

Plumbing Systems



Brandon Ives

Los Angeles Department of Building and Safety

Senior Plumbing Inspector and Plumbing Training Officer

June
2019

Today's Agenda

10:15 am - 12:15

- **Underground Plumbing**
- **Rough Plumbing**
- **Final Plumbing**





2017 CITY OF LOS ANGELES PLUMBING CODE

Based on the 2016 CPC and 2015 UPC®



2016 CALIFORNIA PLUMBING CODE

CALIFORNIA CODE OF REGULATIONS
TITLE 24, PART 5

Based on the 2015 Uniform Plumbing Code®

California Building Standards Commission



Underground Plumbing Inspections

As inspectors, what are we
looking for ? ? ?

- Mechanical Plan Check
- Methane Zone
- Clean outs
- Approved Materials / Test
- Up Stream Man Hole Elevations
- De Watering System
- Floor Drains & Floor Sinks
- Trough Drains
- Trap Primers
- Back Water Valves
- Industrial Waste Plans
- Health Department Plans



Building permit and building card on the job site (if required)

What Type of Building is it? ADU ?

What is the Work Description?

Is it a Change of Use?

Tenant Improvement?

Building Sewer and Building Drain Materials

- Cast Iron
- Galvanized steel (6" above grade)
- Copper DWV
- ABS/PVC DWV (Schedule 40)
(Note: HCD 2 story areas of residential accommodation, but allowed for non-residential)
Continue>

- **Extra strength clay underground only (existing building sewer under a new addition should be replaced)**
- **Stainless Steel 304 (6" above grade) (701.2 & Table 701.2)**
- **Building sewer material of lesser quality. Building sewer material 2' away & 1' cover (715)**

Approved Materials for Building Waste, Vents and Sewer Systems



TABLE 701.2
MATERIALS FOR DRAIN, WASTE, VENT PIPE AND FITTINGS

MATERIAL	UNDERGROUND DRAIN, WASTE, VENT PIPE AND FITTINGS	ABOVEGROUND DRAIN, WASTE, VENT PIPE AND FITTINGS	BUILDING SEWER PIPE AND FITTINGS	REFERENCED STANDARD(S) PIPE	REFERENCED STANDARD(S) FITTINGS
ABS (Schedule 40)	X	X	X	ASTM D2661, ASTM D2680*	ASTM D2661, ASTM D2680*
Cast-Iron	X	X	X	ASTM A74, ASTM A888, CISPI 301	ASME B16.12, ASTM A74, ASTM A888, CISPI 301
Co-Extruded ABS (Schedule 40)	X	X	X	ASTM F628	ASTM D2661, ASTM D2680*
Co-Extruded Composite (Schedule 40)	X	X	X	ASTM F1488	ASTM D2661, ASTM D2665, ASTM F794*, ASTM F1866
Co-Extruded PVC (Schedule 40)	X	X	X	ASTM F891	ASTM D2665, ASTM F794*, ASTM F1866
Copper and Copper Alloys (Type DWV)	X	X	X	ASTM B43, ASTM B75, ASTM B251, ASTM B302, ASTM B308	ASME B16.23, ASME B16.29
Galvanized Malleable Iron	—	X	—	—	ASME B16.3
Galvanized Steel	—	X	—	ASTM A53	—
Polyethylene	—	—	X	ASTM F714	—
PVC (Schedule 40)	X	X	X	ASTM D1785, ASTM D2665, ASTM F794*	ASTM D2665, ASTM F794*, ASTM F1866
Stainless Steel 304	—	X	—	ASME A112.3.1	ASME A112.3.1
Stainless Steel 316L	X	X	X	ASME A112.3.1	ASME A112.3.1
Vitrified Clay (Extra strength)	—	—	X	ASTM C700	ASTM C700

*For building sewer applications.

When is Mechanical Plan Check Required by LADBS ? ? ?

101.0 Title, Scope and General.

101.1 Title. This article shall be known as the "Los Angeles Plumbing Code", a portion of the Los Angeles Municipal Code, and wherever the word "Code" is used in this article, it shall mean the "Los Angeles Plumbing Code" and whenever "LAMC" is used, it shall mean the Los Angeles Municipal Code.

101.2 Scope. The provisions of this code shall apply to the erection, installation, alteration, repair, relocation, replacement, addition to, use, or maintenance of plumbing systems within this jurisdiction.

101.3 Purpose. The purpose of this Code is to safeguard health, life, property and public welfare by regulating the design, alteration, construction, installation, repair, and quality of materials for plumbing, fire sprinkler, rainwater piping, standpipe, subsurface drainage piping, swimming pool piping, reclaimed water piping, underground fire-protection piping, and graywater piping systems installed in the City.

101.4 Conflicts Between Codes. Where the requirements within the jurisdiction of this plumbing code conflict with the requirements of the mechanical code, this code shall prevail. In instances where the code, applicable standards, or the manufacturer's installation instructions conflict, the more stringent provisions shall prevail. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall prevail.

101.5 Plans Required.

101.5.1 General. Before starting any work and at any time during the progress of any work regulated by this Code, the Department may require the submission of plans, specifications, drawings and other information it deems necessary. The issuance of a permit upon approved plans shall not prevent the Department from requiring the correction of errors in them and stopping work on construction based on these plans when in violation of this Code or of any other applicable ordinance or statute, or from revoking any approval when issued in error.

101.5.2 Signature. Plans and specifications shall bear the signature and registration or license number of an engineer, contractor or other person licensed in the appropriate classification by the State of California.

101.5.3 Risers and Isometrics. System riser or isometric diagrams shall be provided for all drainage, waste and vent, fuel gas, potable water, storm drain, rain water, sump pump, combination waste and vent and standpipe systems. Plans shall be suitable for use by office engineers and field inspectors.

101.5.4 Quality of Plans. Plans shall be legible, clear, of 1/8 inch (3.175 mm) per foot scale or larger, except risers and isometrics need not be to scale.

101.5.5 Stamped Plans on Job. The set of plans and specifications stamped and issued to the applicant by the Department shall be kept at the site of the construction or work and shall be available to the authorized representative of the Department. There shall be no deviation from the stamped or approved application, plans or specifications without Department approval.

101.5.6 Types of Plans Required to be Submitted.

Plans signed by a qualified submitter shall be filed with and approved by the Department before any work listed below is started:

(1) Drainage systems.

(a) Drainage and vent systems involving fixtures that discharge 217 or more fixture units.

(b) Drainage pumps and ejectors.

(2) Combination waste and vent systems.

(3) Fuel gas piping with any of the following:

(a) Systems having more than ten outlets.

(b) Medium pressure gas systems.

(c) High pressure gas systems.

(d) Methane gas extraction systems.

(4) Potable water piping with any of the following:

(a) Systems requiring a 2-inch (50.80 mm) or larger supply.

(b) Systems designed from the procedure in Section 610.5 of the California Plumbing Code.

(c) Systems utilizing cross-linked polyethylene tubing (PEX) requiring a 2-inch (50.80 mm) or larger supply or when required by the conditions of approval of the City of Los Angeles Mechanical Testing Laboratory Research Report.

(d) Systems utilizing CPVC piping requiring a 2-inch (50.80mm) or larger supply or when required by the conditions of approval of the City of Los Angeles Mechanical Testing Laboratory Research Report.

Exception: Plan Check is not required for existing systems that are added to or altered, with branch lines that serve fewer than 20 fixture units and sized by California Plumbing Code Table 610.4.

(5) Rainwater piping systems with more than ten interconnected rainwater or overflow drains, or a rainwater pump.

(6) Special water piping systems for reclaimed water piping.

(7) Reserved.

(8) Swimming pool circulating water systems.

Exception: Private swimming pools.

ADMINISTRATION

(9) Fire Protection.

(a) Class H. Standpipes.

(b) Standpipes: Class I, II, III.

(c) Fire pump systems.

(d) Fire hydrant systems.

(e) Hand hose systems connected to fire sprinkler piping.

(f) Monitor nozzle systems.

(g) Underground fire protection piping.

(h) Fire sprinkler systems.

Exceptions:

(1) Raising or lowering of sprinklers due to change in ceiling height.

(2) Replacing of sprinklers of the same type, orifice size and temperature rating.

(3) Relocation of sprinklers in previously occupied buildings or tenant spaces.

101.6 Repairs and Alterations. In existing buildings or premises in which plumbing installations are to be altered, repaired, or renovated, deviations from the provisions of this code are permitted, provided such deviations are found to be necessary and are first approved by the Authority Having Jurisdiction.

101.6.1 Building Sewers and Drains. Existing building sewers and building drains shall be permitted to be used in connection with new buildings or new plumbing and drainage work where they are found on examination and test to be in accordance with the requirements governing new work, and the proper Authority Having Jurisdiction shall notify the owner to make changes necessary to be in accordance with this code. No building, or part thereof, shall be erected or placed over a part of a drainage system that is constructed of materials other than those approved elsewhere in this code for use under or within a building.

101.6.2 Openings. Openings into a drainage or vent system, excepting those openings to which plumbing fixtures are properly connected or which constitute vent terminals, shall be permanently plugged or capped in an approved manner, using the appropriate materials in accordance with this code.

101.7 Maintenance. The plumbing and drainage system of a premises under the Authority Having Jurisdiction shall be maintained in a sanitary and safe operating condition by the owner or the owner's agent.

101.8 Existing Construction. No provision of this code shall be deemed to require a change in a portion of a plumbing or drainage system or other work regulated by this code in or on an existing building or lot where such work was installed and is maintained in accordance with law in effect prior to the effective date of this code, except where such plumbing or drainage system or other work regulated by this code is determined by the Authority Having Jurisdiction to be in fact dangerous, unsafe, insanitary, or a nuisance and a menace to life, health, or property.

101.9 Additions, Alterations, or Repairs. Additions, alterations, repairs, and replacement of plumbing systems shall comply with the provisions for new systems except as otherwise provided in Section 101.11.

101.10 Appendices. The provisions in the appendices are intended to supplement the requirements of this code and shall not be considered part of this code unless formally adopted as such.

101.11 Application to Existing Plumbing System. Additions, alterations, or repairs shall be permitted to be made to a plumbing system without requiring the existing plumbing system to be in accordance with the requirements of this code, provided the addition, alteration, or repair is in accordance with that required for a new plumbing system. Additions, alterations, or repairs shall not cause an existing system to become unsafe, insanitary, or overloaded.

101.11.1 Health and Safety. Where compliance with the provisions of this code fail to eliminate or alleviate a nuisance, or other dangerous or insanitary condition that involves health or safety hazards, the owner or the owner's agent shall install such additional plumbing and drainage facilities or shall make such repairs or alterations as ordered by the Authority Having Jurisdiction.

101.11.2 Existing Installation. Plumbing systems lawfully in existence at the time of the adoption of this code shall be permitted to have their use, maintenance, or repair continued where the use, maintenance, or repair is in accordance with the original design and location and no hazard to life, health, or property has been created by such plumbing system.

101.11.3 Changes in Building Occupancy. Plumbing systems that are a part of a building or structure undergoing a change in use or occupancy, as defined in the building code, shall be in accordance with the requirements of this code that are applicable to the new use or occupancy.

101.11.4 Operating Condition. Plumbing systems, materials, and appurtenances, both existing and new, and parts thereof shall be maintained in operating condition. Devices or safeguards required by this code shall be maintained in accordance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for maintenance of plumbing systems. To determine compliance with this section, the Authority Having Jurisdiction shall be permitted to cause a plumbing system to be reinspected.

101.11.5 Moved Buildings. Plumbing systems that are part of buildings or structures moved into this jurisdiction shall be in accordance with the provisions of this code for new installations, except as provided for in CBC Section 103.5.8.2.

101.11.6 Prohibited Acts.

101.11.6.1 No person shall add, alter, change, construct, install, locate, maintain, move, occupy, relocate, remove, renovate, repair, replace, or use any plumbing system, water-connected appliances, products or devices, fire sprinkler system, rainwater pip-

EACH PUMP 180 GPM @ 110 PSI MAX. HEAD,
208 V, 3 PH, 60 HZ, 10 HP, WITH FREQUENCY DRIVE.

City of Los Angeles, Department of Building and Safety

APPROVED PLANS

☐ This perforated set of plans is not approved for construction until the required permit fees are paid and the permit is issued.

☐ The permit(s) is valid for two years from the date the permit fees are paid.

☐ Visit <http://www.permittees.com/per/index.cfm> to check the status of this set of plans by entering the 15 digit permit number. "Issued" status means the permit fees have been paid.

☐ No inspection can be scheduled until the permit fees have been paid.

BY: RBAB MAKIN DATE: 10-31-16

Permit No.: 16042 - 10000 - 73570

Application No.

☐ This set of plans **MUST** be at the job site during construction.

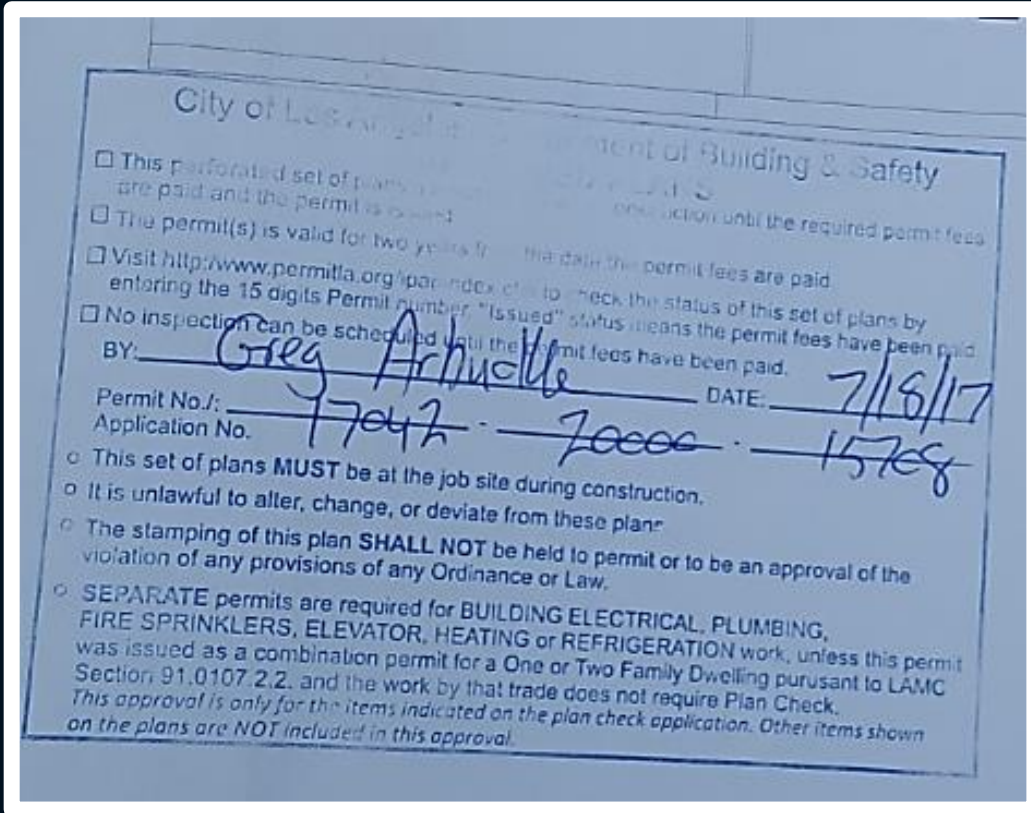
☐ It is unlawful to alter, change, or deviate from these plans.

☐ The stamping of this plan **SHALL NOT** be held to permit or to be an approval of the violation of any provisions of any Ordinance or Law.

☐ **SEPARATE** permits are required for **BUILDING ELECTRICAL, PLUMBING, FIRE SPRINKLER, ELEVATOR, HEATING or REFRIGERATION** work, unless this permit was issued as a combination permit for a One or Two Family Dwelling pursuant to LAMC Section 91.0107.22. and the work by that trade does not require Plan Check.

This approval is only for the items indicated on the plan check application. Other items shown on the plans are NOT included in this approval.

Building Card



Department of Building & Safety, City of Los Angeles
Mechanical Plan Check

Plan Checked for:

Plumbing:

☐ Complete Plumbing	☐ Rain Water	☐ Irrigation
☒ Gas <i>Methane</i>	☐ Portable Water	☐ Waste & Vent
☐ Methane Vent System	☐ Subsurface Drainage	☐ Pool/Spa
☐ Sump/Sewage Pump	☐ Other:	

Fire Protection:

☐ Fire Sprinkler	☐ Standpipe	☐ Fire Pump	☐ Fire Tank
☐ Fire Hydrants	☐ Other:		

HVAC:

☐ Hoods	☐ Ventilation	☐ Comfort Heating/Cooling
☐ Smoke Control	☐ Energy Conservation	
☐ Other:		

Elevator:

☐ Hydraulic	☐ Residential	☐ Cable	☐ Escalator
☐ Other:			

Installation in the City of Los Angeles subject to the requirements of Article 4 (Plumbing), Article 5 (HVAC) and Article 2 (Elevators) of Chapter 9 of Los Angeles Municipal Code

- **Approved stamped mechanical plan check plans of job site (if required)**
- This is a **requirement** for underground, rough and final plumbing inspections. Always verify pipe sizes off the **riser diagram!**

Plumbing Jobs May Have Different Requirements

Approved stamped **Health Department** and / or **Industrial waste** plans on job site (if required)

Health Department

- Restaurants
- Bars and Nightclubs
- Food Sales
- Cisterns
- Reclaimed Water
- Backflow Protection etc...

Industrial Waste

- Restaurants
- Auto Shops
- Dental Facilities
- Laundry Mats
- Gyms
- Pet Grooming
- Cafeterias etc...

GREASE INTERCEPTOR AND SAMPLE BOX



Grease Trap



Flow Control





BOS/TWMD/FOG Approval
Grease Removal Device

Type: Grease Interceptor
 Size: 2 @ 3000 Gallons Each
 Model: PGI-3000-2 SR
 Make: HIGHLAND TANK
 IU Number: 150696
 IWW Permit Number: W-553116
 Approved by: Emile Marab
 Title: EEA I
 Date: 7/13/2017

Comment: Grease Trap Location must be approved by LACDPH

FOG PLAN CHECK
BUREAU OF SANITATION
INDUSTRIAL WASTE MANAGEMENT

1. PERMIT REQUIRED - Yes ☒ No ☐
 Permit Number - W- 553116

2. INTERCEPTOR WITH SAMPLE BOX
 REQUIRED - Yes ☒ No ☐

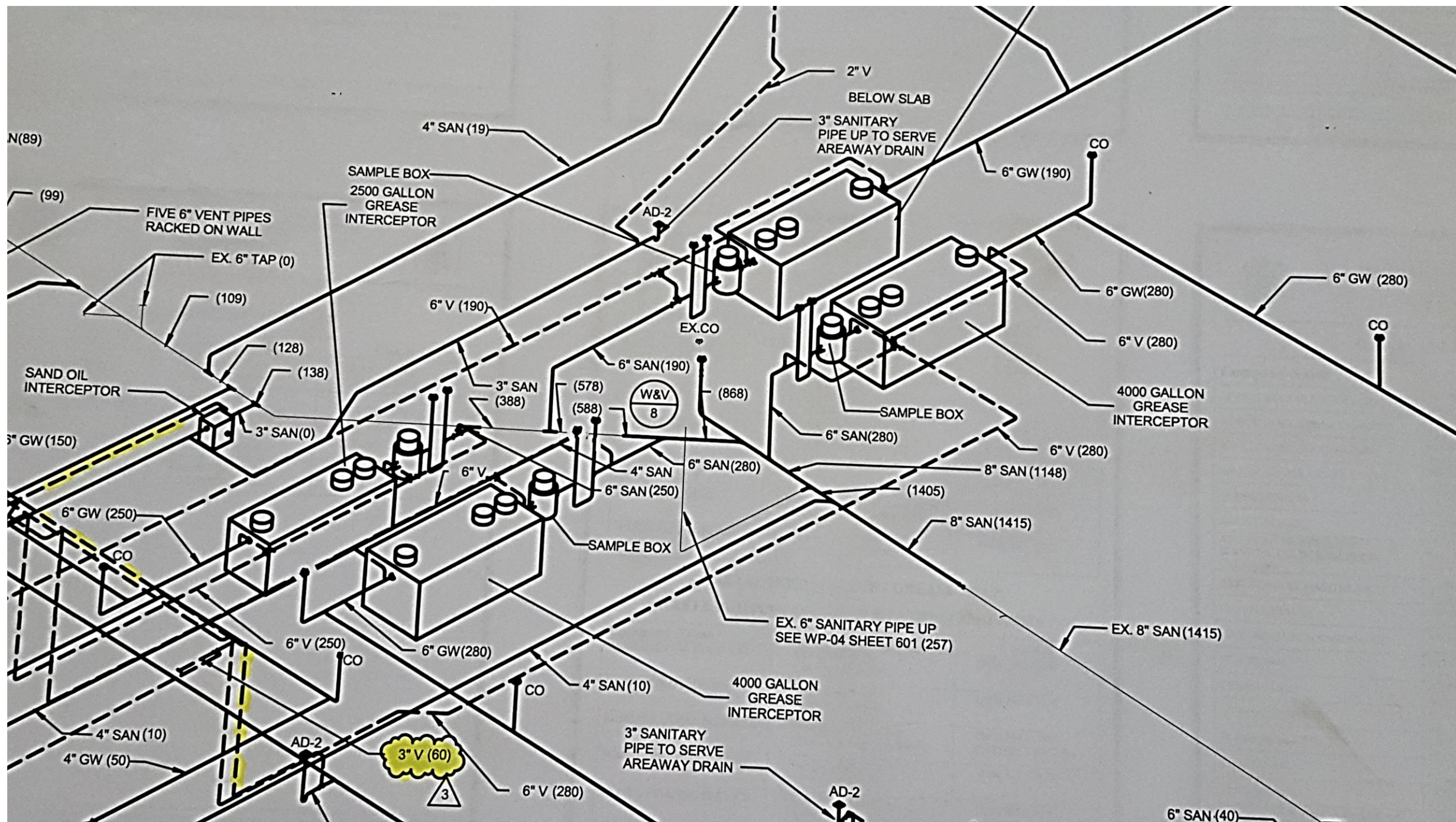
3. GREASE TRAP REQUIRED - Yes ☐ No ☒

Approved by: Ronald R. [Signature]
 Senior Industrial Waste Inspector

Date: 7/16/17



- **Grease Removal/Retention Device** - A plumbing appurtenance or appliance that is installed in a sanitary waste system to intercept nonpetroleum fats oils and greases (FOG).
- **Gravity Grease Interceptor** - A gravity grease interceptor is a large (500-4,000 gallon capacity) tank which is generally located outside and placed in a location which is easily accessible for maintenance and repair (Building permit in addition to a plumbing permit required).
- **Hydro-mechanical Grease Interceptor** - A hydro-mechanical grease interceptor is a much smaller tank (20-50 gallon capacity), which is generally located inside the kitchen area adjacent to fixtures being served.



719.0 Cleanouts

719.1 Locations. Cleanouts shall be placed inside the building near the connection between the building drain and the building sewer or installed outside the building at the lower end of the building drain and extended to grade.

Additional building sewer cleanouts shall be installed at intervals not to exceed 100 feet (30 480 mm) in straight runs and for each aggregate horizontal change in direction exceeding 135 degrees (2.36 rad).

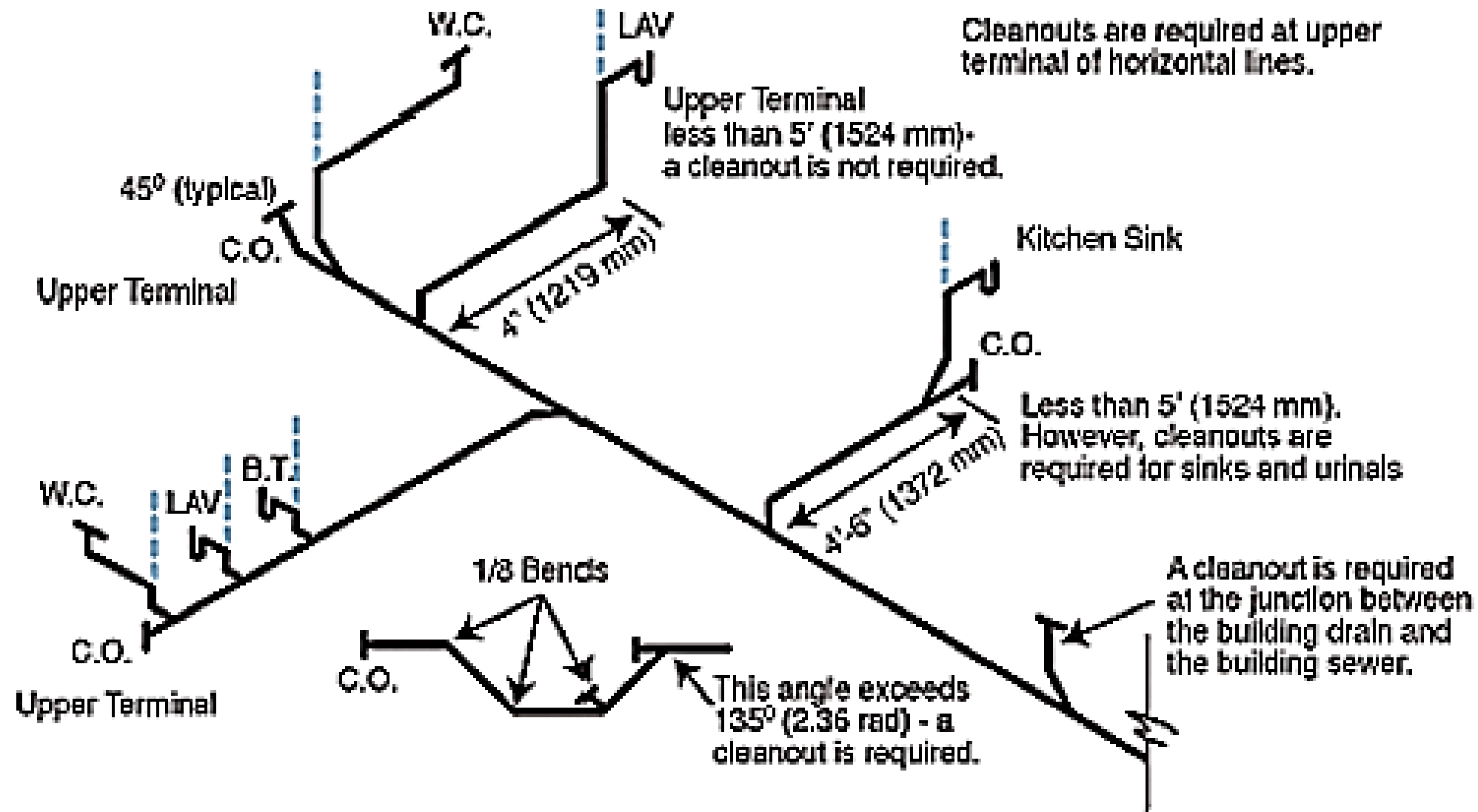


FIGURE 707.4
CLEANOUT REQUIREMENTS

(707.4) A clean-out is now required above the fixture connection fitting serving a Urinal, regardless of the location in the building:

Even if Urinal is directly above main drain which is equipped with c/o

(707.9) Clearance in front of clean-outs:

≤ 2" diameter piping to be 18" (instead of 12")

➤ 2" diameter piping to be 24" (instead of 18")

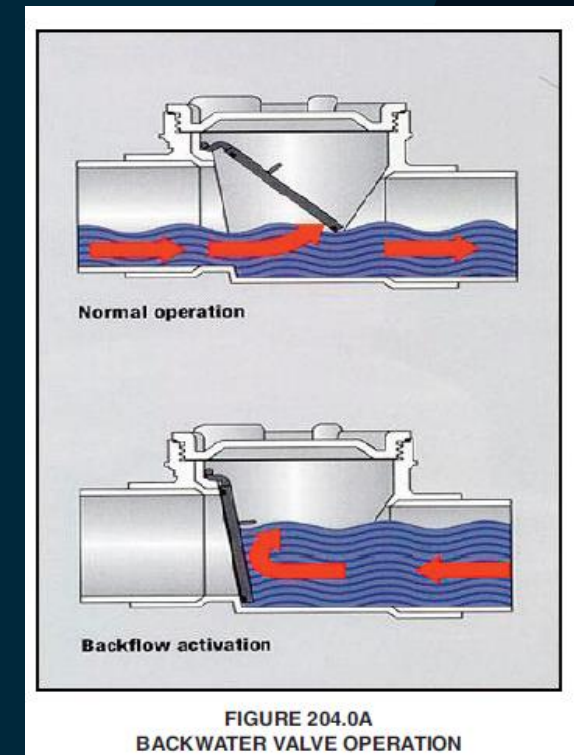
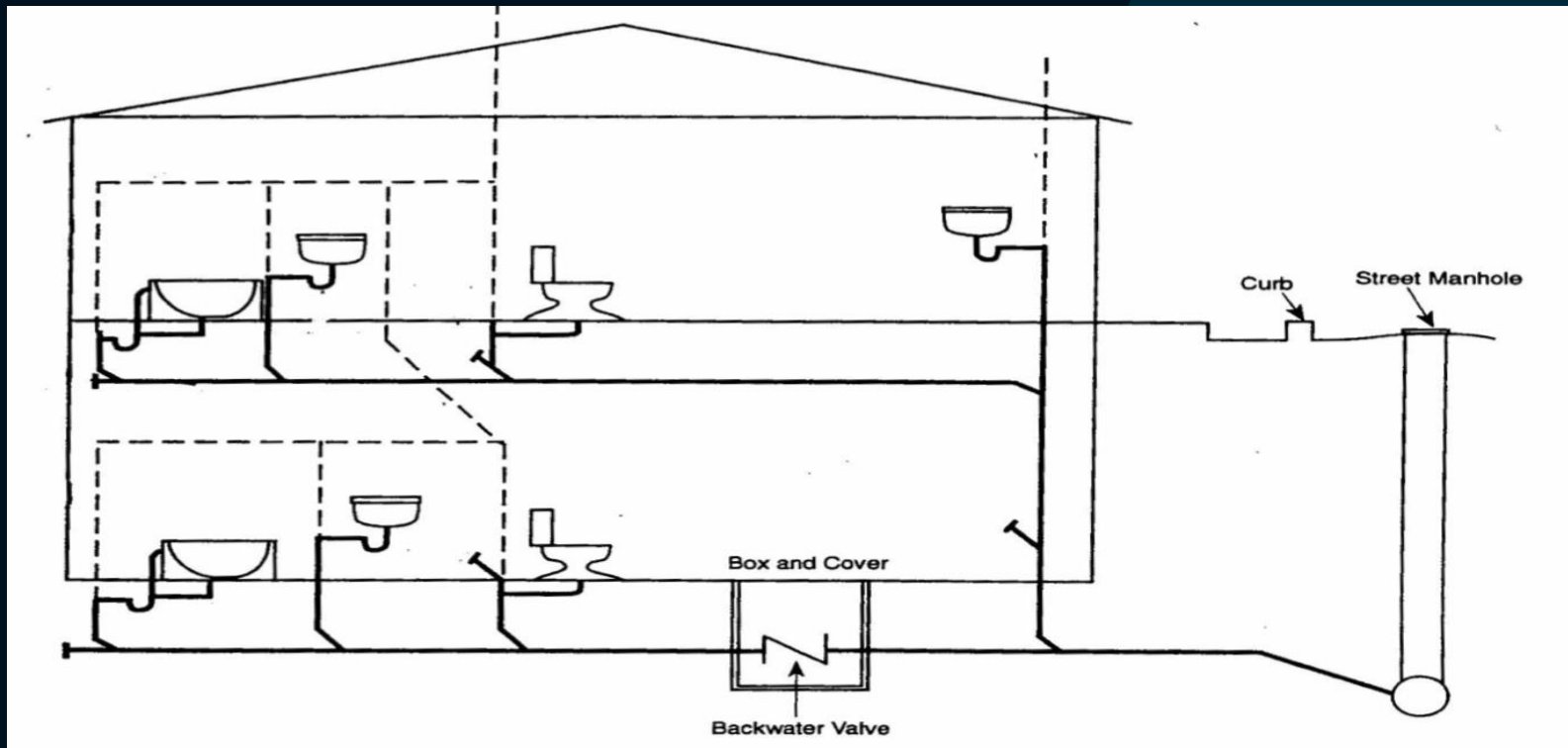
If under-floor, max 5' from access (instead of 20')

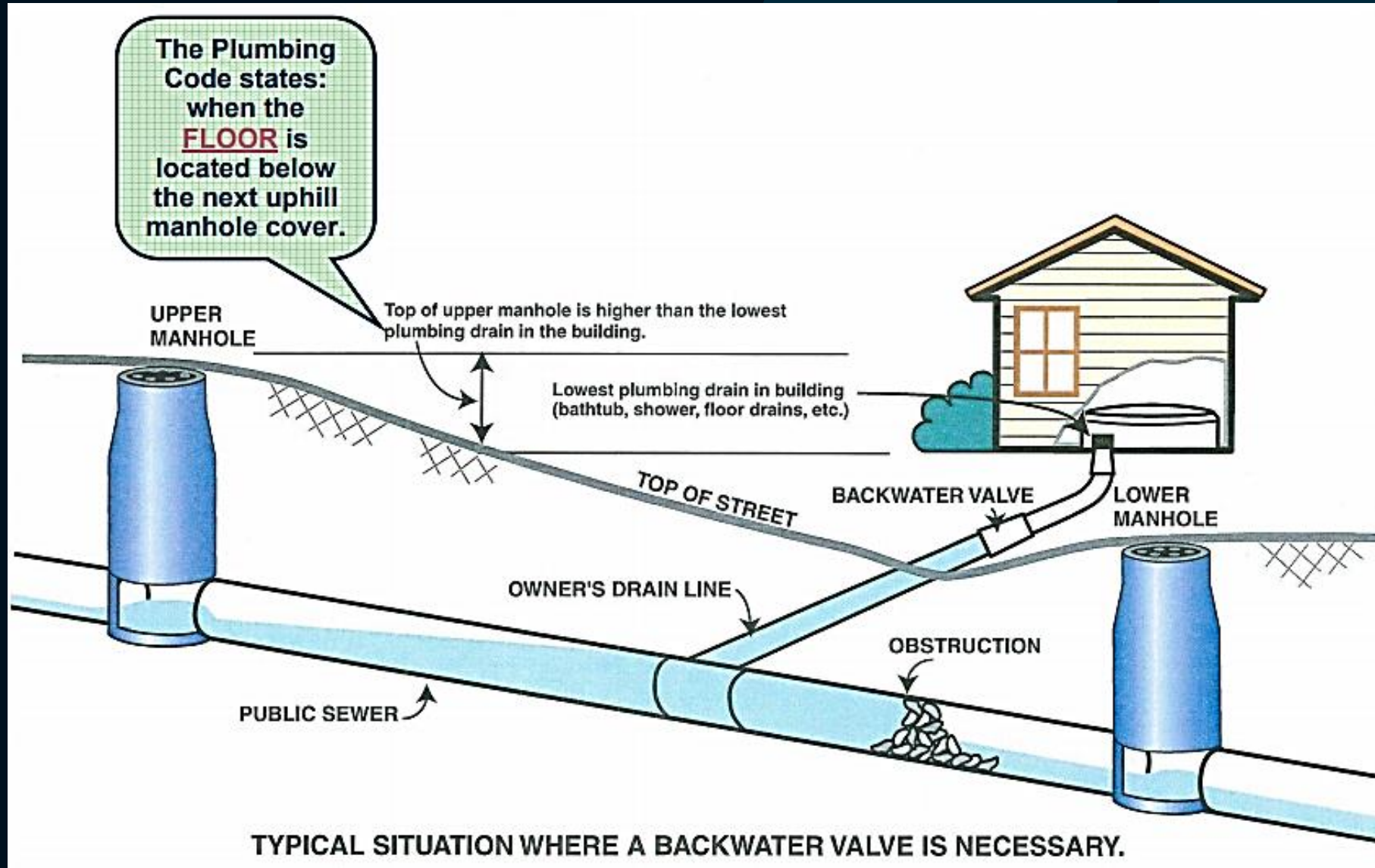
723.0 Building Sewer Test.

723.1 General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the **lowest to the highest point thereof**, or by approved equivalent low-pressure air test. Plastic DWV piping systems shall not be tested by the air test method. The building sewer shall be watertight.

Backwater Valve.

A device installed in a drainage system to prevent reverse flow.





Street

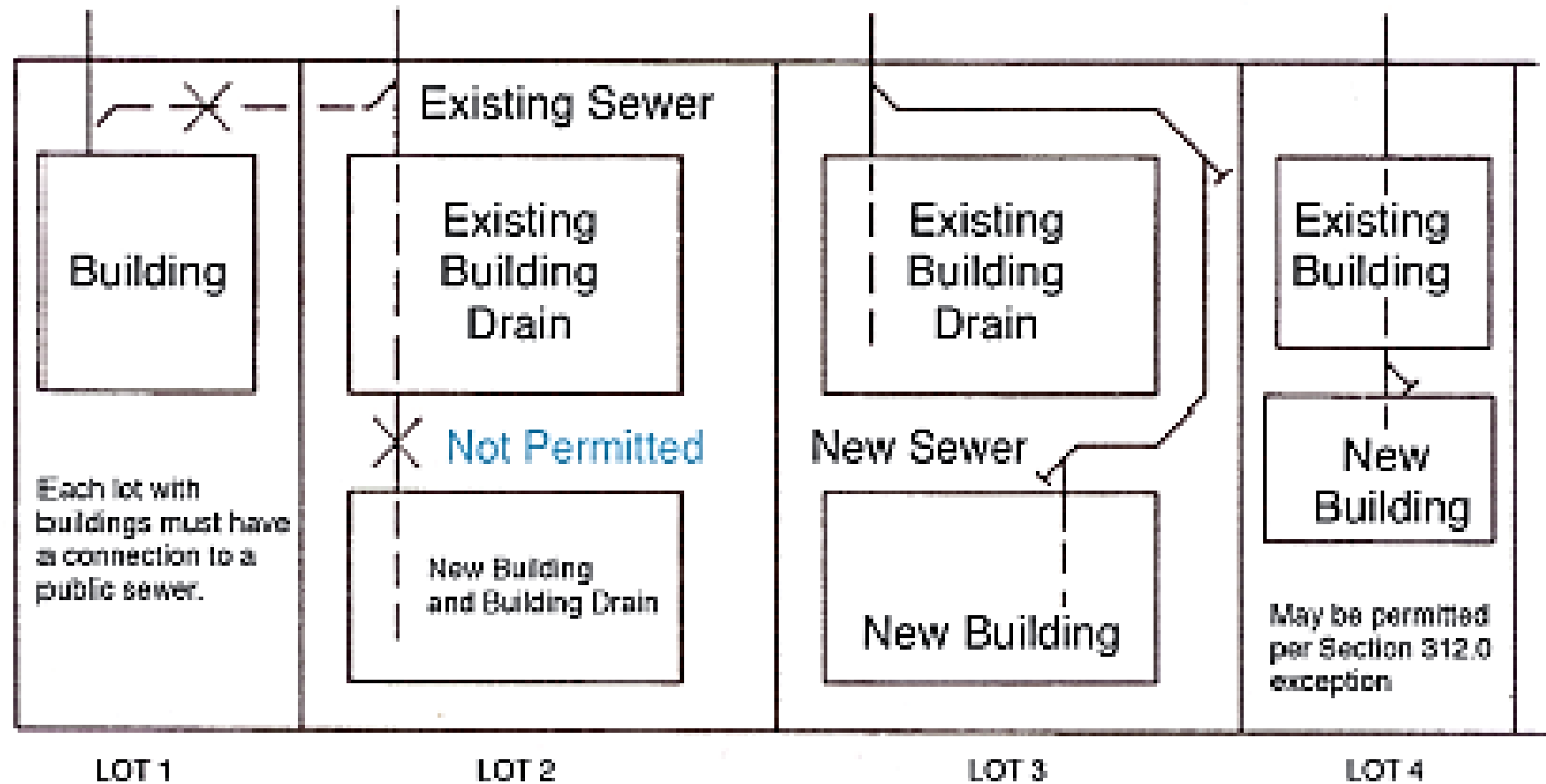
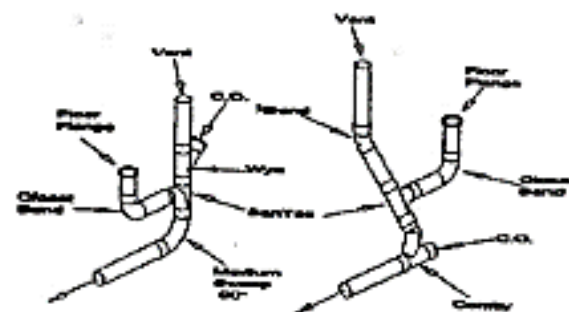
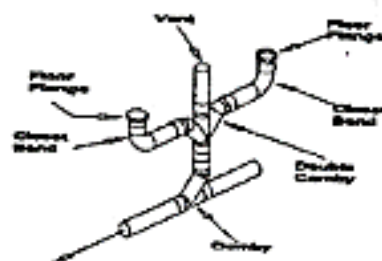
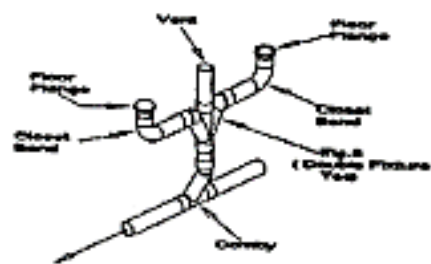
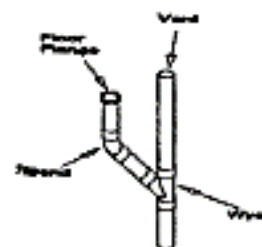
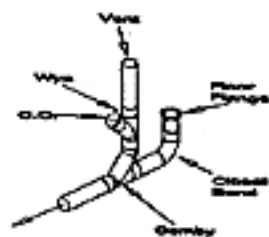
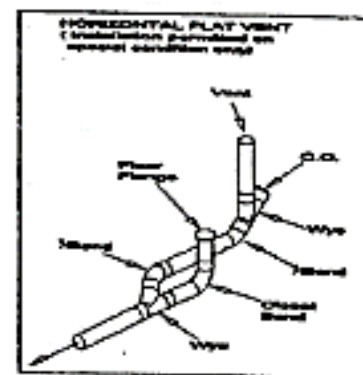
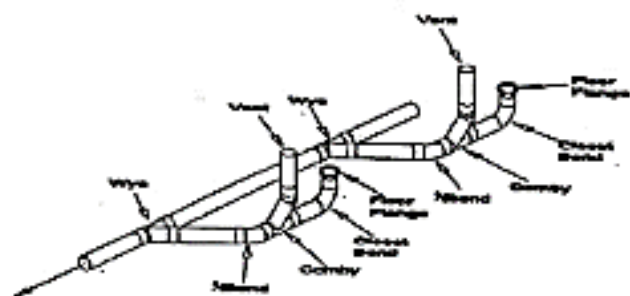
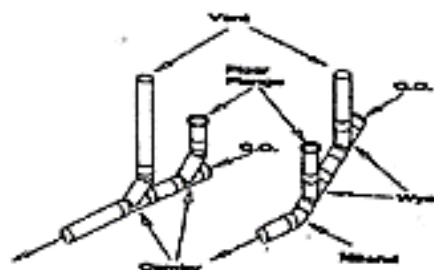
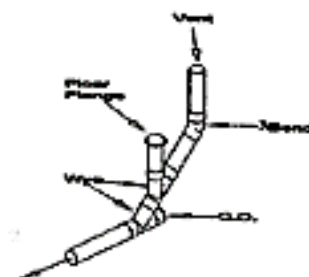
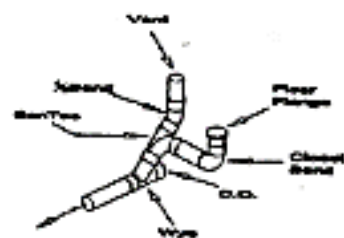
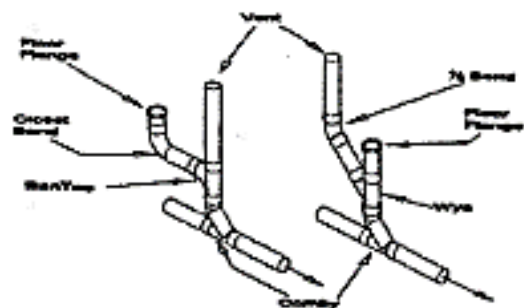


FIGURE 311.1
INDEPENDENT SEWER CONNECTIONS AND EXCEPTION

TYPICAL WATER CLOSET ROUGH-IN METHODS



- Building rain water drains, size, and test (water or air)
- Proper grade, alignment, staking, approved bedding and back fill materials for all underground piping
- Sewage ejector and/or sump pumps, size of pit, material, discharge piping, venting (if installed)

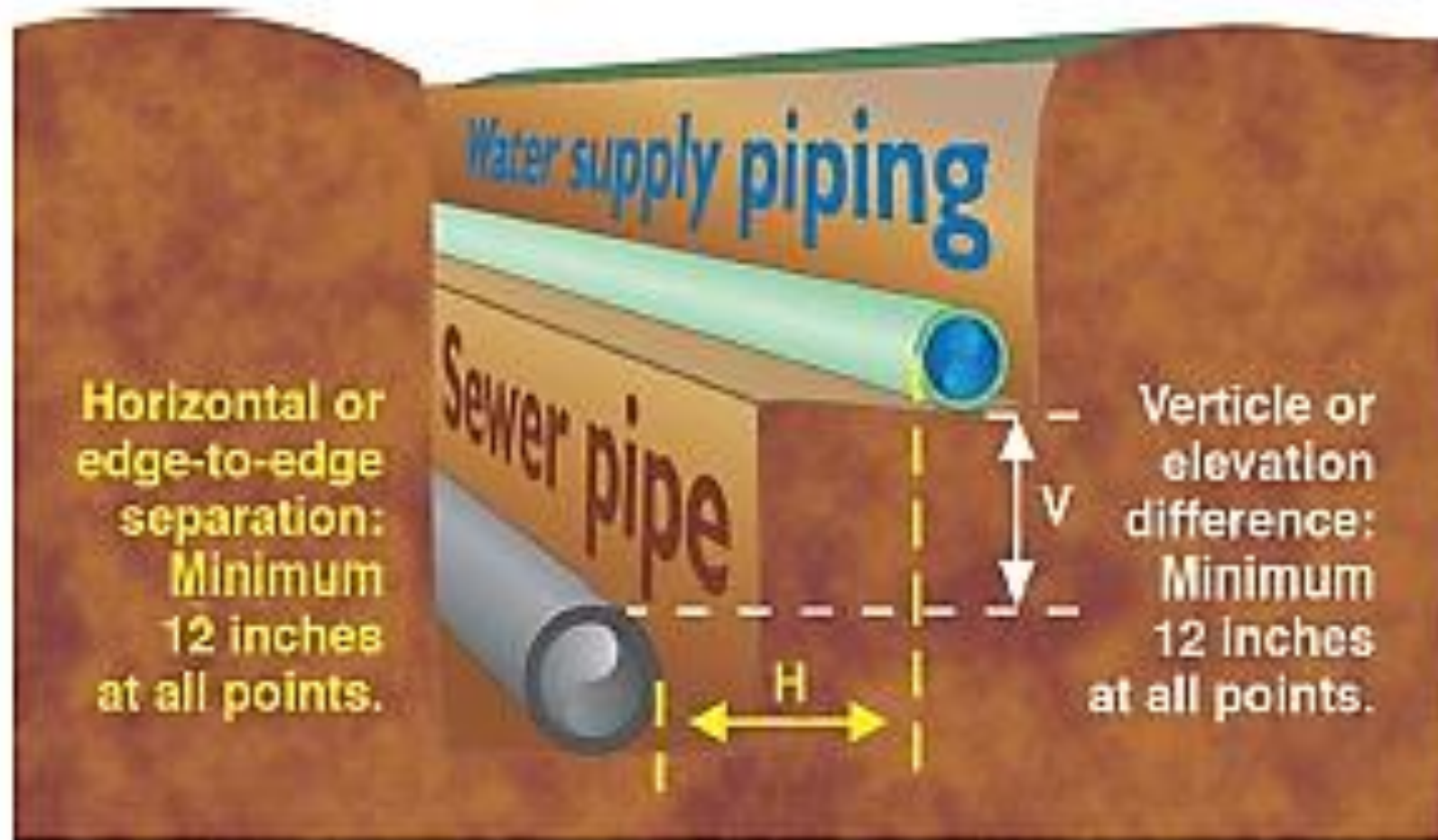
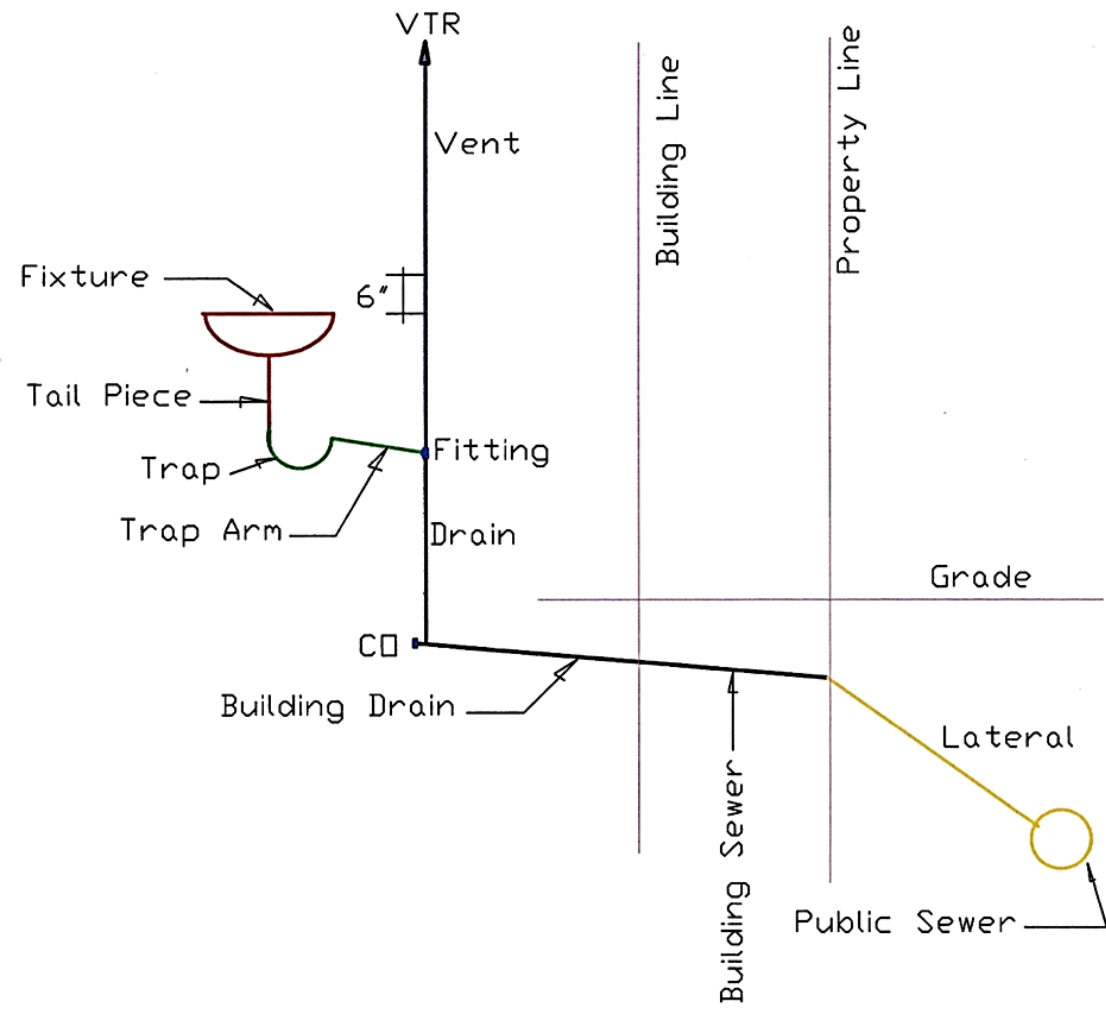
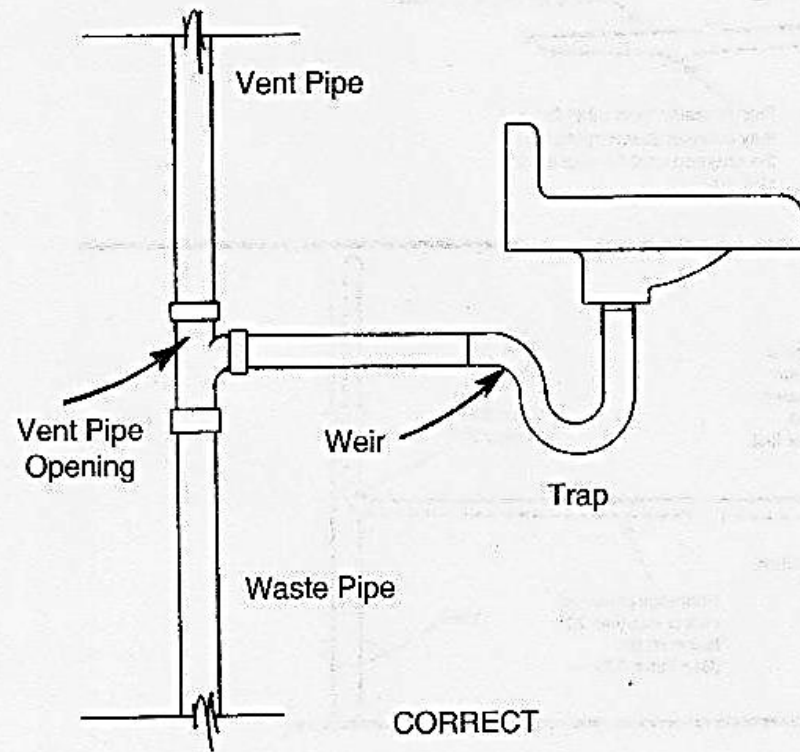


FIGURE 609.2
WATER AND SEWER LINE SEPARATION

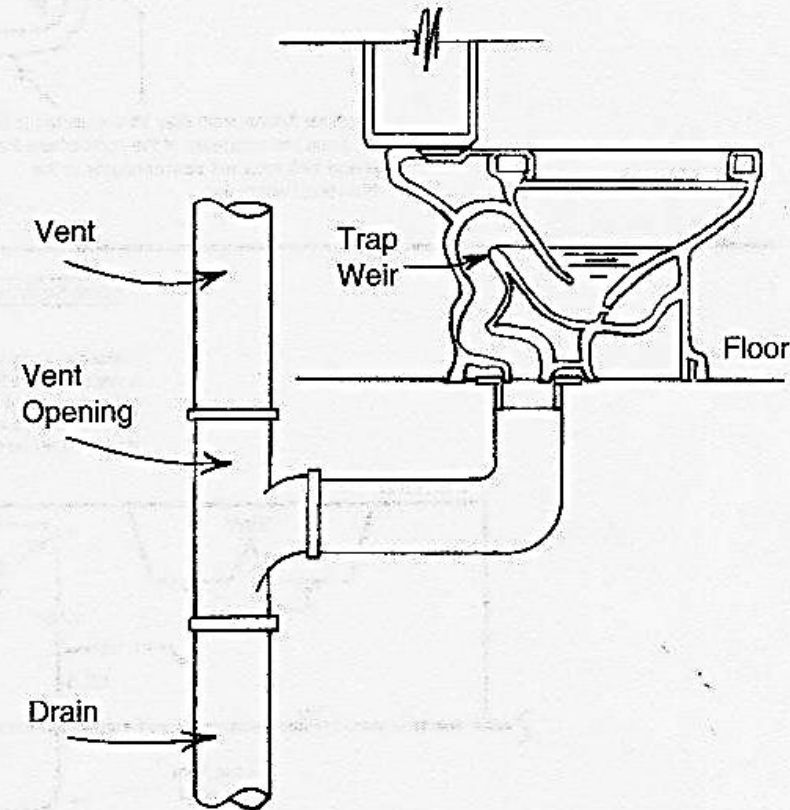


- **Trap diameter = trap arm diameter (1003.3)**
- **One size larger for both is OK to allow for longer trap arm (1003.3)**
- **Trap seal protection rules (1007.1)**
- **Trap arm to connect to drain and vent through a directional fitting (706.2)**

- **Vent to protect trap seal from siphon (901.2, 1002.1)**
- **Building drain definition and slope ($1/4''$; $1/8''$), do not reduce size or restrict flow (gravity) (204,708.1)**
- **Building sewer (2 ' outside building) (204)**



Correct Venting with the Vent Opening Above the Trap Weir



Water Closet Rough-In Method, Maintaining Vertically Rising Vents (Vent Opening Below the Trap Weir)

TABLE 1002.2
HORIZONTAL LENGTHS OF TRAP ARMS
(EXCEPT FOR WATER CLOSETS AND SIMILAR FIXTURES)^{1, 2}

TRAP ARM PIPE DIAMETER (inches)	DISTANCE TRAP TO VENT MINIMUM (inches)	LENGTH MAXIMUM (inches)
1¼	2½	30
1½	3	42
2	4	60
3	6	72
4	8	120
Exceeding 4	2 x Diameter	120

For SI units: 1 inch = 25.4 mm

Notes:

¹ Maintain ¼ inch per foot slope (20.8 mm/m).

² The developed length between the trap of a water closet or similar fixture (measured from the top of the closet flange to the inner edge of the vent) and its vent shall not exceed 6 feet (1829 mm).



FIGURE 1002.3
"DIRTY ARM" - USE ONLY DURHAM-STYLE FITTING

- **711.0 Suds Relief.**

711.1 General. Drainage connections shall not be made into a drainage piping system within 8 feet (2438 mm) of a vertical to horizontal change of direction of a stack containing suds-producing fixtures. Bathtubs, laundries, washing machine standpipes, kitchen sinks, and dishwashers shall be considered suds-producing fixtures. Where parallel vent stacks are required, they shall connect to the drainage stack at a point 8 feet (2438 mm) above the lowest point of the drainage stack.

Exceptions:

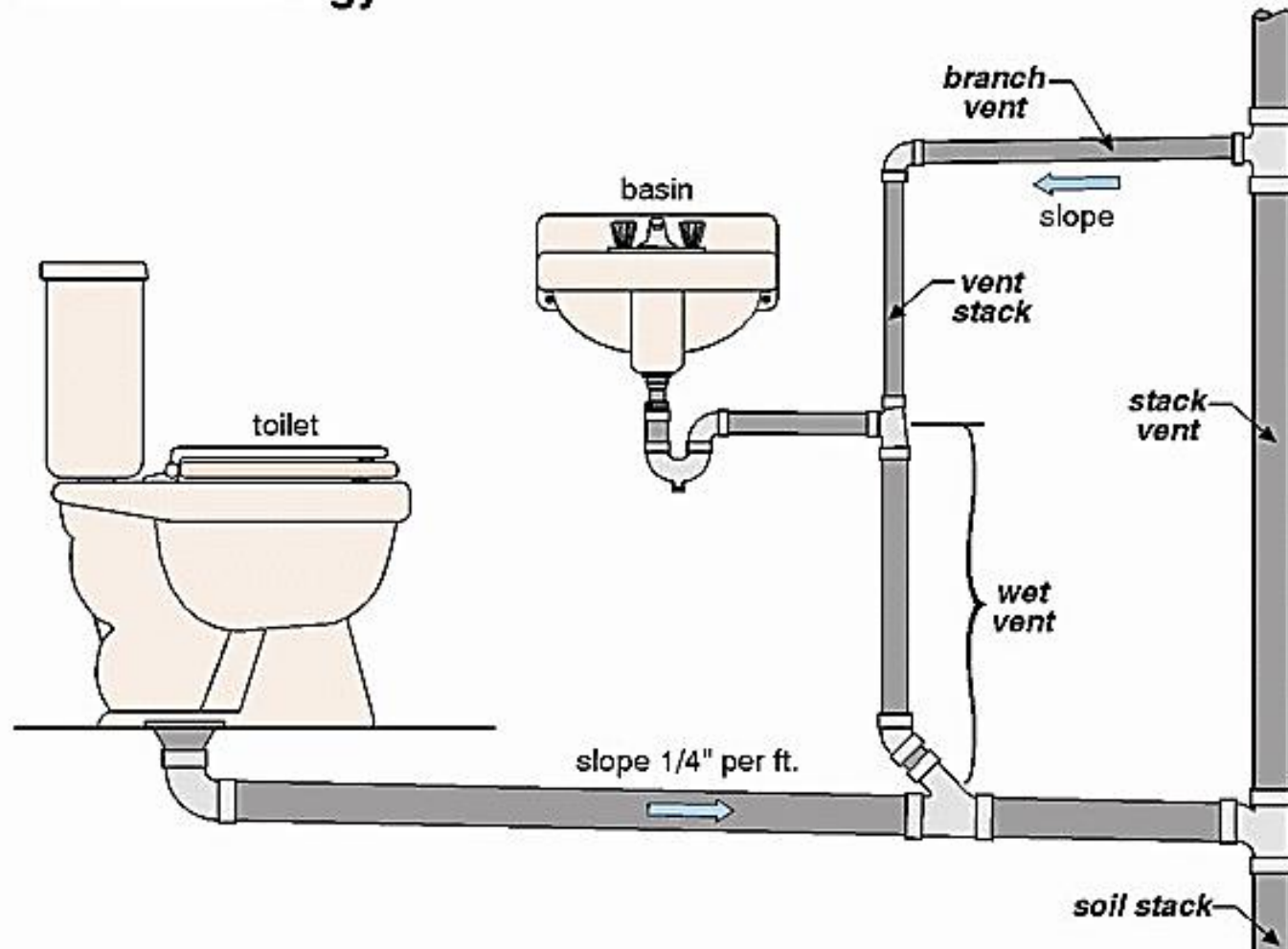
- (1) Single-family residences
- (2) Stacks receiving the discharge from less than three stories of plumbing fixtures

- Wet Vents (If Required)

VERTICAL WET VENTS

1. Same floor
2. 6'
3. Drain from 1 or 2 FU-type fixture
4. Water closet at bottom
5. To vent a maximum 4 plumbing fixtures
6. Increase 1 pipe size than required
7. Not less than 2"

Vent terminology



Underground water supply, material, size and types of joints (outside and inside of the building)



604.10.1 Tracer Wire. Plastic materials for building supply piping outside underground shall have a blue insulated copper tracer wire or other approved conductor installed adjacent to the piping. Access shall be provided to the tracer wire or the tracer wire shall terminate aboveground at each end of the nonmetallic piping. The tracer wire size shall be not less than 18 AWG and the insulation type shall be suitable for direct burial.

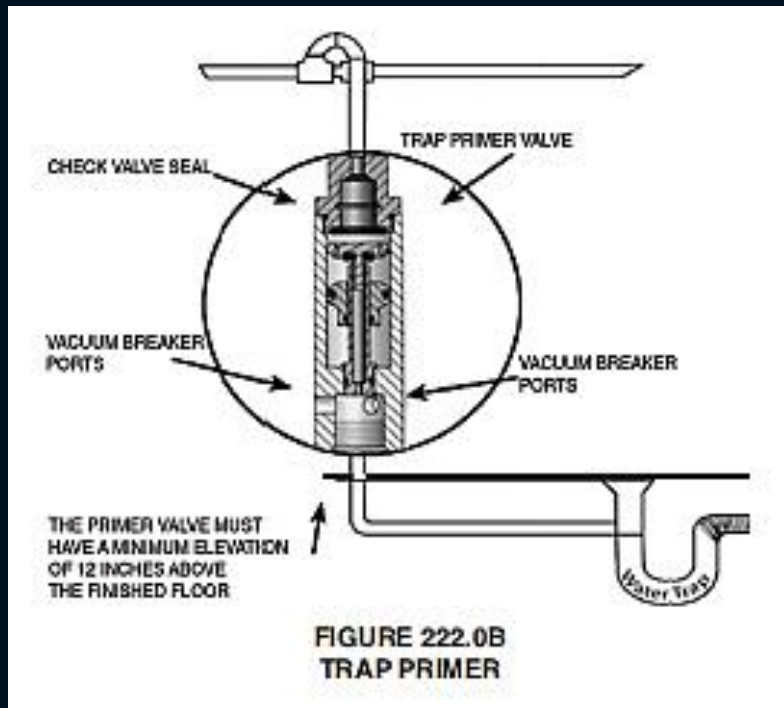


Approved Materials for Water Supply and Distribution



TABLE 604.1
MATERIALS FOR BUILDING SUPPLY AND WATER DISTRIBUTION PIPING AND FITTINGS

MATERIAL	BUILDING SUPPLY PIPE AND FITTINGS	WATER DISTRIBUTION PIPE AND FITTINGS	REFERENCED STANDARD(S) PIPE	REFERENCED STANDARD(S) FITTINGS
Copper and Copper Alloys	X	X	ASTM B42, ASTM B43, ASTM B75, ASTM B88, ASTM B135, ASTM B251, ASTM B302, ASTM B447	ASME B16.15, ASME B16.18, ASME B16.22, ASME B16.26, ASME B16.51
CPVC	X	X	ASTM D2846, ASTM F441, ASTM F442, CSA B137.6	ASTM D2846, ASTM F437, ASTM F438, ASTM F439, ASTM F1970, CSA B137.6
CPVC-AL-CPVC	X	X	ASTM F2855	ASTM D2846
Ductile-Iron	X	X	AWWA C151	ASME B16.4, AWWA C110, AWWA C153
Galvanized Steel	X	X	ASTM A53	—
Malleable Iron	X	X	—	ASME B16.3
PE	X ¹	—	ASTM D2239, ASTM D2737, ASTM D3035, AWWA C901, CSA B137.1	ASTM D2609, ASTM D2683, ASTM D3261, ASTM F1055, CSA B137.1
PE-AL-PE	X	X	ASTM F1282, CSA B137.9	ASTM F1282, ASTM F1974, CSA B137.9
PE-RT	X	X	ASTM F2769	ASTM F1807, ASTM F2098, ASTM F2159, ASTM F2735, ASTM F2769
PEX ^{2,3}	X	X	ASTM F876, ASTM F877, CSA B137.5, AWWA C904 ¹	ASSE 1061, ASTM F877, ASTM F1807, ASTM F1960, ASTM F1961, ASTM F2080, ASTM F2159, ASTM F2735, CSA B137.5
PEX-AL-PEX ⁴	X	X	ASTM F1281, CSA B137.10, ASTM F2262	ASTM F1281, ASTM F1974, ASTM F2434, CSA B137.10
PP	X	X	ASTM F2389, CSA B137.11	ASTM F2389, CSA B137.11
PVC	X ¹	—	ASTM D1785, ASTM D2241, AWWA C900	ASTM D2464, ASTM D2466, ASTM D2467, ASTM F1970
Stainless Steel	X	X	ASTM A269, ASTM A312	—



TRAP PRIMERS

- Needed for floor drains and floor sinks (subject to infrequent use) (1007.1)
Toilet rooms
Mechanical rooms
Laundry rooms
- Not needed for commercial kitchens
- Need backflow device (vacuum breaker) on water supply

WATER

- Yard water piping 12” deep (609.1)
- If copper pipe under slab, type “L”, no joints if possible, if not, brazed joints (604.3 & 609.3)
- Test pressure is working pressure or 50 psi air. No air testing of plastic pipe (609.4)

GAS

- Black, galvanized, PE outside (no PVC), CSST, Cu not allowed (0.3 grains H_2S /100scf) (Protect tubing (CSST) in walls with striker plates) (1208.5)
- If underground, machine coated or wrapped, joints wrapped (w/20 mils of tape). If plastic underground, metal riser wrapped with listed transition coupling or listed transition riser (Anode less Risers) (1208.5.6&1210.1.3)
- 18" cover, if damage unlikely 12", if not possible in a conduit, tracer wire one end (1210.1.1)

Rough Inspection



Waste and Vent Test (Water or Air)

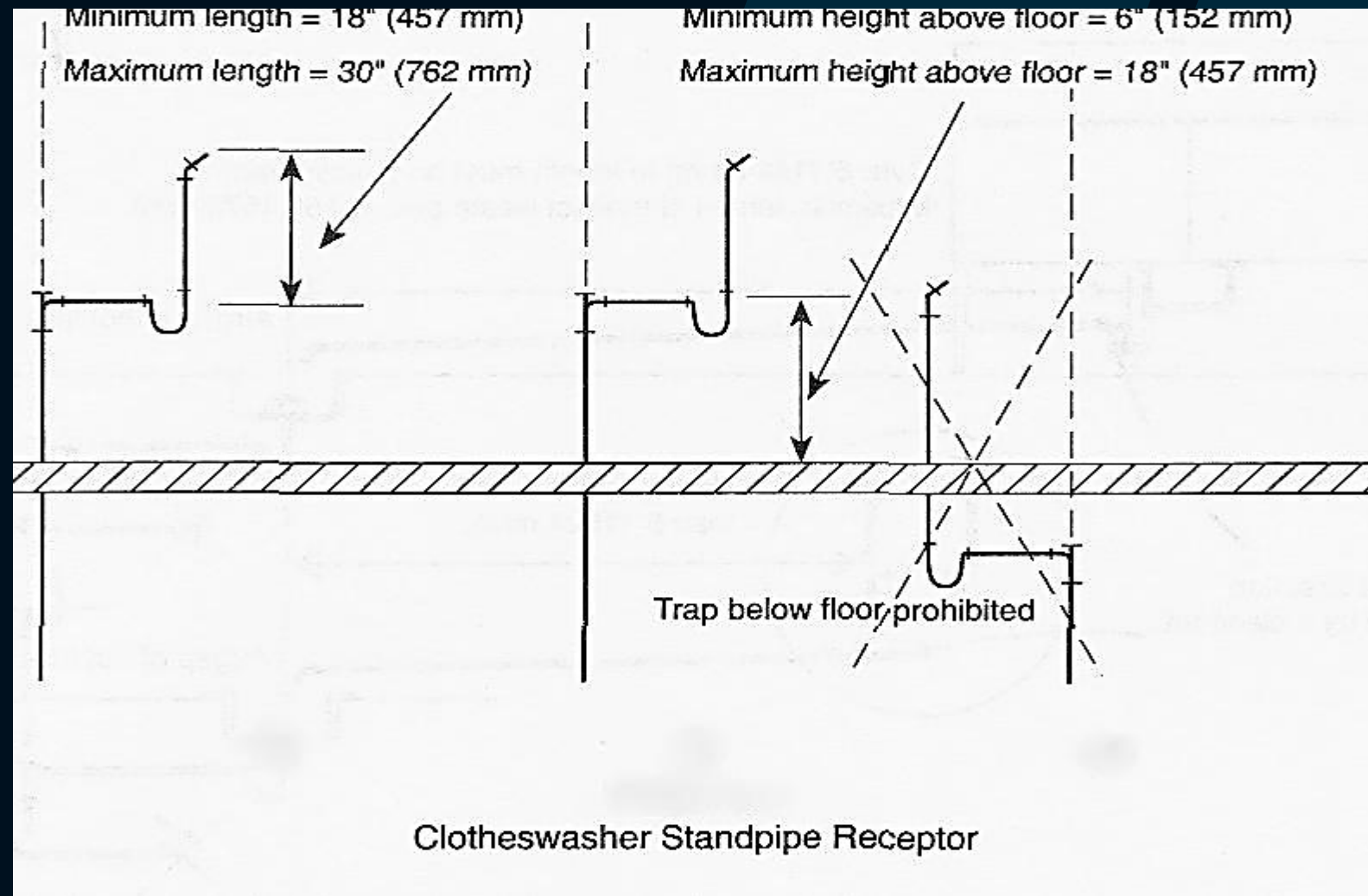
10' of head pressure or 5 psi of air. If using air the pipes must be metallic

Confirm all waste and vent sizes

Wet vents (if installed)

Suds relief (if required)

Relief vent stacks-yoke vent connections (if required)



Vent terminations

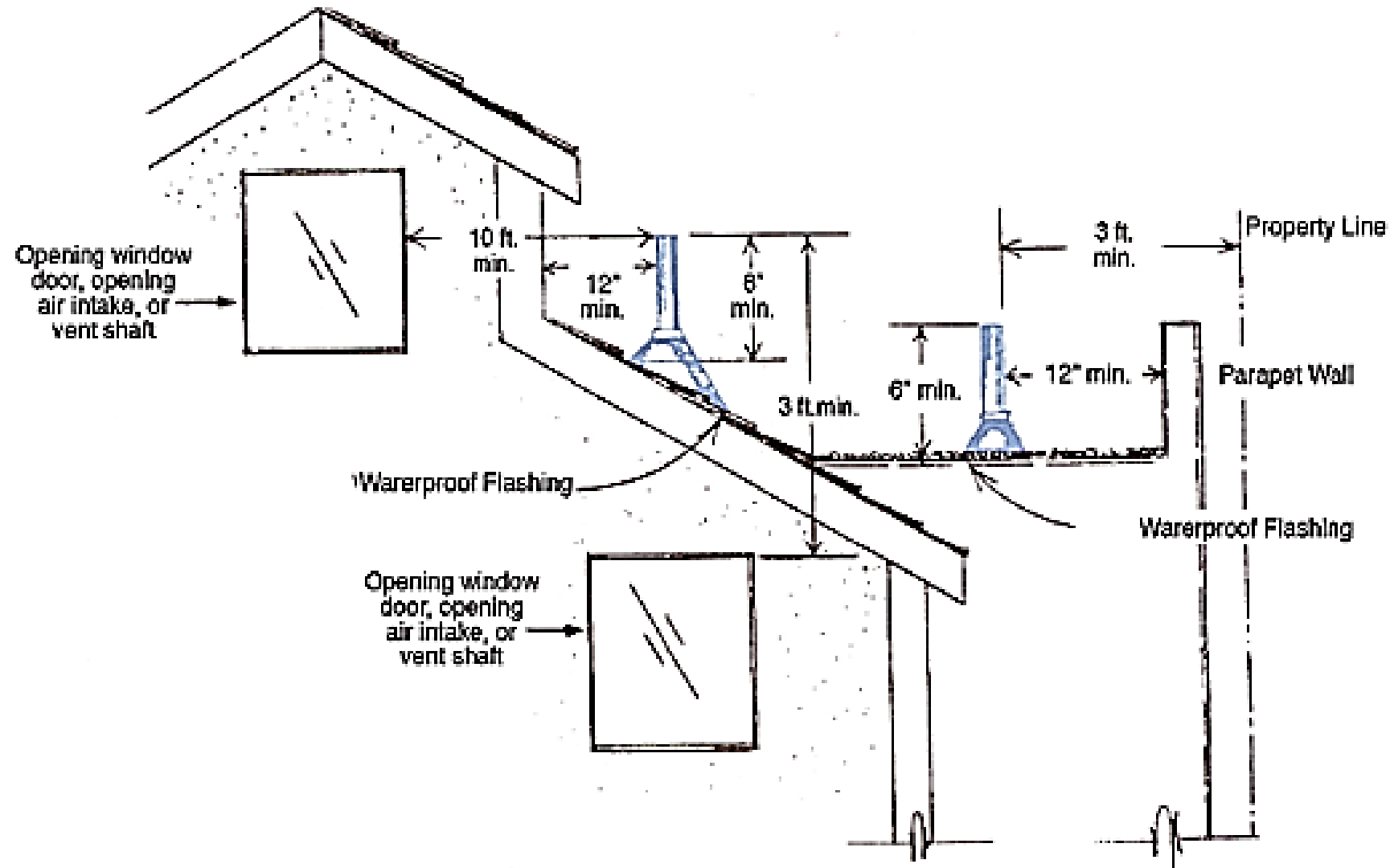


FIGURE 906.0
VENT TERMINATION THROUGH THE ROOF

- Roof drain to storm drain (except SFD) & secondary can daylight
- Roof drain (primary) & overflow (secondary) 2" above (if water is trapped), primary & secondary to be separated (Could join if at vertical, twice rain fall rate & connect to public underground storm drain) (1101.12)
- Scupper in lieu of overflow (4" high x circumference) (1101.12.2.1)
- Materials, cleanouts and testing similar to DWV (1101.4) (1101.13)

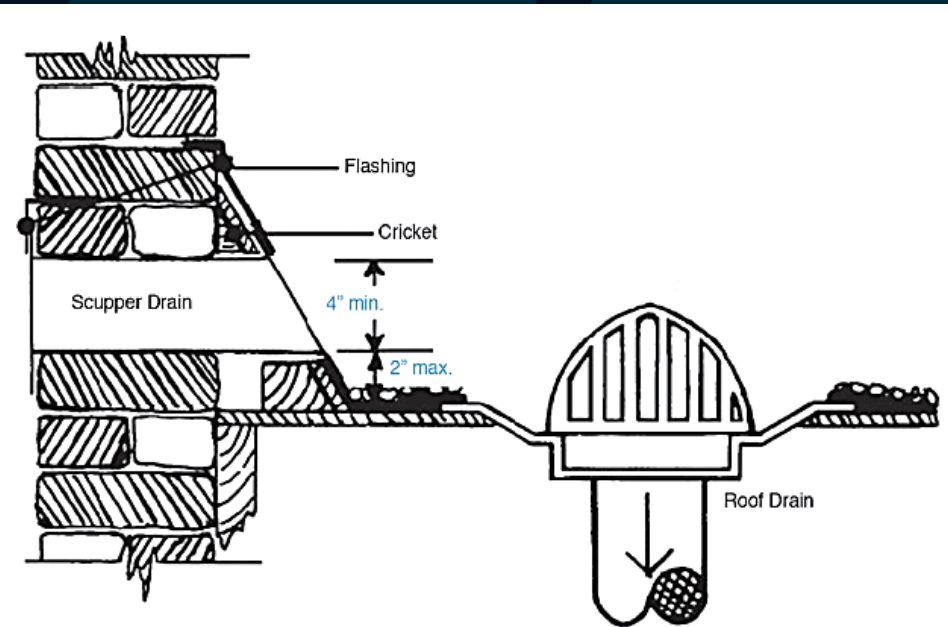
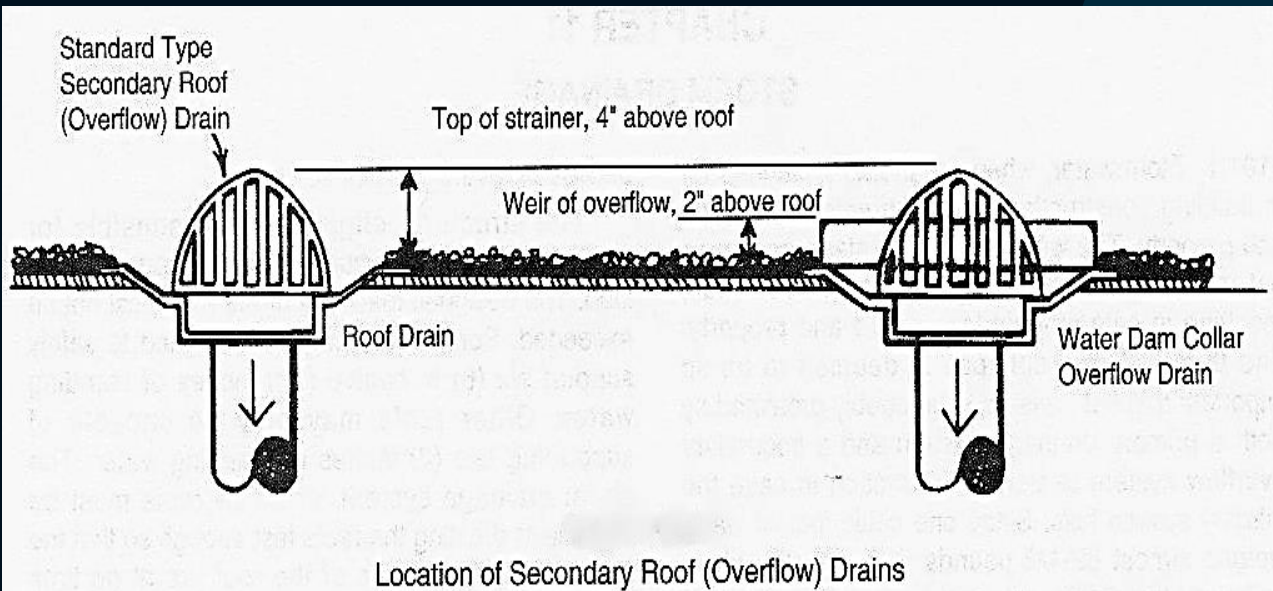


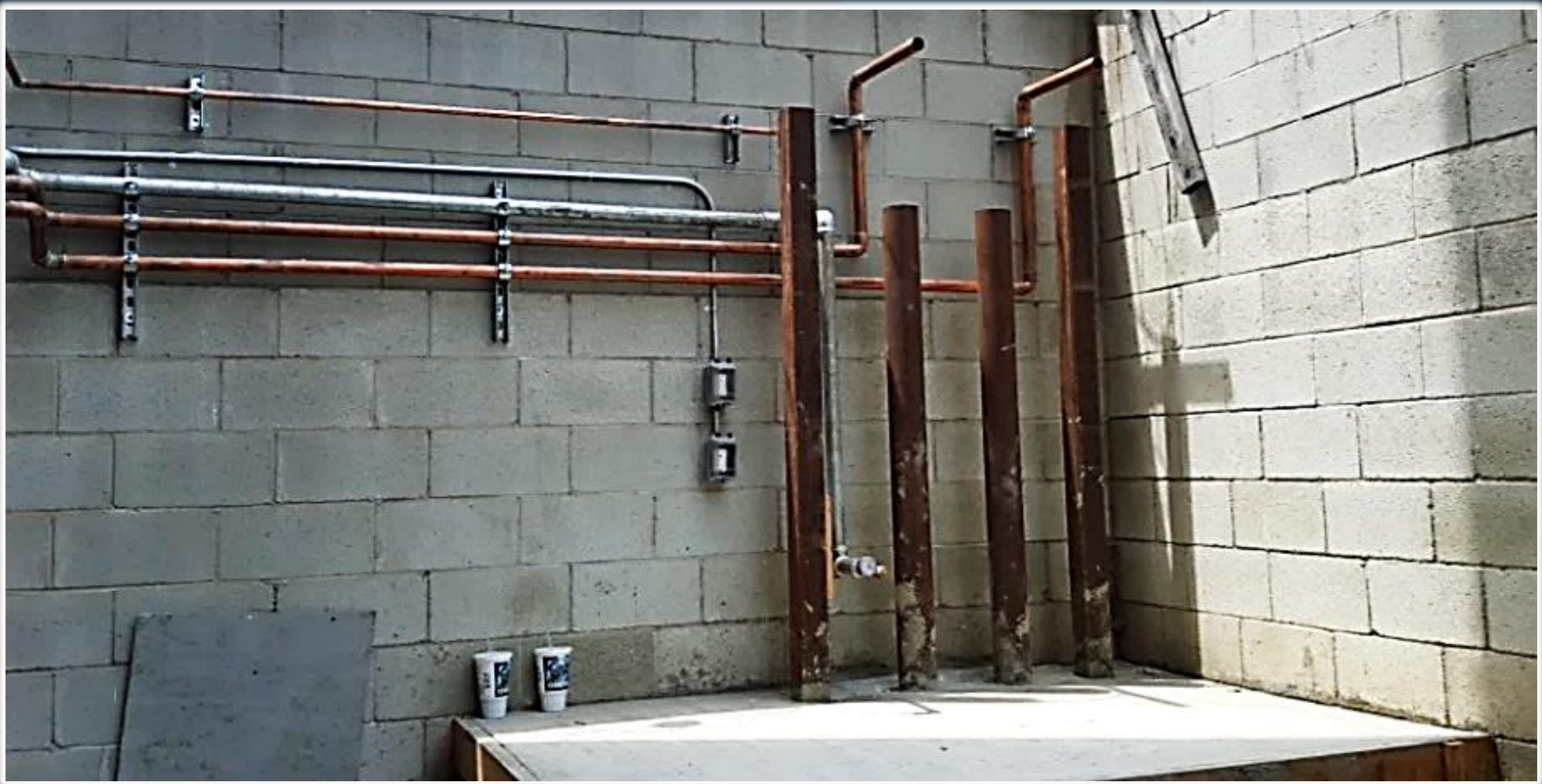
FIGURE 1105.1B
SCUPPER OPENING



Verify roof drains, overflow drains, piping materials, size, and terminations

- Water supply branches and materials
- Water supply size and location per approved plans
- Pressure regulator material, size and location
- All water piping secured and properly supported
- Sound isolation for all waste, vents and water piping (where required by building code)

- Maximum water pressure 80 psi, if more: regulator (pressure reducer); if less than 15 psi: pump (608.1&.2)
- If regulator w/o bypass (or if check valve): expansion tank required (608.3)
- If water heater (other than instantaneous): T&P valve to discharge to 6" - 24" above grade or via air gap to floor sink and not to crawl space, pointing down-no trap. (608.3&.5)
- Vacuum relief if WH is above fixtures (608.7)



Fire stopping (where required by building code)



Tub and/or shower pan test



- Dam, 2" - 9";
- Slope floor 1/4" - 1/2" per foot
- 30" circle (70"); 1024 sq in area min
- 22" door opening
- Hot mop: 3 layers 15 # felt, 3" above dam & slope to weep holes in drain (or listed lining)
- (24) hour test – Drain through weep holes
- Control valve (pressure or temperature)
- 2" waste – Verify the drain body

Pressure Vessel Permits Obtained (if required)

☐ 210 degrees F

☐ 160 PSI

☐ 120 Gallons

☐ 400,000 BTU's

- Approved location of WH vent termination
- Required combustion air for water heater
- Water heater size and location
- WH vent installed per manufacture installation instructions including approved materials

- Gas meter location
- Gas piping materials
- Gas piping size and location
- Gas piping secured and properly supported
- Required gas air test (after all walls and ceiling are covered and scaffolding is removed. **Test again @ final inspection**)

FINAL PLUMBING INSPECTION TIME!



- Sewage and/or sump pumps sized and installed properly per approved mechanical plan checked plans
- Strainers installed on all roof and overflow drains
- All fixtures, appliances and/or devices of approved type
- Fixtures in contact with walls and floors secured and sealed
- Fixtures and appliances installed at approved locations

- Disabled access requirements per the building code
- Traps to be approved type, set true to their water seal and with proper grade
- All fixtures filled and ready for test
- All gas appliances connected – Watch the BTU's
- Water heater properly secured

- WH vent connector
- Combustion air
- Approved louvers and/or grilles sized for required combustion air openings
- WH vent cap installed
- Approved SGSOV installed and secured to building

- All gas supplies properly ID at gas meter locations
- **FINAL GAS TEST -**
- Gas released to Southern California Gas Company after our mechanical and fire sprinkler divisions approval

FINAL PLUMBING AND GAS OK





THANK YOU!

Brandon Ives
Los Angeles Department of Building and Safety
Senior Plumbing Inspector
Plumbing Training Officer

Phone

(213) 482-0346

Email

brandon.ives@lacity.org