

## PLUMBING SEMINAR

Prepared by Russ Meier

June 3, 1995

Reference Specification Section 15410

## DEFINITIONS:

Invert      Depth of bottom of pipe to surface of ground.

## WASTE SYSTEMS:

1. Trap siphonage occurs when the water in the trap is drawn out of the trap by lower pressures in the system. Plumbing vents are designed to protect the traps water seal and keep sewer gas from entering the building.
2. Size lines to handle the amount and type of flow.
3. Clean outs should be installed at every change in direction and at 50' intervals for pipes 4" and smaller. Pipes from 6" to 10" in diameter and above require clean outs every ~~100'~~ <sup>80'</sup> and every 150' for 10" and larger pipes. Locate clean outs in NON-TRAFFIC areas. Such as off to the side in corridors.
4. KJWW practice is to have a minimum 4" pipe sanitary mains installed below concrete floors where the potential for future expansion exists; however, 2" and 3" mains below floor are acceptable where codes allow. The pipe should also be a minimum of 1 foot below the floor.
5. Pipes smaller than 4" should slope 1/4" per foot inside the building. Pipes 4" and larger should slope 1/8" per foot.
6. Label pipe inverts ( "I.E. = \*\*'-\*\*" or "⊕ -2'-7") where pipes begin, cross other pipes and exit the building. Determine local frost depths and do not install pipes with less than 42" of cover.
7. Review structural drawings to locate footings, foundations, grade beams and other obstructions.
8. Indirect waste results when a fixture is not provided with a trap but is piped to a floor drain or other interceptor. An air gap must be provided at the floor drain to allow air to enter waste pipe.
9. All fixtures that are not indirect waste will require a trap. Water Closets have a trap built into the fixture and do not require a trap to be shown on risers.
10. Traps must always contain water. If a trap is exposed to

cold conditions the trap must be protected from freezing. This is true for freezers and coolers.

11. If a trap is subjected to other than atmospheric pressures at its inlet such as in an air handling unit. Care must be used in selecting the trap to insure that it seals.

**ANTIFREEZE SHOULD NOT BE USED TO PROTECT A TRAP FROM FREEZING SINCE IT WILL EVENTUALLY END UP IN THE SANITARY SEWER.**

12. Traps must also be protected from evaporation. Install a trap primer or recommend filling a trap with mineral oil to resist evaporation.
13. The drainage capacity of a given pipe diameter is far less in the horizontal than it is in the vertical. Always check to be sure that when changing directions the horizontal pipe has adequate capacity for the area it serves.

Section 890. Appendix A PLUMBING MATERIALS, EQUIPMENT, USE  
RESTRICTIONS AND APPLICABLE STANDARDS

TABLE H Horizontal Fixture Branches and Stacks

Diameter of Pipe (Inches)	Any Horizontal Fixture Branch	Stories in Height or 3 Intervals	Maximum Number of Drainage Fixture Units (D.F.U.) That May be Connected to:		Total at One Story or Branch Interval
			One Stack of 3	More than 3 Stories in Height	
1 1/4	1	2	2	2	1
1 1/2	3	4	8	8	2
2	6	10	24	24	6
2 1/2	12	20	42	42	9
3	20 <sup>1</sup>	30 <sup>2</sup>	60 <sup>2</sup>	60 <sup>2</sup>	16 <sup>1</sup>
4	100	240	500	500	90
5	360	540	1,100	1,100	200
6	620	960	1,900	1,900	350
8	1,400	2,200	3,600	3,600	600
10	2,500	3,800	5,600	5,600	1,500
12	3,900	6,000	8,400	8,400	1,500
15	7,000	--	--	--	--

<sup>1</sup> Not over two water closets.

<sup>2</sup> Not over six water closets, or more than two per branch interval or per floor.

Section 890. Appendix A PLUMBING MATERIALS, EQUIPMENT, USE  
RESTRICTIONS AND APPLICABLE STANDARDS

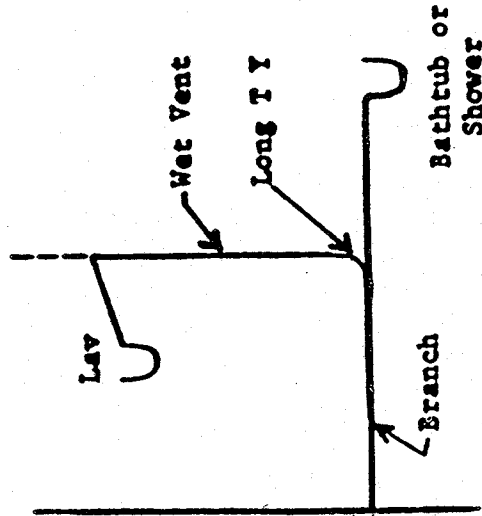
TABLE G Building Drains

Diameter of Pipe (Inches)	Maximum Number of Drainage Fixture Units (D.F.U.) That May be Connected to Any Portion of the Building Drain		
	1/4 Inch	1/8 Inch	1/2 Inch
4	--	180	250
5	--	390	575
6	--	700	1,000
8	1,400	1,600	2,300
10	2,500	2,900	4,200
12	3,900	4,600	6,700
15	7,000	8,300	12,000

Section 890. Appendix B Illustrations for Subpart A

ILLUSTRATION Y Wet Vent

(Referenced in Section 890.120, Definition of "Wet Vent.")



Section 890. Appendix B Illustrations for Subpart A

ILLUSTRATION I Common Vent

(Referenced in Section 890.120, Definition of "Common Vent.")

