

The background of the slide features a light blue gradient with a faint, semi-transparent image of classical architectural columns on the left side. The columns are white with detailed capitals and fluted shafts. The entire slide is framed by a dark brown border.

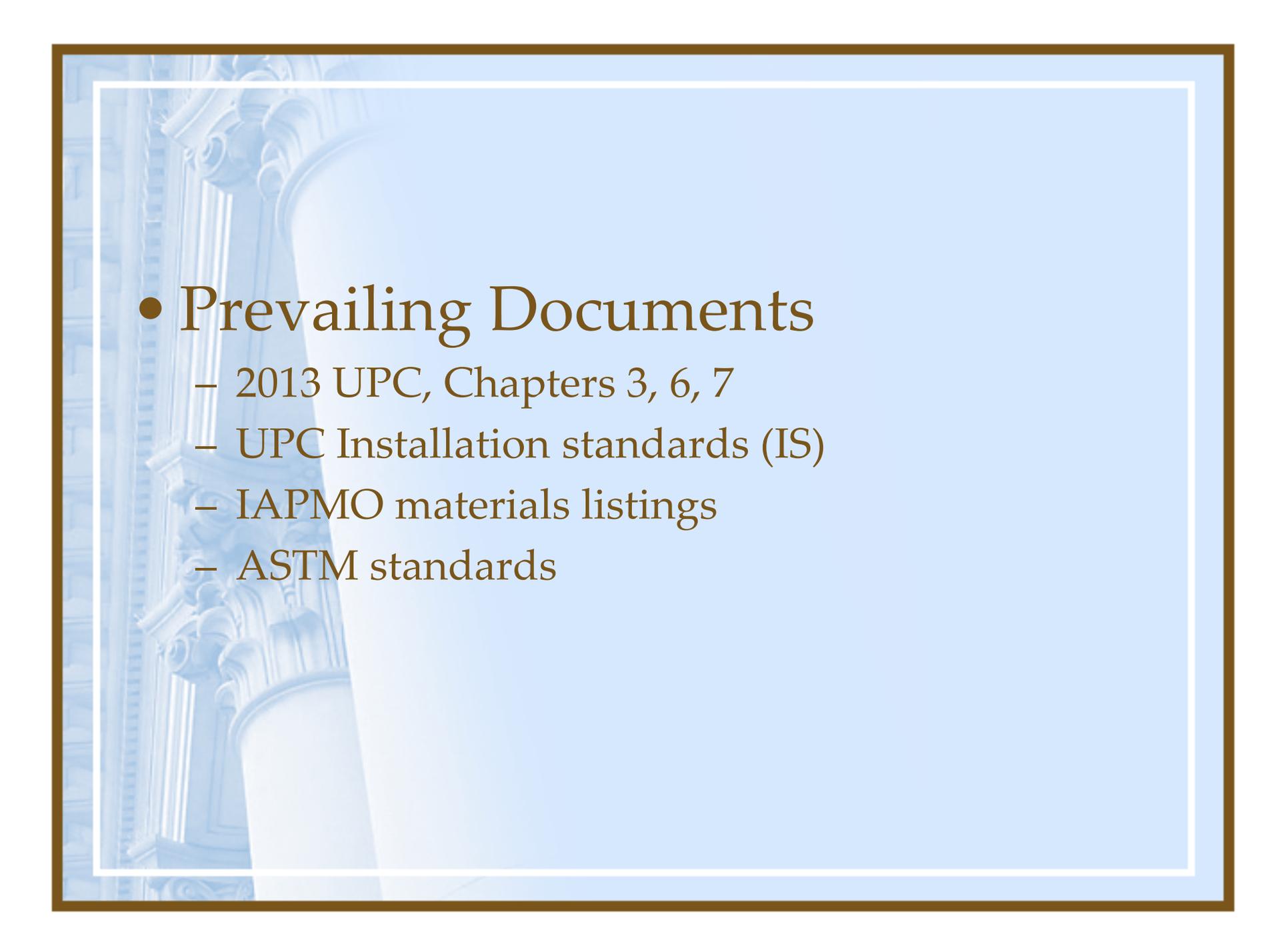
Inspection Standard for Tuolumne County - Under-Slab Inspection

What you should know before calling
for an inspection.

Presented by,
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Chief Building Official
County of Tuolumne

What We'll Cover:

- General Provisions
- Water Main
- Water Lines
- Drain/Waste/Vent



- Prevailing Documents

- 2013 UPC, Chapters 3, 6, 7
- UPC Installation standards (IS)
- IAPMO materials listings
- ASTM standards

Did we find your project?

- Address must be posted per County Standard for all inspections
 - 4 inch stroke
 - 1/2" lettering
 - Contracting, reflectorized background

General Provisions

- Prohibited fittings for drainage – 310.1
 - Double-hub
 - Single/double tee branch
 - Single/double tapped tee branch
 - Side-inlet quarter bend
 - Running thread, band, or saddle
 - *Double-hub, sanitary tapped tee ok for vertical line fixture connections only.*
- Cannot reduce flow. *Closet bend does not count.*
- Fittings and pipe shall be installed relative to the direction of flow.

General Provisions

- All new systems shall be independent of any other buildings and wherever possible, have an independent septic/sewer system connection.
311.
 - Exception: where a structure is directly behind another on an interior lot and there is no private sewer can be provided, the building drain from the front building may extend to the rear building. *Check your sizing!*
- Installation – 312.2
 - Piping/connections shall not have undue strains or stresses.
 - No plumbing shall be directly embedded in concrete.
 - No structural member shall be seriously weakened.

General Provisions

- Underground installations shall be on a firm bed their entire length.
- Alternate support when crossing trenches shall be made with smooth rods or similar support methods that will not abrade the piping system.
No rebar supports!
- No parallel placement of plumbing in continuous footings. Cross at 90 degree angles.
- No plumbing allowed in spread footings without engineers approval and appropriate sleeve.

Trenching - 314

- Trenches deeper than a footing and parallel to shall be 45 degrees therefrom.
- Shall remain open for inspection.
- Excavations shall
 - Be completely backfilled as soon after inspection as possible. *Not before*
 - Shall be backfilled in thin layers to 12" above the pipe with clean earth that does not contain stones, boulders, cinder fill, frozen earth, construction materials, or similar that could damage the pipe.
 - Shall be adequately compacted.

Increasesers and Reducers - 316

- When joining different pipe sizes, the appropriate increasers, reducers or reducing fittings must be used.
- Brass or cast iron body cleanouts cannot be used as a reducer or adapter from cast iron pipe to iron pipe size (IPS) piping.
- *NOTE: while not specifically mentioned, Cleanouts in general are not allowed as a reducer or increaser. As the fitting name implies, it is, in fact, a cleanout!*

Water Installation - 609

- Changes in direction shall be made with fittings.
 - Exception: Flexible approved piping materials.
 - NOTE! Do not cross hot and cold water piping without protecting pipe from expansion/contraction.
- Must be place 12" below frost depth or top of soil, whichever is less.
- Shall not be laid in the same trench as vitrified clay or other building drain material not allowed inside the building.
 - Placed on shelf 12" above and 12" away from building drain.
 - 12" above building drain where they cross.

PVC yard piping – IS-8

- Can extend a maximum of 24" above soil before entering a structure.
- *Local rule:* If transitioning to metal piping using threaded adapter, female PVC fitting not approved.
- Must be protected from freezing and sunlight.
- Cannot be used under the building.
- Must use purple primer and solvent specifically for domestic water use.
 - Local policy, no grey glue for residential water systems

Under slab – 609.3

- Ferrous piping shall have machine coating and field wrapped joints. Galvanized is not considered adequate protection.
- Copper Tubing shall have no joints.
 - Exception: brazed, wrought copper joints

Large Systems

- No Different!
- Thrust Blocks per T.U.D. Standard:
 - Inspection prior to pour
 - Must be formed and all intersecting piping sleeved.

T.U.D. Standard

- Handouts available at the Building Division or TUD.

Example



Water piping test

- Working water pressure.
- Air pressure – 50 PSI for 15 minutes

Building Sewer/Drain

- Definitions

- Building Drain = the part of the lowest piping of a drainage system inside the walls of the building that ends 2 feet outside the building. *We will be looking for the cleanout at this location.*
- Building Sewer = the portion that connects the Building Drain to the public sewer or private disposal system. *Generally ends in another cleanout.*

Building Sewer Inspection

- At least 12 inches below grade.
 - Materials not listed for interior shall be at least 2 ft. from building edge.
- Grade - 718.1
 - 1/4" per foot
 - Where impractical:
 - 4" through 6" pipe = 1/8" per foot
 - Over 6" = 1/16" per foot
- Laid on a firm bed its entire length. – 718.2
- Joints
 - Shall be in accordance with material listings.
 - Glued joints shall use solvents appropriate for materials joined. *Transition glues are checked!*

Cleanouts - 719

- First cleanout – where building drain meets building sewer, 2 ft from building
- Every 100 feet or 135 degrees of direction change thereafter.
- Installed to allow access for cleaning in the direction of flow. *Plastic two-way cleanouts prohibited!*
- Access for cleanouts under concrete or asphalt shall be through yard boxes or extending flush with top of surface and protecting.

Testing Building Sewer -

- Plug connection point to the public sewer/septic system and fill to the highest point.
- Low air pressure test.
 - Plastic DWV shall not be air-tested.

A word on Sumps.

- Who Regulates
 - Pump to sewer – Building and Safety
 - Pump to septic – Environmental Health
- Requirements
 - pump = 20 gpm minimum, capable of passing 1 ½" sphere, and provided with minimum 2" backwater valve and gate valve
 - Discharge line = provide backwater/swing check valve and gate valve.
 - *Gate valve always on the discharge side of the backwater/swing check valve!*

Another word on sumps!

- Venting still required
- Shall have an audio/visual alarm, readily accessible, that signals a pump failure or overload condition.
 - Public use conditions require two pumps/ejectors designed to alternate during normal use and activate independently under overload conditions.

Changes in direction - 706

- Made by 1/16, 1/8, or 1/6 bends or fittings of equivalent sweep.
- Horizontal to vertical connections
 - 45/60 degree wye, combo wye/eighth bend, sanitary tee/tapped tee branches
 - No fittings with inlets at the same level allowed unless designed to prevent discharge from one side from entering another side.
- Horizontal to Horizontal connections
 - 45 degree wye branch
 - Combo wye and eighth bend

NO GO!



[C] 2005-105 Daniel F. Estabrook

GO!



Building Drain/Underslab

- Mostly the same codes as the Building Sewer.
- Other considerations
 - Testing: 10 head test above highest fitting under test.
 - Minimum slope $\frac{1}{4}$ per foot for 3" pipe and $\frac{1}{8}$ for 4" and over
 - Cleanouts required at the upper terminal of all branch lines
 - Exception: drain lines less than 5 feet in length

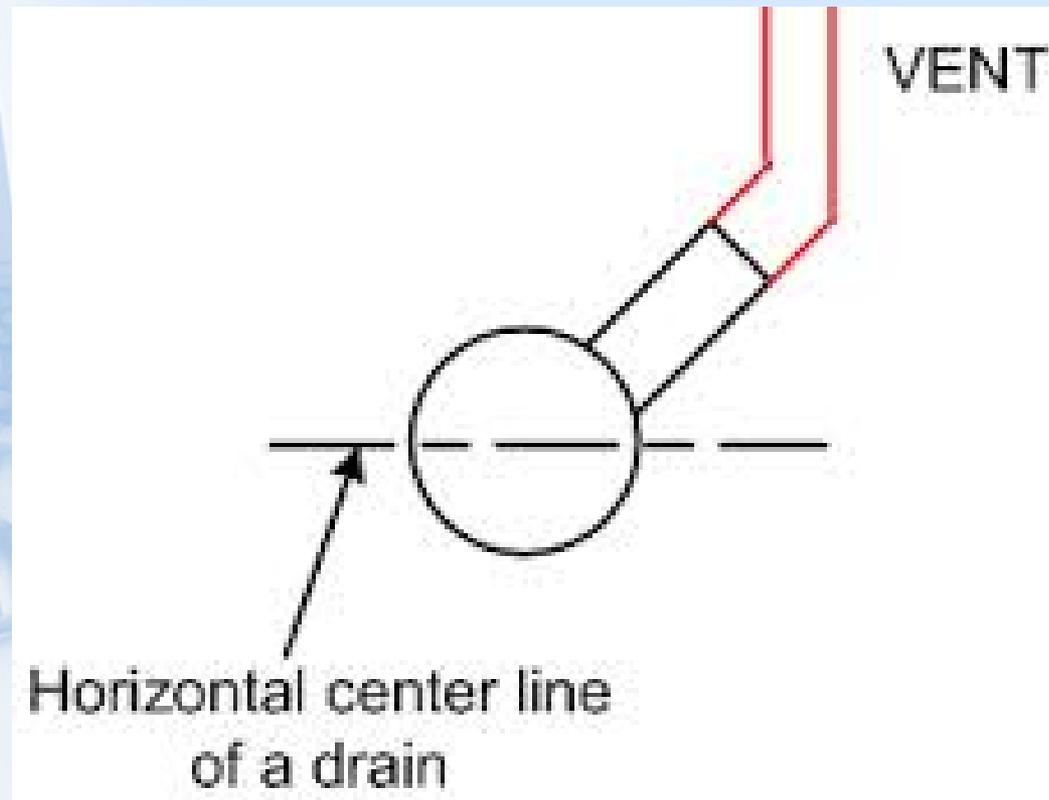
Footing penetrations

- Same at water line penetrations
 - Protect
 - No parallel installs
 - Stay out of spread footings
 - ***keep form-release agents off of plastic pipe!

Vents -

- Will generally be addressed at frame/top-out inspection.
- Knowing where they are required under slab, and how they should be installed, is the focus.
 - Fittings
 - Orientation
 - Distances from trap

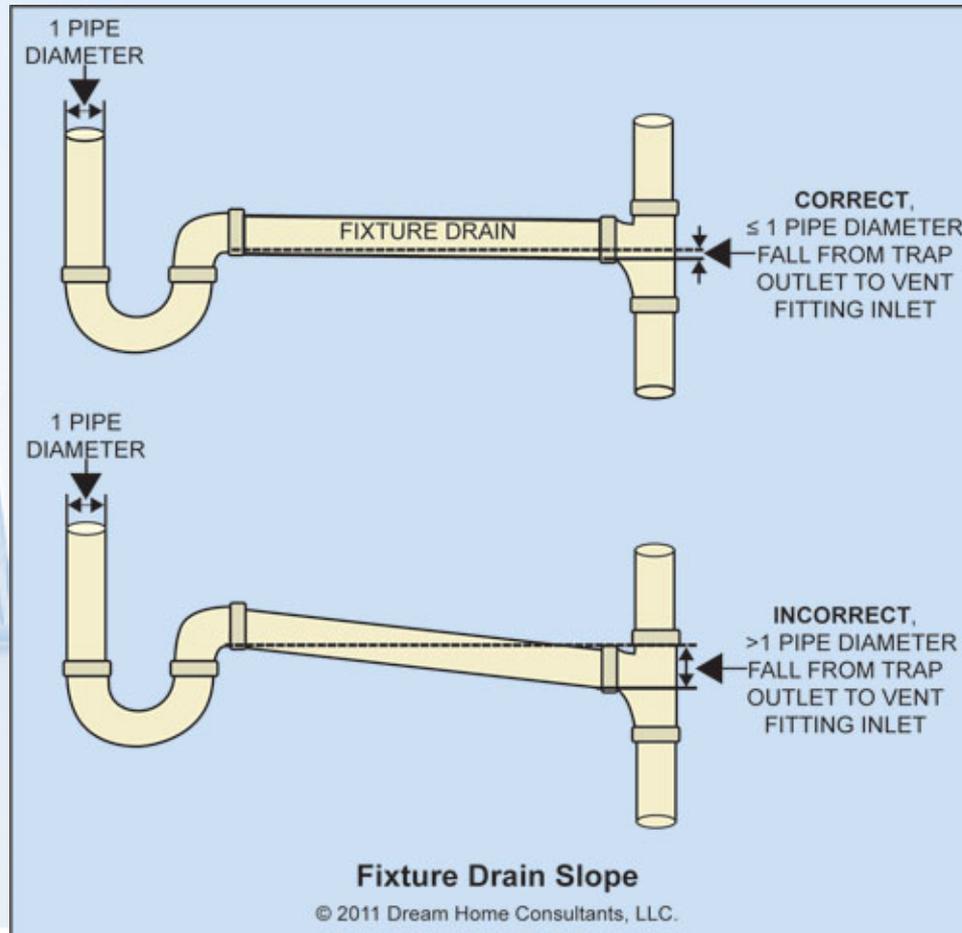
Orientation:



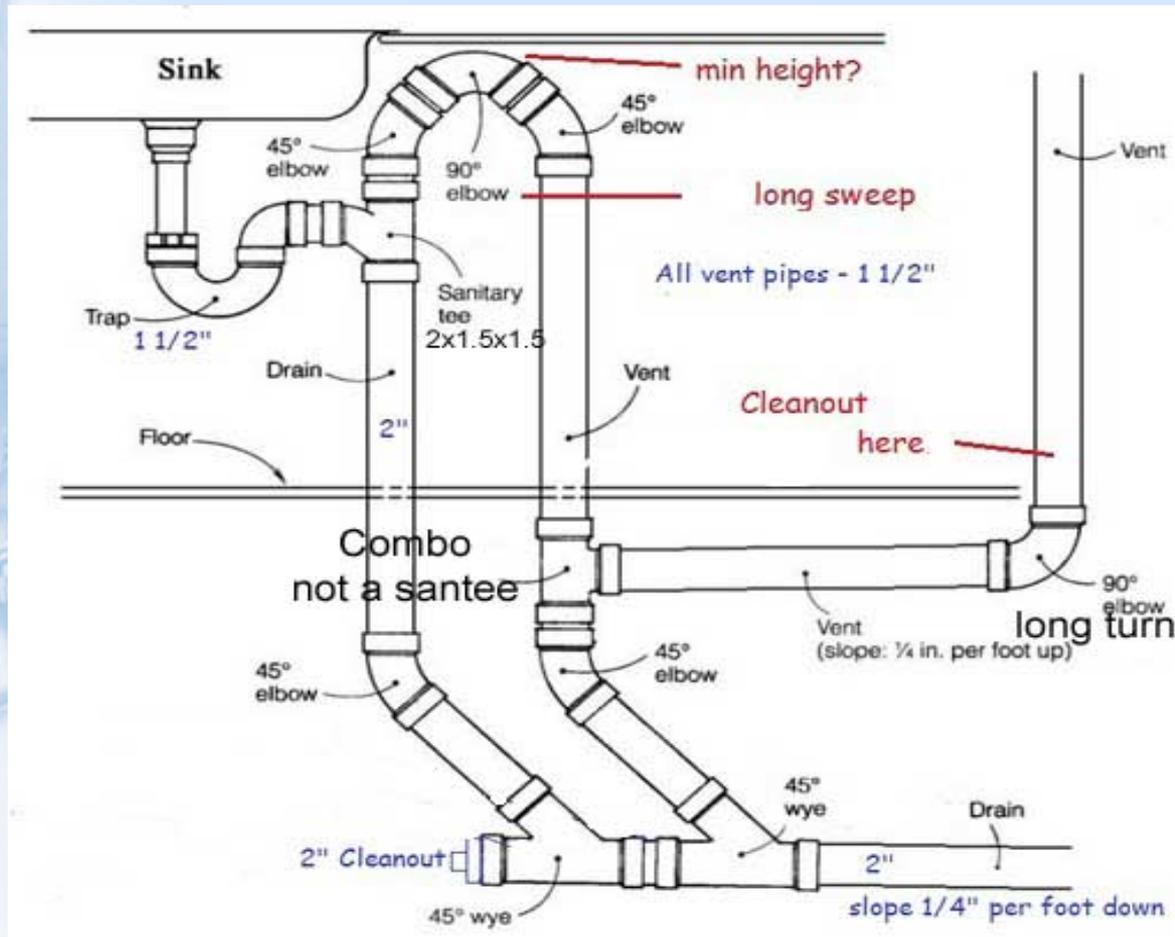


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Trap arm length equals location of Vent



Foot vent



Questions?

