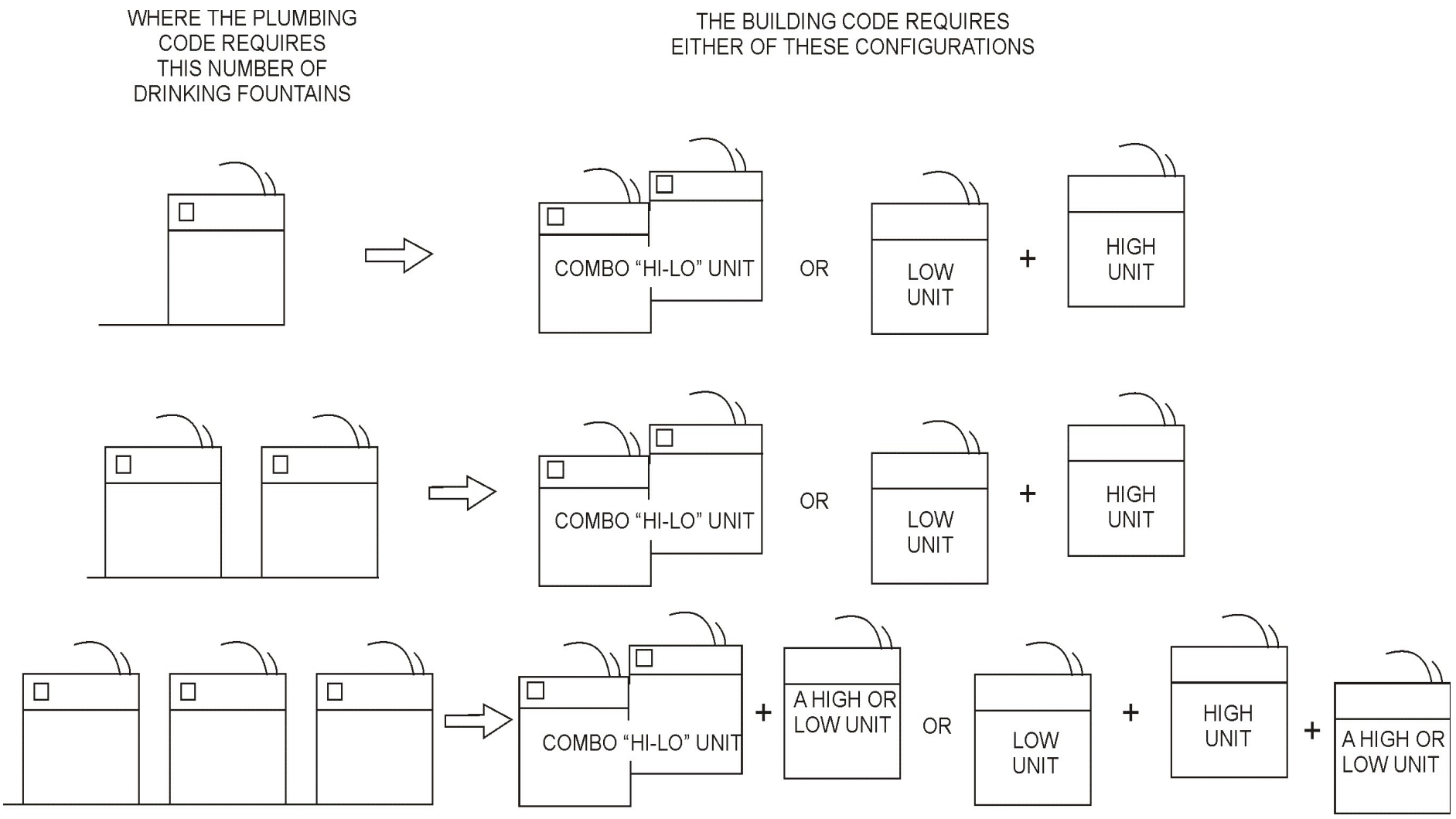
E. Urinal partitions shall extend at least 18“ from sidewall or 6’’ out from the lip



Section 410.1 — Approved drinking fountains

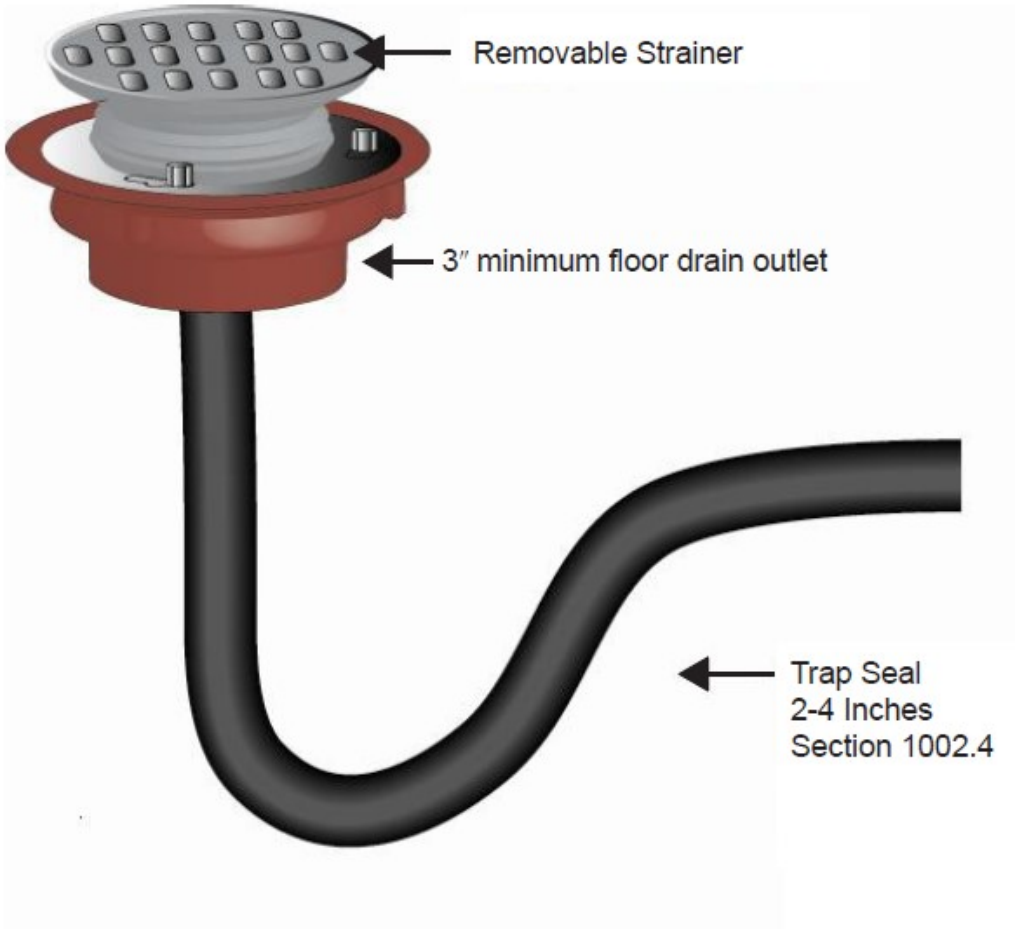
- *Although the IPC indicates the minimum number of drinking fountains for an occupancy, the International Building Code required additional drinking fountains to comply with accessibility regulations.*
- *The International Building Code requirement was brought into the IPC for clarity.*

Section 410.3 — Minimum number of drinking fountains



Section 413.3 — Size of Floor Drains

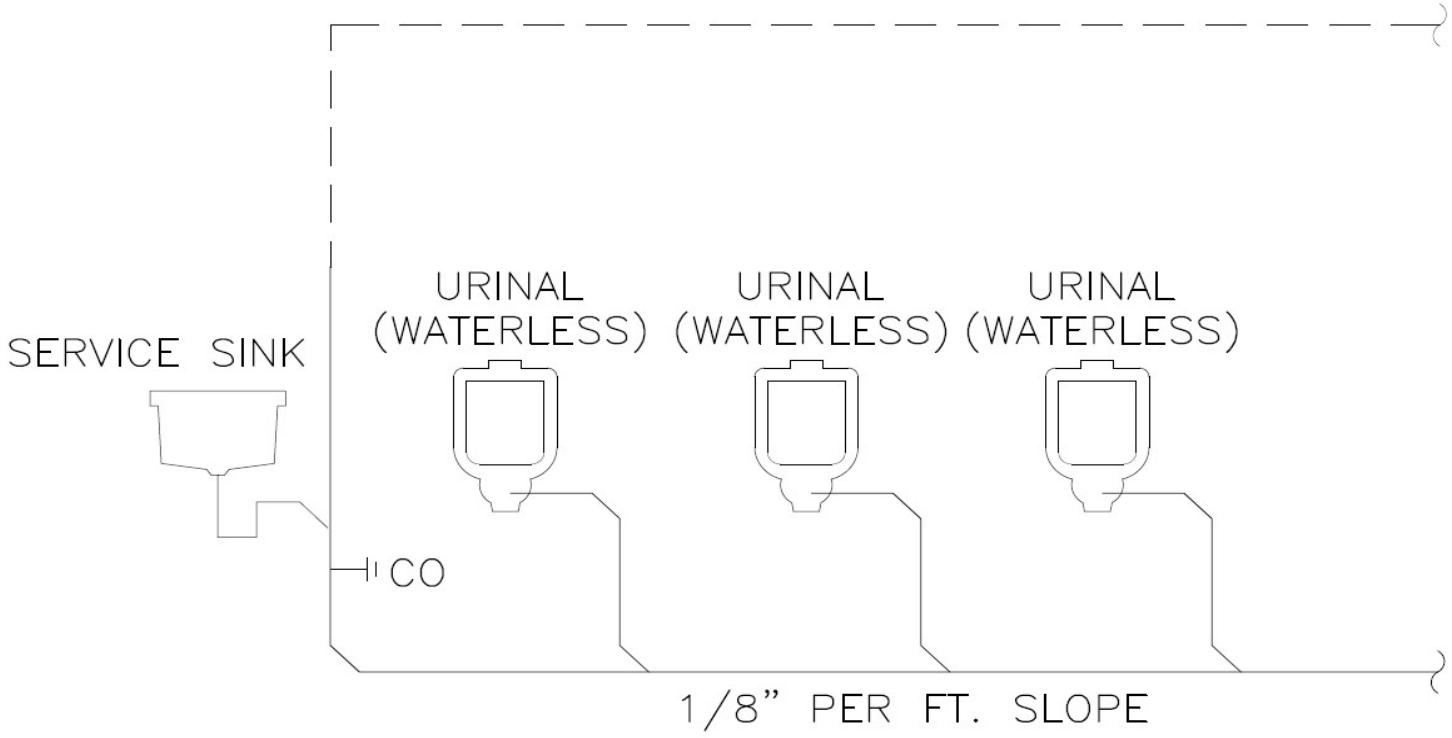
- Minimum floor drain outlet 3”
  - Exception: One- and two-family dwellings 2” min floor drain outlet



P-424.3 Non-water urinal connection.

- *The fixture drain for a non-water urinal shall independently connect to a branch drain that serves one or more lavatories, water closets or water-using fixtures with not less than one drainage fixture unit that discharges upstream of such non-water urinals*

P-424.3 Non-water urinal connection.



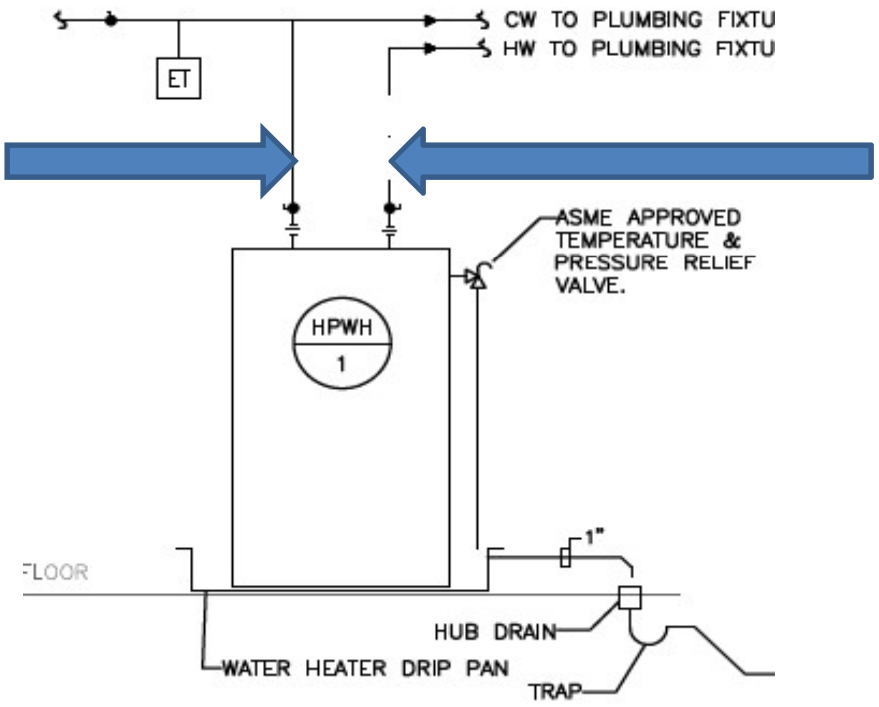
Water Heaters
P-503.3 Materials.

- *All water heaters and water heating equipment shall have a minimum of 4 feet of developed length of copper tubing or similar*

metallic piping material connecting directly

to the inlet and outlet of the unit.

Water Heaters
P-503.3 Materials
4’ Of Metallic pipe



Water Distribution Pipe
P-605.3

- *Water distribution pipe shall conform to NSF 61 and shall conform to one of the standards listed in Table 605.3.*
- *Water distribution piping 3” and larger must be ductile iron to the meter*

Table P-606.3

TABLE P-605.3
WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D1527; ASTM D2282
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D2846; ASTM F441; ASTM F442; CSA B137.6
Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC)	ASTM F2855
Copper or copper-alloy pipe	ASTM B42; ASTM B302
Copper or copper-alloy tubing (Type K, WK, L, WL, M or WM)	ASTM B75; ASTM B88; ASTM B251; ASTM B447
Cross-linked polyethylene (PEX) plastic pipe and tubing	ASTM F876; AWWA C904; CSA B137.5
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	ASTM F1281; ASTM F2262; CSA B137.10
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Ductile iron water pipe	AWWA C151/A21.51; AWWA C115/A21.15
Galvanized steel pipe	ASTM A53
Polyethylene (PE) plastic pipe	ASTM D2239; ASTM D3035; AWWA C901; CSA B137.1
Polyethylene (PE) plastic tubing	ASTM D2737; AWWA C901; CSA B137.1
Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	ASTM F1282; CSA B137.9
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F2769; CSA B137.18
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785; ASTM D2241; ASTM D2672; CSA B137.3
Stainless steel pipe (Type 304/304L)	ASTM A312; ASTM A778
Stainless steel pipe (Type 316/316L)	ASTM A312; ASTM A778

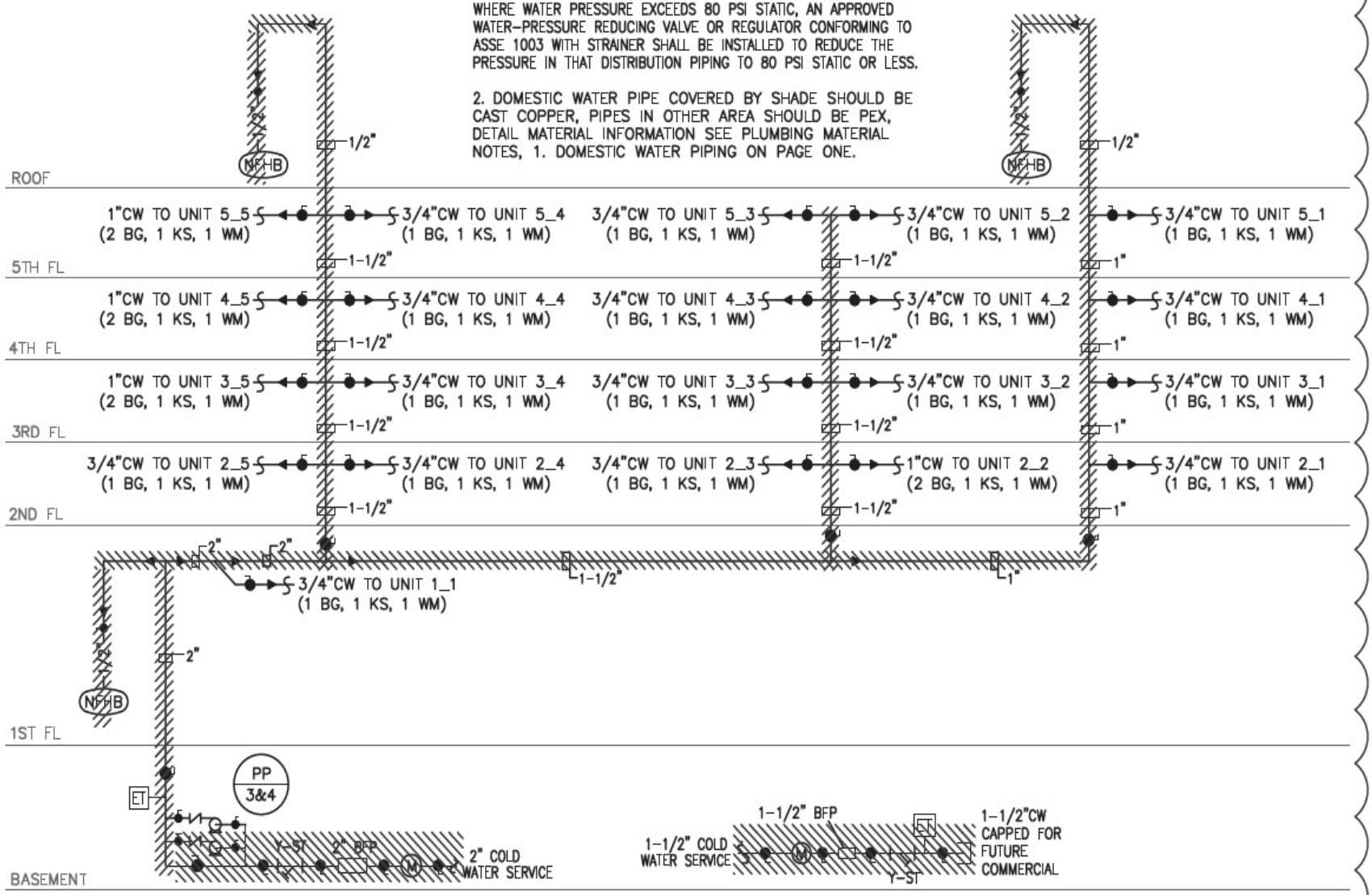
605.3 Water Supply Pipe

- *Water supply piping supplying or located within occupancies other than one- and two-family dwellings and apartments shall be metallic piping.*

GENERAL NOTE:

1. CONTRACTOR SHALL TEST WATER PRESSURE AFTER INSTALLATION. WHERE WATER PRESSURE EXCEEDS 80 PSI STATIC, AN APPROVED WATER-PRESSURE REDUCING VALVE OR REGULATOR CONFORMING TO ASSE 1003 WITH STRAINER SHALL BE INSTALLED TO REDUCE THE PRESSURE IN THAT DISTRIBUTION PIPING TO 80 PSI STATIC OR LESS.

2. DOMESTIC WATER PIPE COVERED BY SHADE SHOULD BE CAST COPPER, PIPES IN OTHER AREA SHOULD BE PEX, DETAIL MATERIAL INFORMATION SEE PLUMBING MATERIAL NOTES, 1. DOMESTIC WATER PIPING ON PAGE ONE.



1 P1 **DOMESTIC WATER PIPING RISER DIAGRAM**

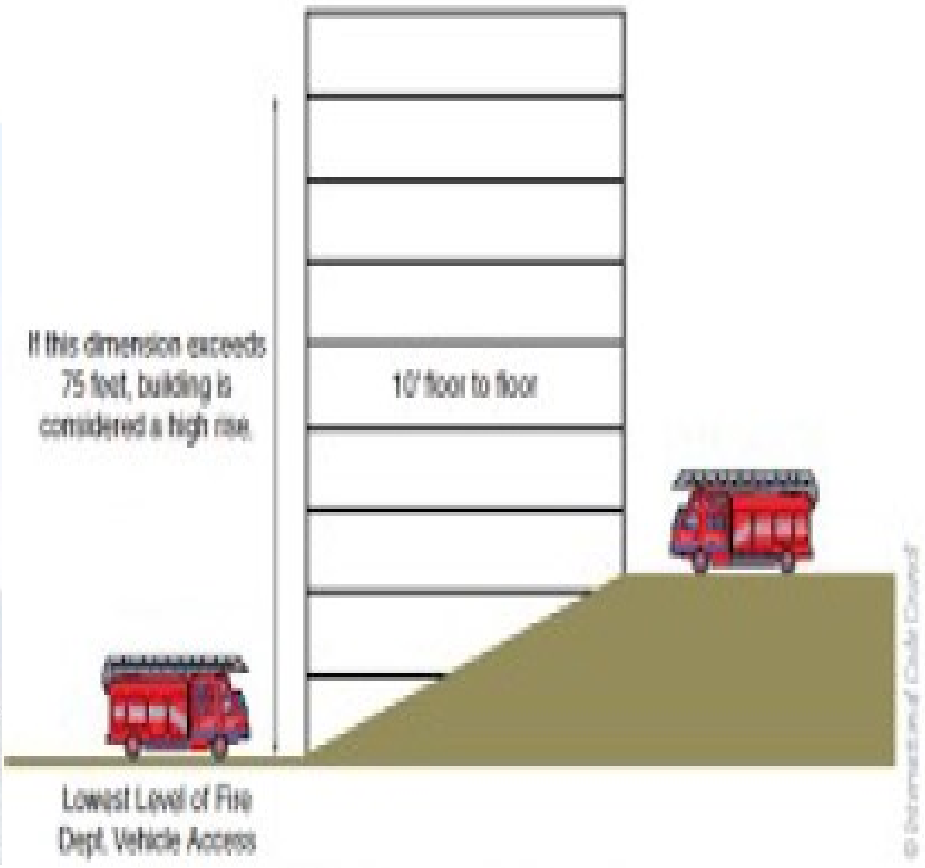
SCALE: NONE

P-605.4.1 High-Rise Materials

- *Metallic piping shall be installed in buildings 75 feet or more in height as measured from the lowest level of fire department vehicle access.*

- *Exception: Nonmetallic piping may be used within demised individual residential dwelling units located within buildings not more than 150 feet in height as measured from the lowest level of fire department vehicle access.*

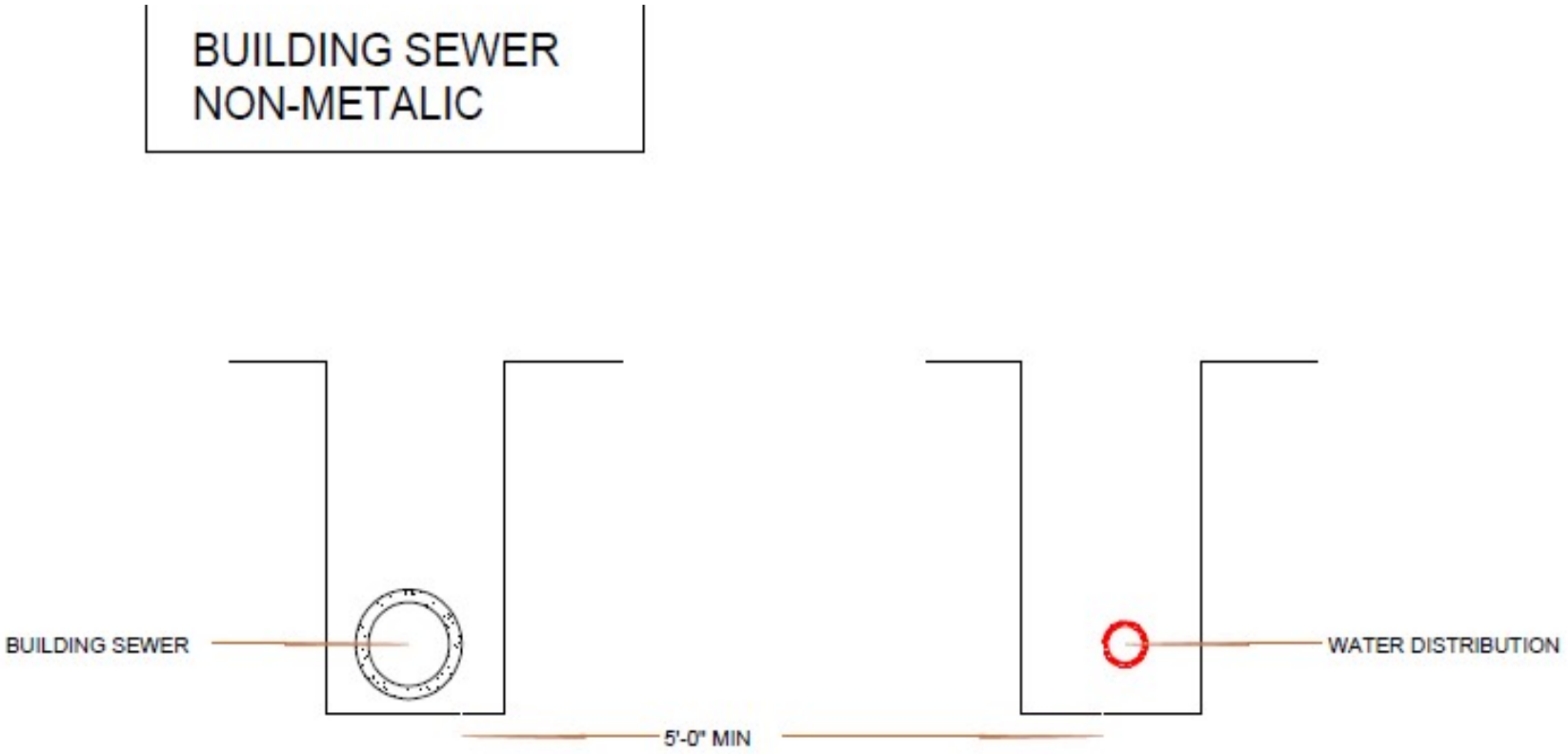
P-605.4.1 High-Rise Materials



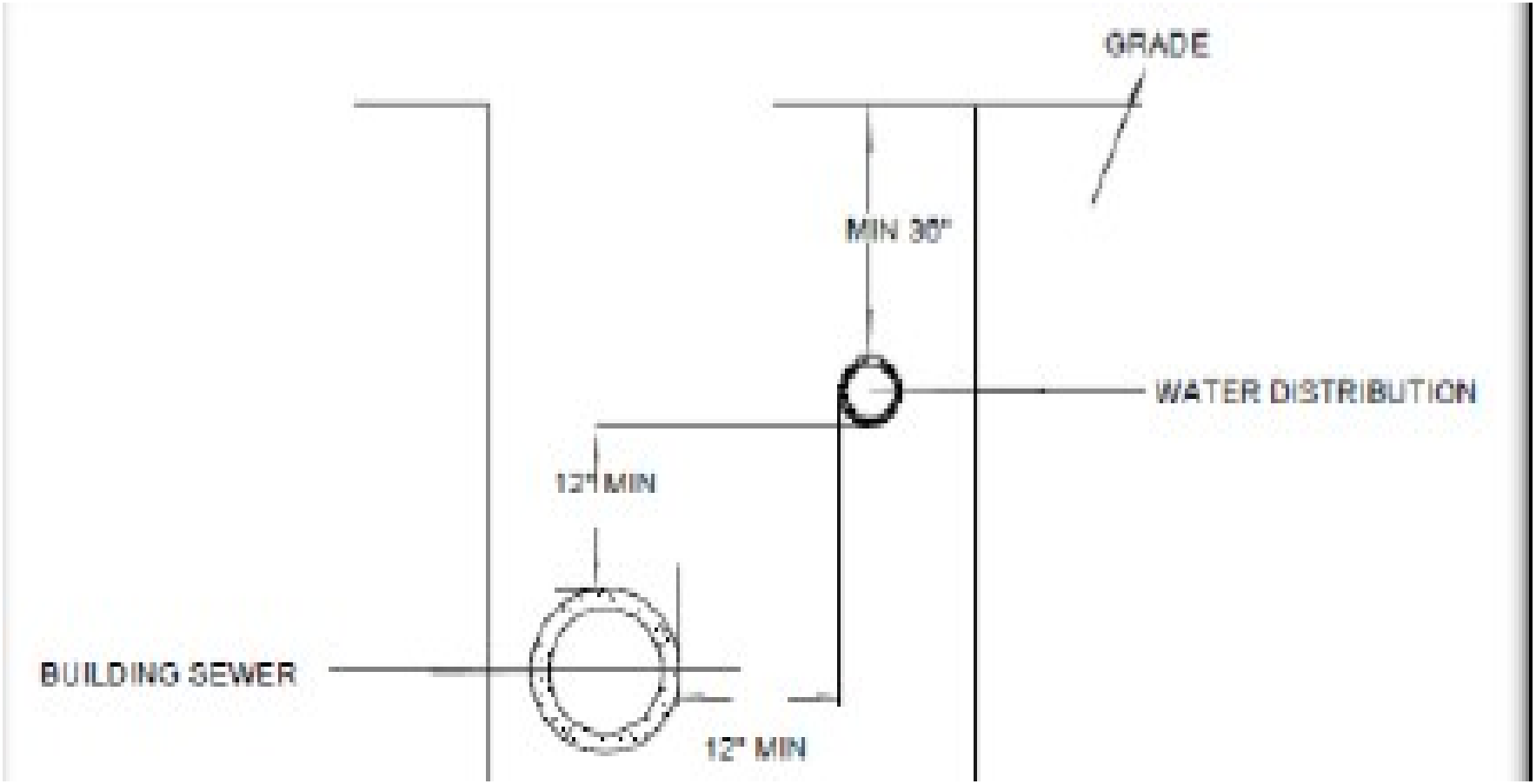
Section 603.2 - Separation of Water Distribution

- *Separation is required for the building sewer, building drain, storm sewer and storm drainage piping*
- *Water distribution pipe must be horizontally separated 5’ min by undisturbed or compacted earth when adjacent to nonmetallic piping*
- *Water distribution pipe must be separated by 12” min vertical and 12” min horizontal from the outer edge of piping for metallic piping*
- *Separation is not required where the water distribution crosses the piping only and is at least 12” above and sleeved at least 5’ from the centerline on both sides of the crossing.*

P-603.2 1 Separation of Water Distribution Piping.

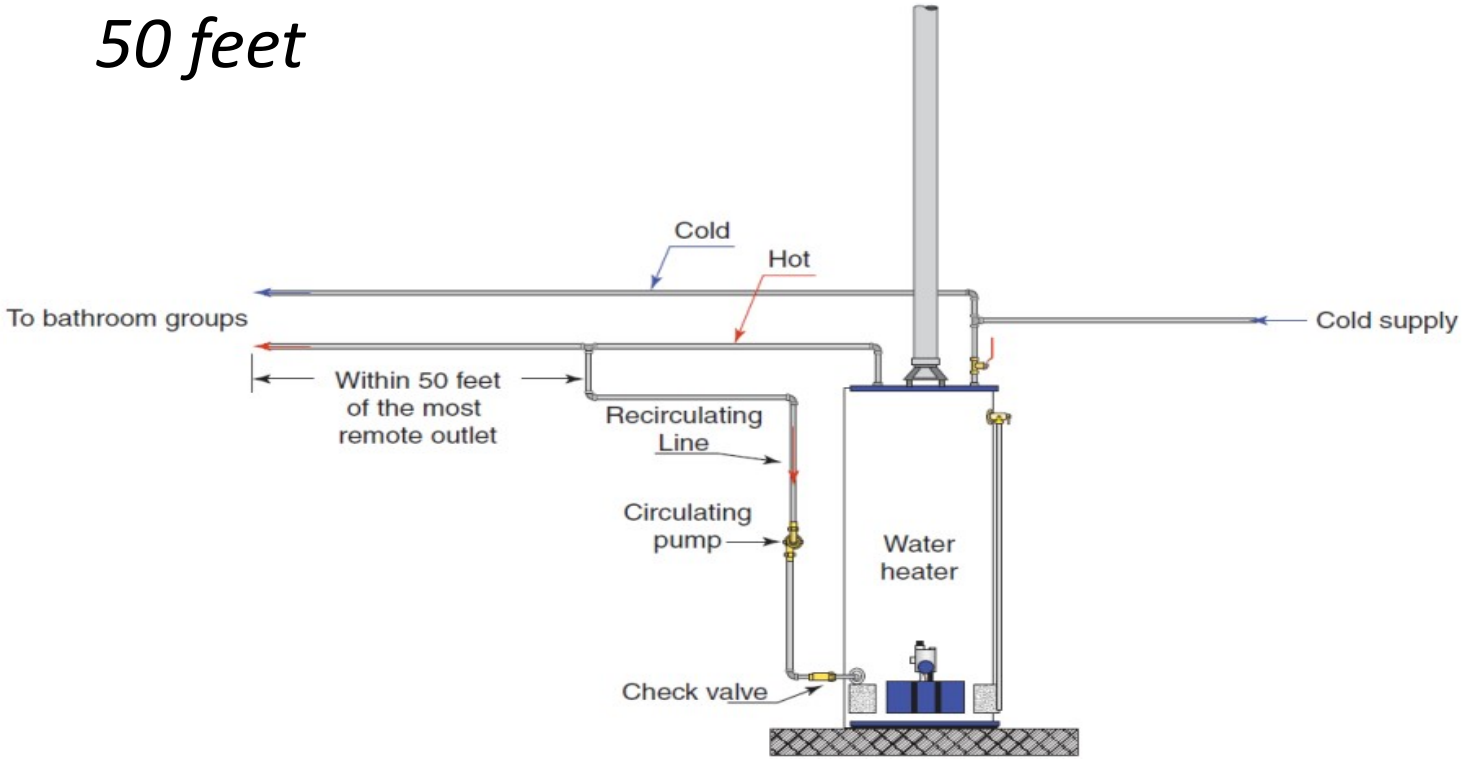


P-603.2 1 Separation of Water Distribution Piping.



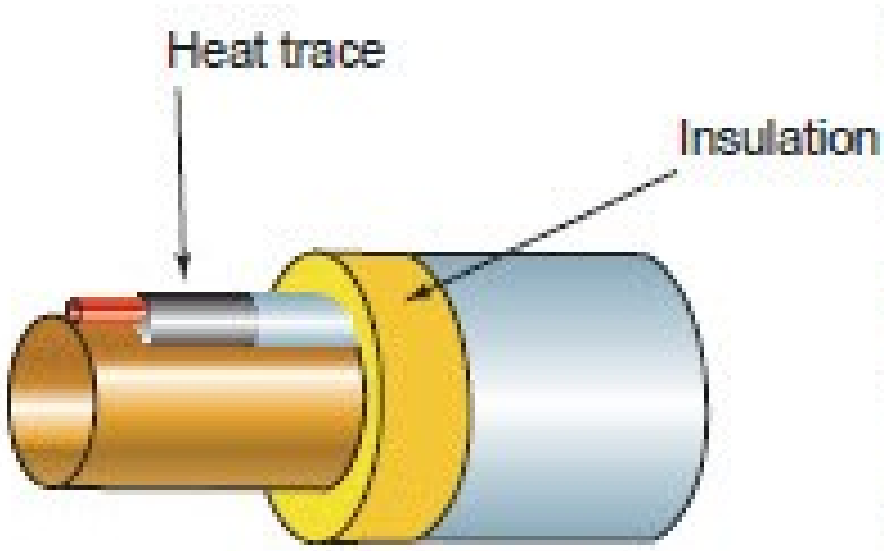
Section 607.2 – Hot water supply temperature maintenance

The threshold for where a hot water temperature maintenance system is required was lowered from 100 feet to 50 feet



607.2.1 Maintaining heated water temperature

- *Residential occupancies shall comply with the energy code section R403.5 .1*
- *Commercial occupancies shall comply with the energy code section C404.6*



Heat-trace temperature maintenance for hot water system

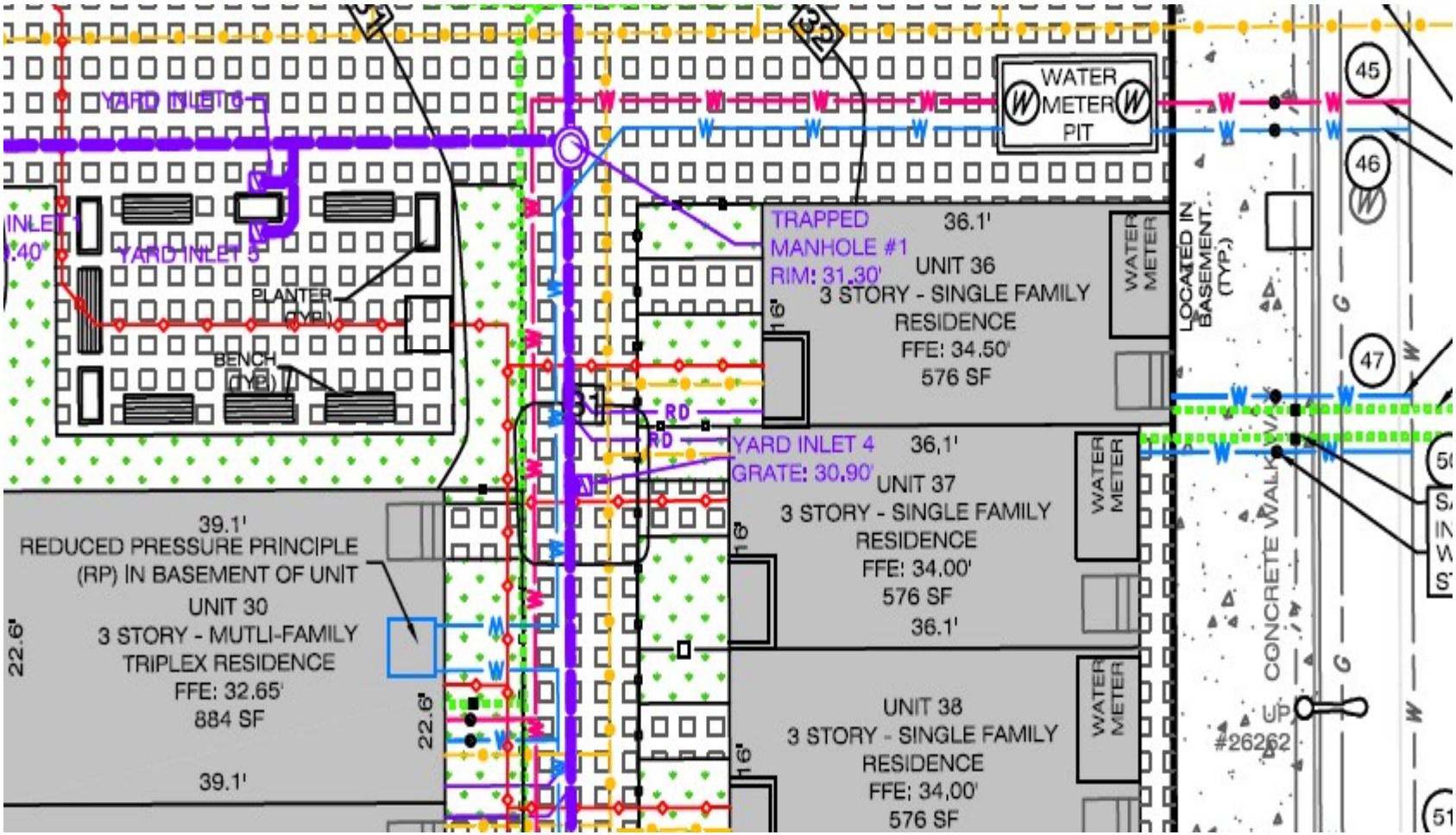
607.5 [E] - Pipe insulation

- *The International Energy Conservation Code regulates pipe insulation, which is sometimes installed by the plumbing contractor.*

New Section 614 Private Water Infrastructure

- *This code section regulates site utility work for Private Urban Developments*.
- *The provisions of this section shall govern the materials, design, and construction of Private Water Infrastructure.*

Private Urban Developemnt



P-702.1 Above-ground sanitary drainage and vent pipe.

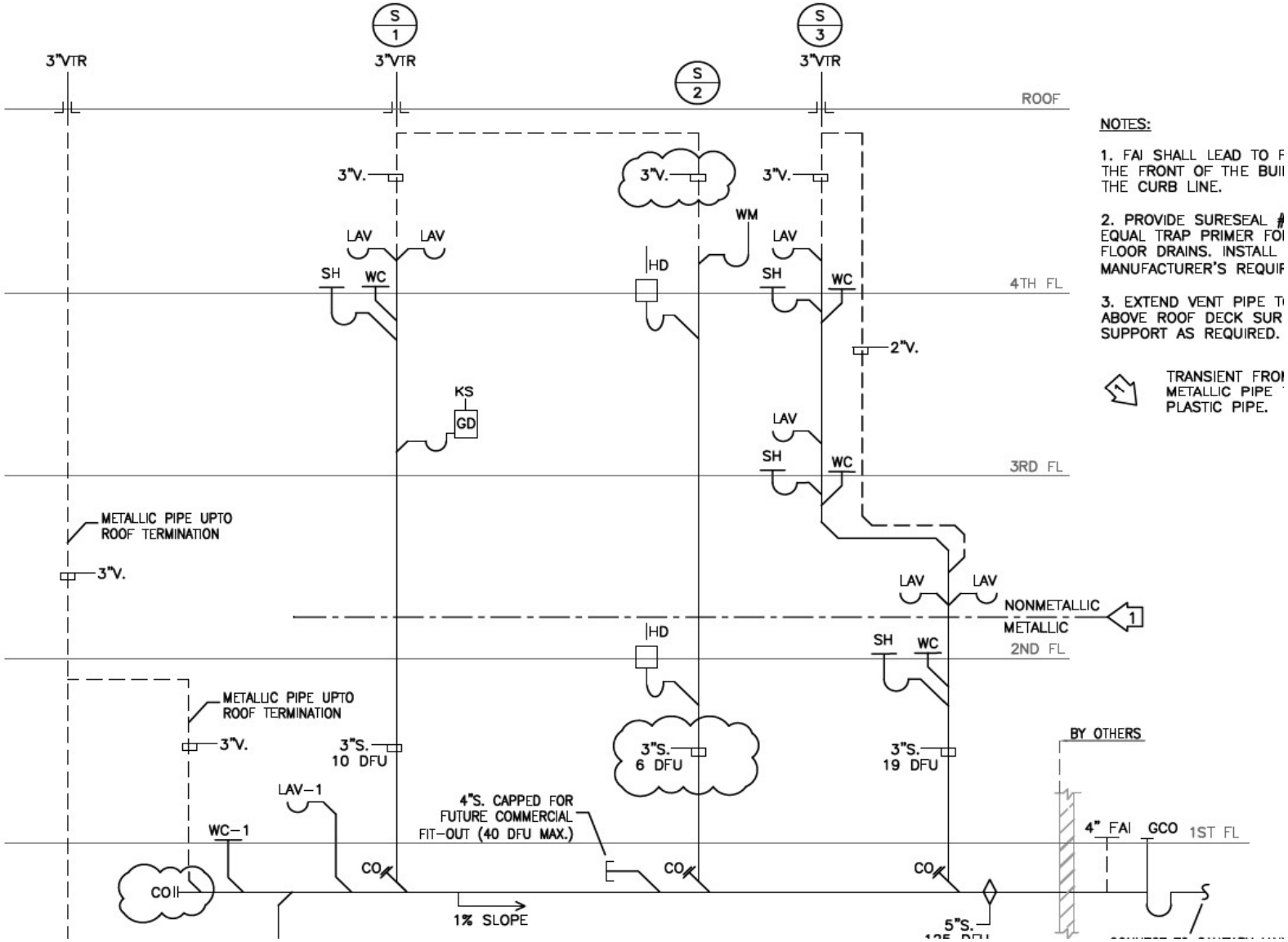
- *Above-ground soil, waste and vent pipe shall conform to one of the standards listed in*

Table 702.1. Any above-ground soil, waste and vent piping serving or located within

occupancies other than one- and two-family

dwellings and apartments shall be metallic piping

P-702.1


S 1
S 2
S 3
3"VTR
3"VTR
3"VTR
ROOF
4TH FL
3RD FL
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1ST FL
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METALLIC PIPE UPTO ROOF TERMINATION
3"V.
3"S. 10 DFU
3"S. 6 DFU
3"S. 19 DFU
BY OTHERS
LAV-1
WC-1
4"S. CAPPED FOR FUTURE COMMERCIAL FIT-OUT (40 DFU MAX.)
4" FAI GCO
CO
CO
CO
CO
1% SLOPE
5"S.
NOTES:
1. FAI SHALL LEAD TO F
THE FRONT OF THE BUI
THE CURB LINE.
2. PROVIDE SURESEAL #
EQUAL TRAP PRIMER FO
FLOOR DRAINS. INSTALL
MANUFACTURER'S REQUI
3. EXTEND VENT PIPE T
ABOVE ROOF DECK SUR
SUPPORT AS REQUIRED.
1
TRANSIENT FRO
METALLIC PIPE
PLASTIC PIPE.

Table 702.1

TABLE 702.1
ABOVE-GROUND DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75; ASTM B88; ASTM B251; ASTM B306
Galvanized steel pipe	ASTM A53
Glass pipe	ASTM C1053
Polyolefin pipe	ASTM F1412; CSA B181.3
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200), and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488; CSA B181.2
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949, ASTM F1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1

P-702.2 Underground building sanitary drainage and vent

- *Underground building sanitary drainage and vent pipe shall conform to one of the standards listed in Table P-702.2*
- *Any underground building sanitary drainage and vent piping serving or located within occupancies other than one- and two-family dwellings and apartments shall be metallic piping in accordance with this section.*

Table P-702.2

TABLE P-702.2
UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid wall	ASTM D2661; CSA B181.1
Cast-iron pipe	[a]ASTM A74
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75; ASTM B88; ASTM B251; ASTM B306
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F714
Polyolefin pipe	ASTM F1412; ASTM F714; CSA B181.3
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid wall	ASTM D2665; CSA B181.2
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid wall	ASTM D2949
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3
Stainless steel drainage systems, Type 316L	ASME A112.3.1

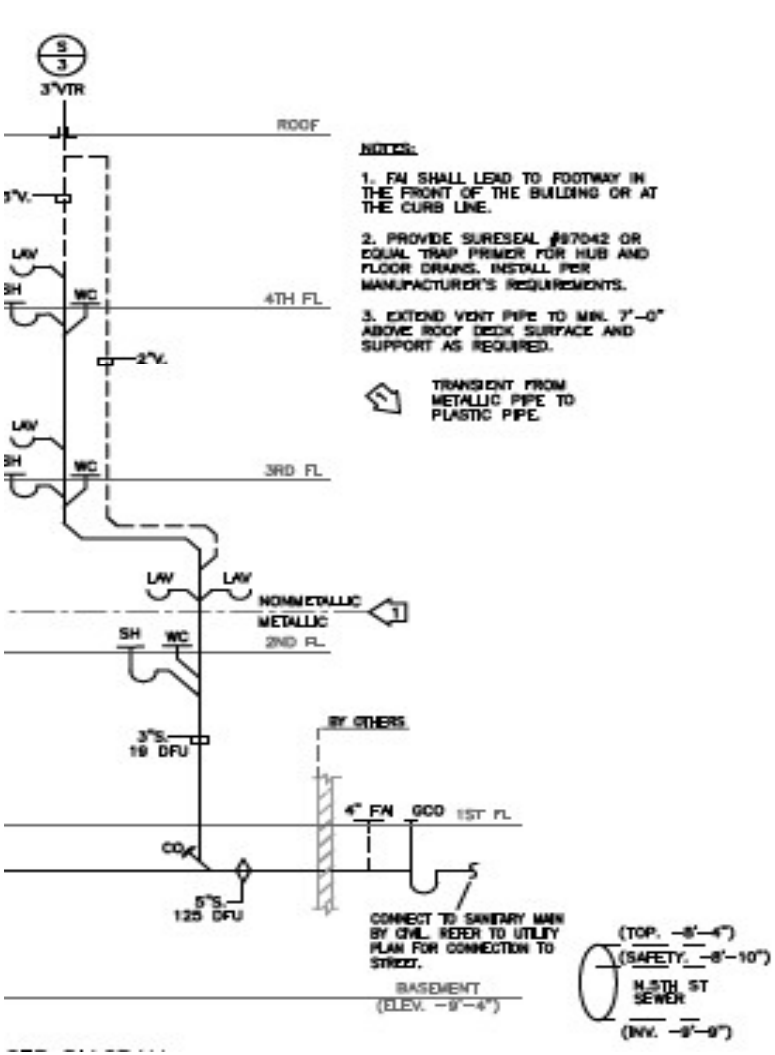
703.6.1 Separation

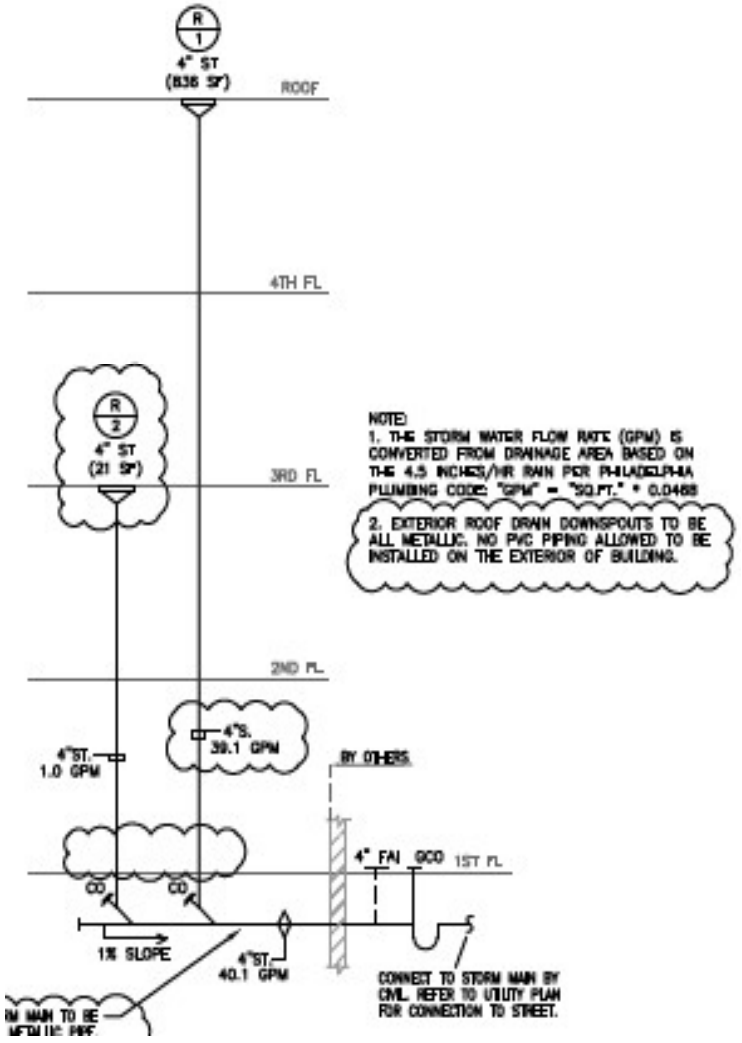
- Storm water must not be drained to sewers for sanitary sewage only
- Sanitary waste must not be drained to sewers for storm water only.

P-703.6 Combined sanitary and storm public sewer.

- *Where the public sewer is a combined system for both sanitary and storm water, the sanitary sewer shall be connected independently to the lateral, unless otherwise approved by the Philadelphia Water Department.*

P-703.6 Combination sanitary and storm public sewer





SECTION 705
JOINTS

- *705.3.1 Caulked joints. Lead and Oakum Allowed*
- *P-705.3.4 Repair or connection of the building drain or building sewer, 2- ARC Allowed with concrete encasement.1-ARC concrete encasement not required.*
- *Only 1-MG clamp Allowed.*

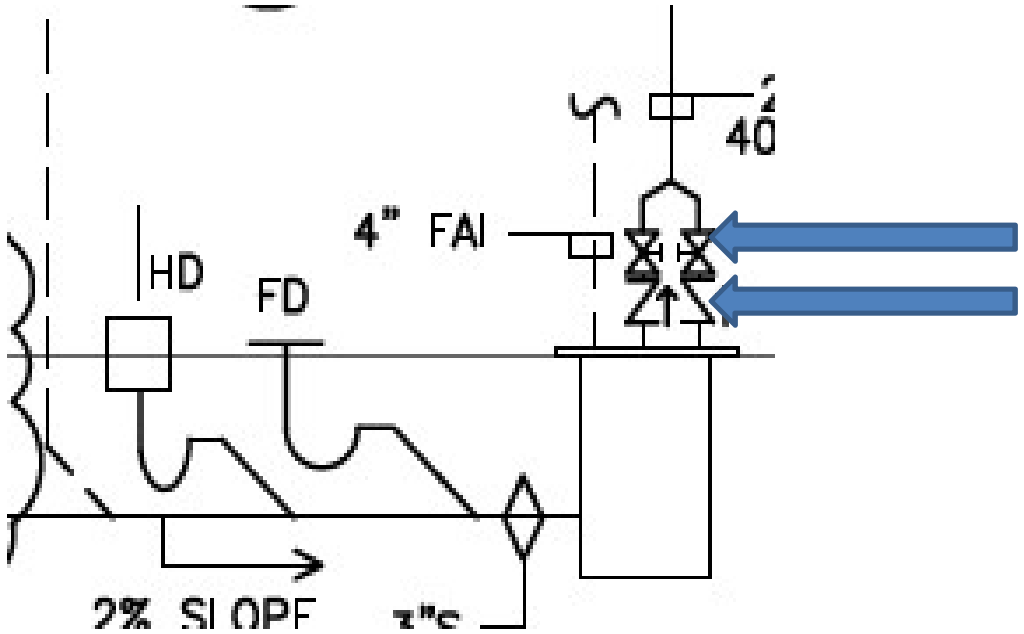
705.3.2 Compression gasket joints

- *Compression gaskets (ty-seal) for hub and spigot pipe and fittings are allowed underground inside outside of the building.*

P-712.4 Sewage pumps and sewage ejectors.

- *A duplex sewage pump or sewage ejector shall automatically discharge the contents of the sump to the building drainage system. A simplex pump or sewage ejector shall be permitted for one- and two-family two-family dwellings and where serving a single plumbing fixture waste, a single waste receptor or both in all other occupancies.*

P-712.4 Sewage pumps and sewage ejectors.

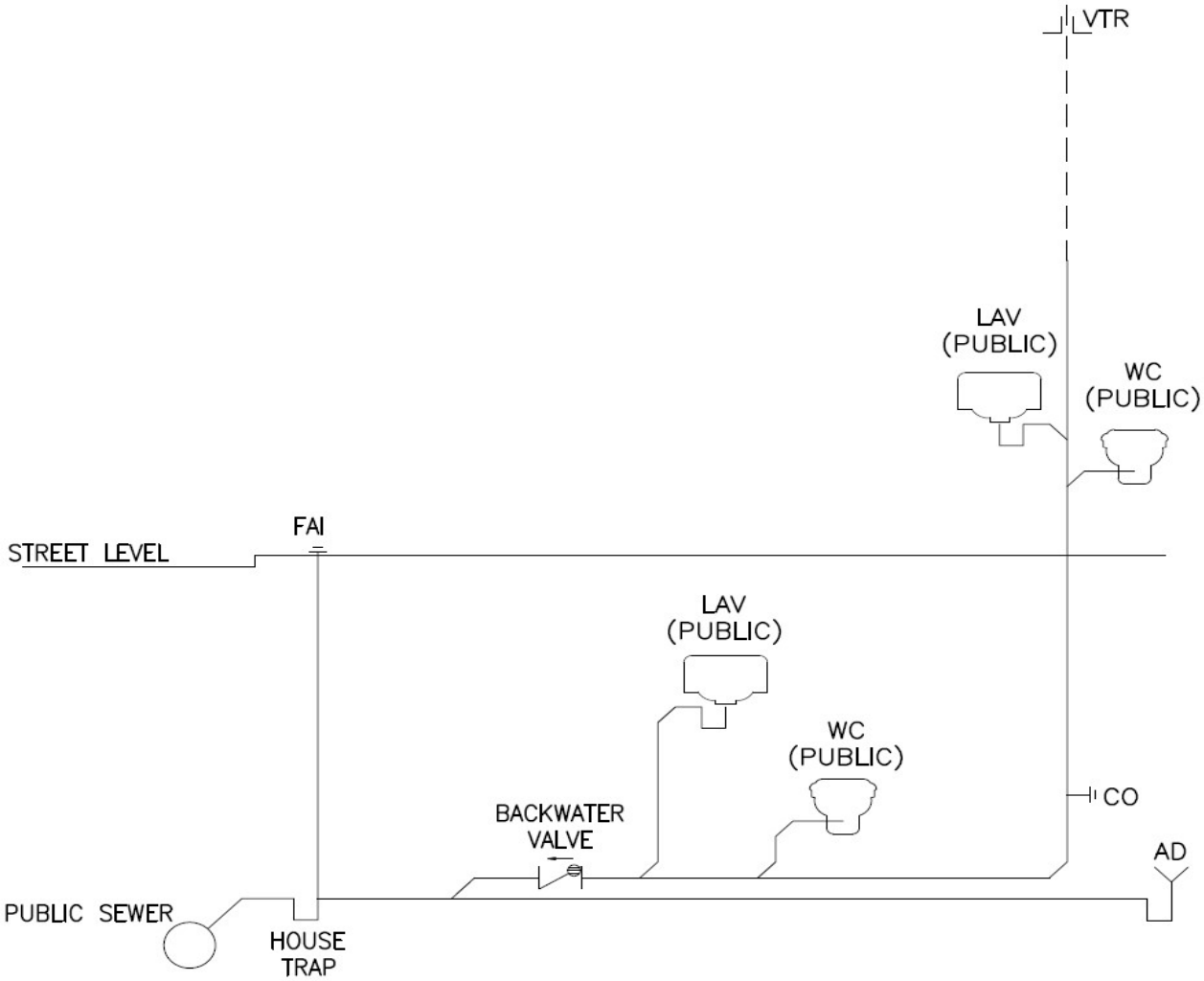


SECTION 714
BACKWATER VALVES

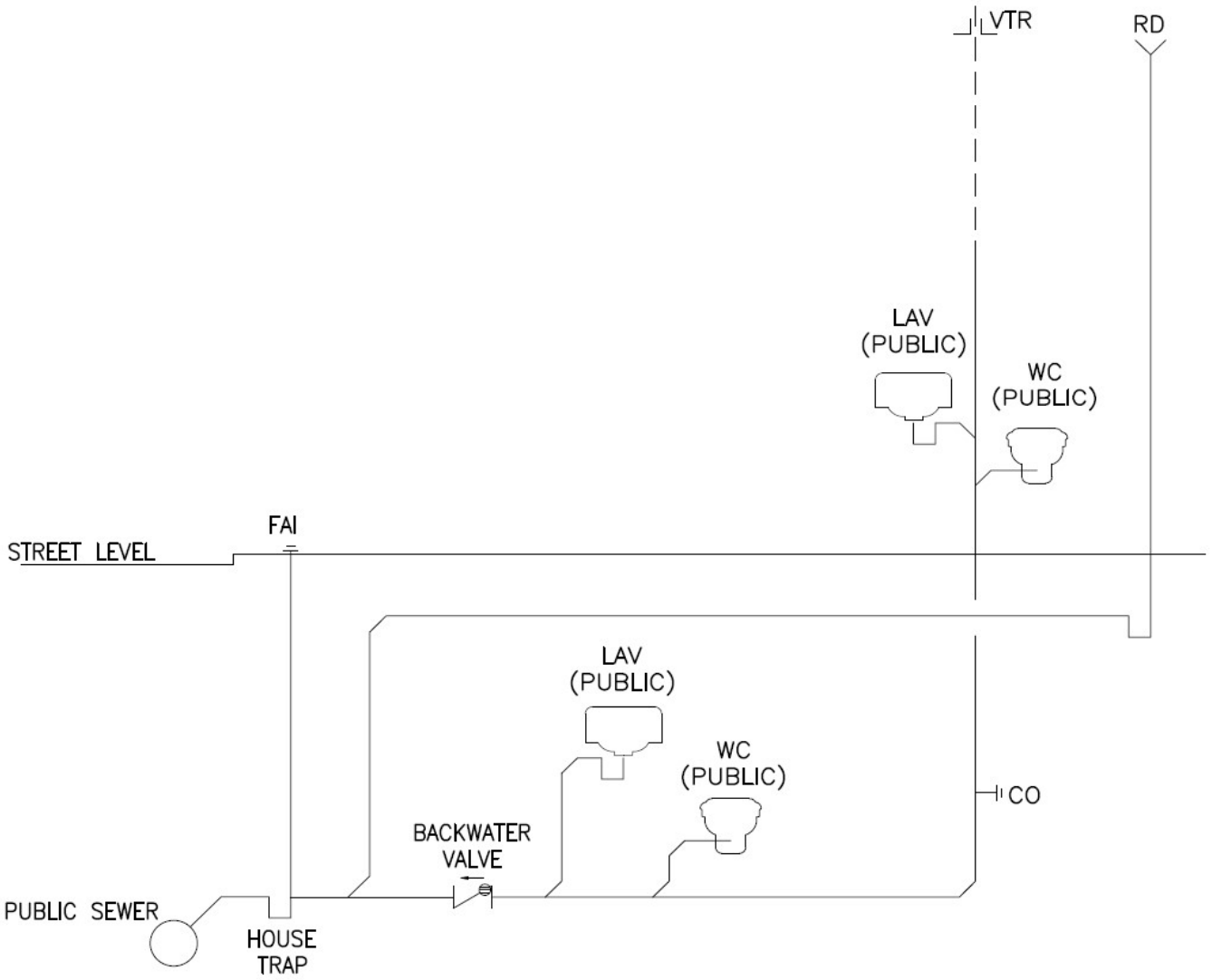
- **P-714.1 Sewage backflow.**

Where plumbing fixtures are installed on a floor with a finished floor elevation below the fresh air inlet termination, such fixtures shall be protected by a backwater valve installed in the *building drain, or horizontal branch serving such fixtures.*

Section 714 Backwater Valves



Section 714 Backwater Valves



SECTION 918
AIR ADMITTANCE VALVES

- *P-918.1 General. Vent systems utilizing air admittance*

valves shall comply with this section. Individual air admittance valves shall conform to ASSE 1051.

Air admittance valves shall be allowed for permitted

alterations to the plumbing system in one- and two-family dwellings in place of an individual vent

for a single fixture drain other than a water closet

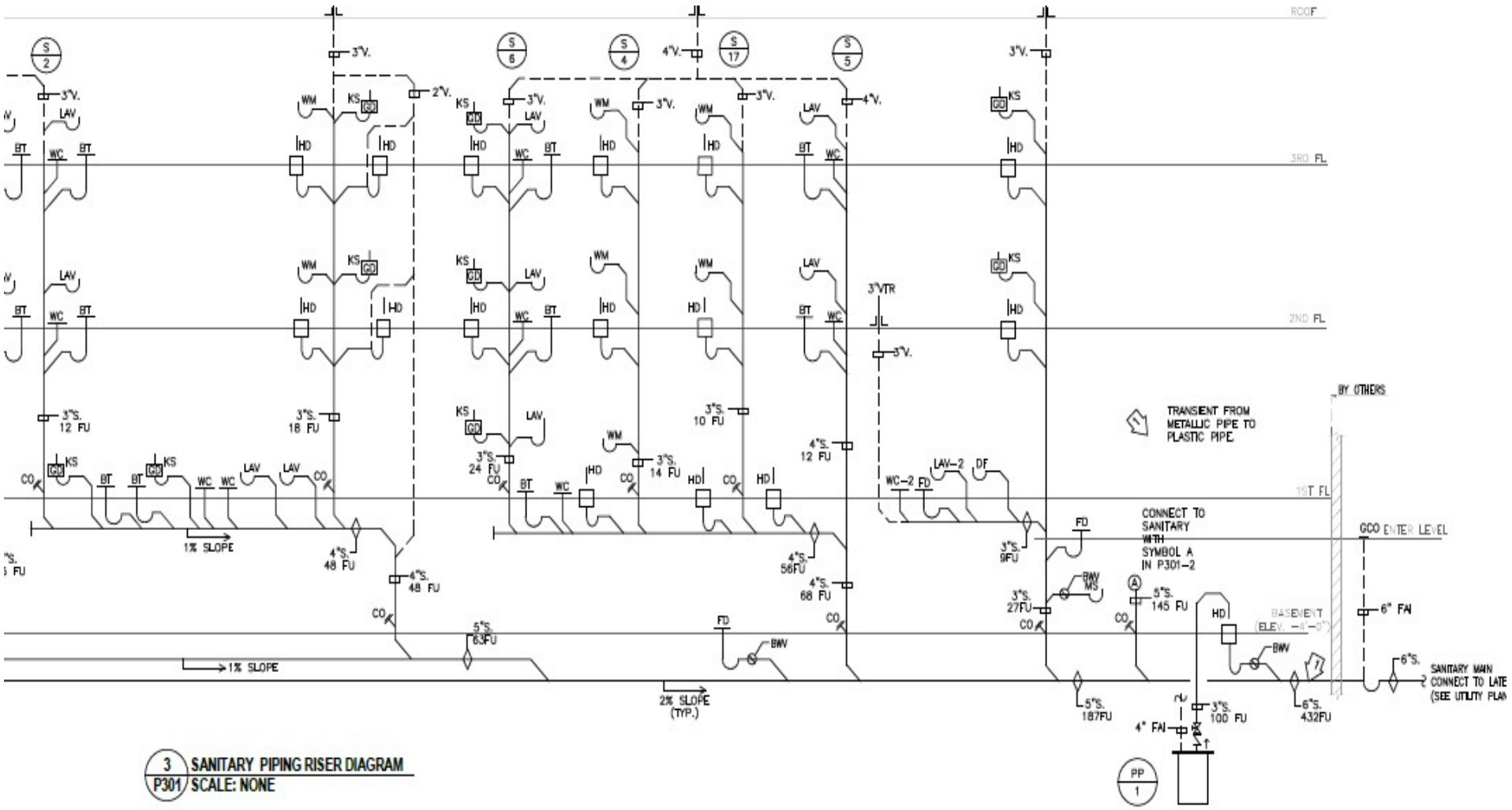
or any other soil waste.

SECTION P-919
PHILADELPHIA SINGLE-STACK WASTE AND VENT SYSTEM

- *If you want to use this section in the design of new construction you can not use any design methods in Chapter 7 or any other section in Chapter 9.*

Exception: Section 916 Island venting will be allowed.

- *All plumbing alterations to the sanitary plumbing systems in existing buildings must use section 919. Chapter 7 can not be used.*



3 / P301 SANITARY PIPING RISER DIAGRAM
SCALE: NONE

Email
Robert.w.gledhilljr@phila.gov