

circulators of such air conditioners are rated at 0.3 inch water column static pressure or greater for the cooling air delivered to the manufactured home supply air duct system.

Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this manufactured home.

(3) *Alternative 3.* If the manufactured home is not equipped with an air supply duct system, or if the manufacturer elects not to designate the home as being suitable for the installation of a central air conditioning system, the manufacturer shall provide the following statement: "This air distribution system of this home has not been designed in anticipation of its use with a central air conditioning system."

EXAMPLE ALTERNATE 3

COMFORT COOLING CERTIFICATE

Manufactured Home Mfg _____
 Plant Location _____
 Manufactured Home Model _____

The air distribution system of this home has not been designed in anticipation of its use with a central air conditioning system.

(b) For each home designated as suitable for central air conditioning the manufacturer shall provide the maximum central manufactured home air conditioning capacity certified in accordance with the ARI Standard 210/240-89 Unitary Air-Conditioning and Air-Source Heat Pump Equipment and in accordance with §3280.715(a)(3). If the capacity information provided is based on entrances to the air supply duct at other than the furnace plenum, the manufacturer shall indicate the correct supply air entrance and return air exit locations.

(c) *Comfort cooling information.* For each manufactured home designated, either "suitable for" or "provided with" a central air conditioning system, the manufacturer shall provide comfort cooling information specific to the manufactured home necessary to complete the cooling load calculations. The comfort cooling information shall include a statement to read as follows:

To determine the required capacity of equipment to cool a home efficiently and economically, a cooling load (heat gain) calculation is required. The cooling load is dependent on the orientation, location and the structure of the home. Central air condi-

tioners operate most efficiently and provide the greatest comfort when their capacity closely approximates the calculated cooling load. Each home's air conditioner should be sized in accordance with chapter 22 of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals, 1989 Edition, once the location and orientation are known.

INFORMATION PROVIDED BY THE MANUFACTURER NECESSARY TO CALCULATE SENSIBLE HEAT GAIN

Walls (without windows and doors)	U
Ceilings and roofs of light color	U
Ceilings and roofs of dark color	U
Floors	U
Air ducts in floor	U
Air ducts in ceiling	U
Air ducts installed outside the home ..	U

Information necessary to calculate duct areas.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 58 FR 55012, Oct. 25, 1993]

Subpart G—Plumbing Systems

§ 3280.601 Scope.

Subpart G of this standard covers the plumbing materials, fixtures, and equipment installed within or on manufactured homes. It is the intent of this subpart to assure water supply, drain, waste and vent systems which permit satisfactory functioning and provide for health and safety under all conditions of normal use.

§ 3280.602 Definitions.

The following definitions are applicable to subpart G only:

Accessible, when applied to a fixture, connection, appliance or equipment, means having access thereto, but which may require removal of an access panel or opening of a door.

Air gap (water distribution system) means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, water supplied appliances, or other device and the flood level rim of the receptacle.

Anti-siphon trap vent device means a device which automatically opens to admit air to a fixture drain above the connection of the trap arm so as to prevent siphonage, and closes tightly when the pressure within the drainage

system is equal to or greater than atmospheric pressure so as to prevent the escape of gases from the drainage system into the manufactured home.

Backflow means the flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source or sources other than its intended sources.

Backflow connection means any arrangement whereby backflow can occur.

Backflow preventer means a device or means to prevent backflow.

Branch means any part of the piping system other than a riser, main or stack.

Common vent means a vent connecting at the junction of fixture drains and serving as a vent for more than one fixture.

Continuous vent means a vertical vent that is a continuation of the drain to which it connects.

Continuous waste means a drain from two or more fixtures connected to a single trap.

Critical level means a point established by the testing laboratory (usually stamped on the device by the manufacturer) which determines the minimum elevation above the flood level rim of the fixture or receptacle served on which the device may be installed. When a backflow prevention device does not bear a critical level marking, the bottom of the vacuum breaker, combination valve, or of any such approved or listed device shall constitute the critical level.

Cross connection means any physical connection or arrangement between two otherwise separate systems or sources, one of which contains potable water and the other either water, steam, gas or chemical of unknown or questionable safety whereby there may be a flow from one system or source to the other, the direction of flow depending on the pressure differential between the two systems.

Developed length means that length of pipe measured along the center line of the pipe and fittings.

Diameter, unless otherwise specifically stated, means the nominal (inside) diameter designated commercially.

Drain means a pipe that carries waste, water, or water-borne waste in a drainage system.

Drain connector means the removable extension, consisting of all pipes, fittings and appurtenances, from the drain outlet to the drain inlet serving the manufactured home.

Drain outlet means the lowest end of the main or secondary drain to which a sewer connection is made.

Drainage system means all piping within or attached to the structure that conveys sewage or other liquid waste to the drain outlet, not including the drain connector.

Fixture drain means the drain from the trap of a fixture to the junction of that drain with any other drain pipe.

Fixture supply means the water supply pipe connecting a fixture to a branch water supply pipe or directly to a main water supply pipe.

Flood-level means the level in the receptacle over which water would overflow to the outside of the receptacle.

Flooded means the condition which results when the liquid in a container or receptacle rises to the flood-level.

Flush tank means that portion of a water closet that is designed to contain sufficient water to adequately flush the fixture.

Flush valve means a device located at the bottom of a flush tank for flushing a water closet.

Flushometer tank: means a device integrated within an air accumulator vessel which is designed to discharge a predetermined quantity of water to fixtures for flushing purposes.

Flushometer valve means a device which discharges a predetermined quantity of water to a fixture for flushing purposes and is closed by direct water pressure.

Grade means the fall (slope) of a pipe in reference to a horizontal plane expressed in inches per foot length.

Horizontal branch means any pipe extending laterally, which receives the discharge from one or more fixture drains and connects to the main drain.

Horizontal pipe means any pipe or fitting which makes an angle of not more than 45 degrees with the horizontal.

Individual vent means a pipe installed to vent a fixture drain.

Inlet coupling means the terminal end of the water system to which the water service connection is attached. It may be a swivel fitting or threaded pipe end.

Main means the principal artery of the system to which branches may be connected.

Main drain means the lowest pipe of a drainage system which receives sewage from all the fixtures within a manufactured home and conducts these wastes to the drain outlet.

Main vent means the principal artery of the venting system to which vent branches may be connected.

Offset means a combination of pipe and/or fittings that brings one section of the pipe out of line but into a line parallel with the other section.

Pitch. See *Grade*.

Plumbing appliance: means any one of a special class of plumbing fixture which is intended to perform a special plumbing function. Its operation and/or control may be dependent upon one or more energized components, such as motors, control, heating elements, or pressure or temperature-sensing elements. Such fixture may operate automatically through one or more of the following actions: A time cycle, a temperature range, a pressure range, a measured volume or weight, or the fixture may be manually adjusted or controlled by the user or operator.

Plumbing appurtenance: means a manufactured device, or a prefabricated assembly, or an on-the-job assembly of component parts, and which is an adjunct to the basic piping system and plumbing system and plumbing fixtures. An appurtenance demands no additional water supply, nor does it add any discharge load to a fixture or the drainage system.

Plumbing fixtures means receptacles, devices, or appliances which are supplied with water or which receive liquid or liquid-borne wastes for discharge into the drainage system.

Plumbing system means the water supply and distribution pipes; plumbing fixtures, faucets and traps; soil, waste and vent pipes; and water-treating or water-using equipment.

Primary vent. See *main vent*.

Relief vent means an auxiliary vent which permits additional circulation of

air in or between drainage and vent systems.

Secondary vent means any vent other than the main vent or those serving each toilet.

Sewage means any liquid waste containing animal or vegetable matter in suspension or solution, and may include liquids containing chemicals in solution.

Siphonage means the loss of water seal from fixture traps resulting from partial vacuum in the drainage system which may be of either of the following two types, or a combination of the two:

(a) Self-siphonage resulting from vacuum in a fixture drain generated solely by the discharge of the fixture served by that drain, or,

(b) Induced siphonage resulting from vacuum in the drainage system generated by the discharge of one or more fixtures other than the one under observation.

Trap means a fitting or device designed and constructed to provide a liquid seal that will prevent the back passage of air without materially affecting the flow of liquid waste through it.

Trap arm means the portion of a fixture drain between a trap and its vent.

Trap seal means the vertical depth of liquid that a trap will retain.

Vacuum breaker. See *backflow preventer*.

Vent cap means the device or fitting which protects the vent pipe from foreign substance with an opening to the atmosphere equal to the area of the vent it serves.

Vent system means that part of a piping installation which provides circulation of air within a drainage system.

Vertical pipe means any pipe or fitting which makes an angle of not more than 45 degrees with the vertical.

Water closet drain means that part of the drainage piping which receives the discharge from each individual water closet.

Water connection means the fitting or point of connection for the manufactured home water distribution system designed for connection to a water supply.

Water connector means the removable extension connecting the manufactured home water distribution system to the water supply.

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Water distribution system means potable water piping within or permanently attached to the manufactured home.

Wet vent means a vent which also serves as a drain for one or more fixtures.

Wet vented drainage system means the specially designed system of drain piping that also vents one or more plumbing fixtures by means of a common waste and vent pipe.

Whirlpool bathtub means a plumbing appliance consisting of a bathtub fixture which is equipped and fitted with a circulation piping system, pump, and other appurtenances and is so designed to accept, circulate, and discharge bathtub water upon each use.

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§ 3280.603 General requirements.

(a) *Minimum requirements.* Any plumbing system installed in a manufactured home shall conform, at least, with the provisions of this subpart.

(1) *General.* The plumbing system shall be of durable material, free from defective workmanship, and so designed and constructed as to give satisfactory service for a reasonable life expectancy.

(2) *Conservation.* Water closets shall be selected and adjusted to use the minimum quantity of water consistent with proper performance and cleaning.

(3) *Connection to drainage system.* All plumbing, fixtures, drains, appurtenances, and appliances designed or used to receive or discharge liquid waste or sewage shall be connected to the manufactured home drainage system in a manner provided by this standard.

(4) *Workmanship.* All design, construction, and workmanship shall be in conformance with accepted engineering practices and shall be of such character as to secure the results sought to be obtained by this standard.

(5) *Components.* Plumbing materials, devices, fixtures, fittings, equipment, appliances, appurtenance, and accessories intended for use in or attached to a manufactured home shall conform to one of the applicable standards referenced in § 3280.604. Where an applica-

ble standard is not referenced, or an alternative recognized standard is utilized, the plumbing component shall be listed by a nationally recognized testing laboratory, inspection agency or other qualified organization as suitable for the intended use.

(6) *Prohibited fittings and practices.* (i) Drainage or vent piping shall not be drilled and tapped for the purpose of making connections.

(ii) Except as specifically provided elsewhere in this standard, vent pipes shall not be used as waste or drain pipes.

(iii) Fittings, connections, devices, or methods of installation that obstruct or retard the flow of sewage, or air in the drainage or venting systems in an amount greater than the normal frictional resistance to flow shall not be used unless their use is acceptable in this standard or their use is accepted as having a desirable and acceptable function of ultimate benefit to the proper and continued functioning of the plumbing system.

(iv) Cracks, holes, or other imperfections in materials shall not be concealed by welding, brazing, or soldering or by paint, wax, tar, or other leak-sealing or repairing agents.

(v) Piping, fixtures or equipment shall be located so as not to interfere with the normal use or with the normal operation and use of windows, doors or other required facilities.

(vi) Galvanized pipe shall not be bent or welded.

(7) *Alignment of fittings.* All valves, pipes, and fittings shall be installed in correct relationship to the direction of flow.

(b) *Protective requirements.* (1) Cutting structural members. Structural members shall not be unnecessarily or carelessly weakened by cutting or notching.

(2) *Exposed piping.* All piping, pipe threads, hangers, and support exposed to the weather, water, mud, and road hazard, and subject to damage therefrom, shall be painted, coated, wrapped, or otherwise protected from deterioration.

(3) *Road damage.* Pipes, supports, drains, outlets, or drain hoses shall not extend or protrude in a manner where