2021 UNIFORM PLUMBING CODE

BASED ON THE 2021 UNIFORM PLUMBING CODE

QUICK-CARDS® *A UNIQUE QUICK-REFERENCE GUIDE*

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PLUMBING SYSTEMS – GENERAL REGULATIONS

UNIFORM PLUMBING CODE

- The Uniform Plumbing Code (UPC) provides minimum standards for plumbing to safeguard health, safety, property and public welfare.
- This code includes standards for all of the following topics: Plumbing Fixtures and Fixture Fittings; Water Heaters; Water Supply and Distribution; Sanitary Drainage; Indirect Wastes; Vents; Traps and Interceptors; Storm Drainage; Fuel Gas Piping; Health Care Facilities, Medical Gas and Medical Vacuum Systems; Firestop Protection; Alternate Water Sources for Nonpotable Applications; and Nonpotable Rainwater Catchment Systems.

HANGERS & SUPPORTS *(Based on UPC Table 313.3)*

Materials	Types of Joints	Horizontal	Vertical
Cast	Lead and Oakum	5 ft. except 10 ft. where 10 ft. lengths are installed	Base & each floor: 15 ft. Max.
	Compression Gasket	Every other joint or each joint if over 4 ft.	Base & each floor: 15 ft. Max.
Copper & Copper Alloys	Soldered, Brazed, Threaded or Mechanical	6 ft. if 1½" and smaller, 10 ft. if 2" and larger,	Each floor: 10 ft. Max.
Steel Pipe for Water or DWV	Threaded or Welded	10 ft. if ¾" and smaller, 12 ft. if 1" and larger,	Every other floor: 25 ft. Max.
Schedule 40 PVC and ABS DWV	Solvent Cemented	All sizes, 4 ft.; allow for expansion every 30 ft.	Base & each floor: mid-story guides; provide for expansion every 30 ft.
CPVC	Solvent Cemented	3 ft. if 1" and smaller; 4 ft. if 1¼" and larger,	Base & each floor: mid-story guides
PEX	Cold Expansion, Insert and Compression	32" if 1" and smaller, 4 ft. if 1¼" and larger	Base & each floor: mid-story guides

Note: This is an abridged table. For complete table see 2021 UPC Table 313.3

HANGERS ROD SIZES *(Based on UPC Table 313.6)*

Pipe & Tube Size (inches)	Rod Size (inches)
½ to 4	3/8
5 to 8	1/2
10 to 12	5/8

TEST GAUGES *(Based on UPC 318.0)*

Pressure Test	Gauge Incrementation
10 psi or less	0.10 psi or less
Greater than 10 psi to 100 psi	1 psi or less
Exceeding 100 psi	2% or less the required test pressure

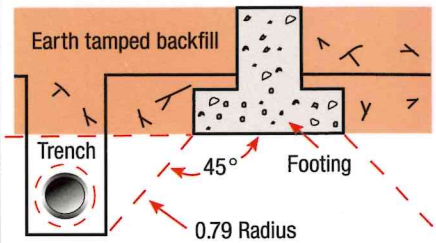
PROTECTION OF PIPING *(Based on UPC 312.0)*

- Piping passing under or through walls must be protected from breakage.
- No plumbing piping must be directly embedded in concrete or masonry. Sleeves must be used.
- No structural member must be seriously weakened or impaired by cutting, notching or otherwise.
- No building sewer, drainage piping or part thereof, constructed of materials other than those approved for use, must be installed under or within 2 ft. (610 mm) of a building or structure, or less than 1 ft. (305 mm) below the surface of the ground.
- Piping subject to corrosion, erosion or mechanical damage must be protected.
- Pipes installed outside of a building, in attics, crawl spaces or exterior walls must be protected from freezing.
- Joints at the roof around pipes, ducts or other appurtenances and exterior wall openings must be made watertight.
- Counterflashing must not restrict the required internal cross-sectional area of the vent.
- Plastic, copper or copper alloy piping penetrating framing members to within 1" (25 mm) of the exposed framing must be protected by steel nail plates not less than No. 18 gauge (0.0478") thick.
- The steel nail plate must extend along the framing member not less than 1½" (38 mm) beyond the outside diameter of the pipe or tubing.
- Strainer plates on drain inlets must be designed and installed so that no opening exceeds ½" (12.7 mm) in the least dimension.

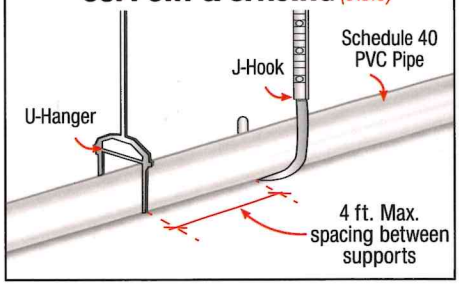
HANGERS & SUPPORTS *(Based on UPC 313.0)*

- Piping must be supported in such a manner as to maintain its alignment and prevent sagging.
- Piping in the ground must be laid on a firm bed for its entire length.
- Hangers and anchors must be able to support the weight of the pipe and its contents.
- Piping must be isolated from incompatible materials.
- Hanger rod sizes must not be smaller than those shown in Table 313.6.

PIPE NEAR FOOTING LOCATION *(314.1)*



SUPPORT & SPACING *(313.0)*



TRENCHING, EXCAVATION & BACKFILL *(Based on UPC 314.0)*

- Trenches deeper than the footing of a building or structure and paralleling the same must be located 45° (0.79 rad) Min. from the bottom exterior edge of the footing.
- Tunneling and driving is permitted in yards courts or driveways of a building site.
- Tunnels are permitted to be used between open-cut trenches if there is sufficient depth.
- Tunnels must have a clear height of 2 ft. (610 mm) above the pipe and must be limited in length to 1/2 the depth of the trench, with a max. length of 8 ft (2438 mm).
- Where pipes are driven, the drive pipe must be not less than one size larger than the pipe to be laid.
- Excavations must be backfilled after inspection.
- Trenches must be backfilled in thin layers to 12" (305 mm) above the top of the piping with clean earth.
- Fill must be properly compacted.

PLUMBING FIXTURES & FIXTURE FITTINGS

INFO YOU MUST KNOW! *(Based on UPC 402.6)*

Fixture connections between drainage pipes & water closets, floor outlet service sinks & urinals must use approved copper alloy, hard lead, ABS, PVC or iron flanges caulked, soldered, solvent cemented; rubber compression gaskets; or screwed to the drainage pipe.

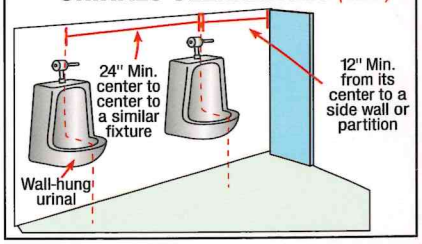
SECURING FLOOR-MOUNTED, BACK-OUTLET WATER CLOSET BOWLS *(Based on UPC 402.6.3)*

- Floor-mounted, back-outlet water closet bowls must be set level with an angle of 90° (1.57 rad) between the floor and wall at the centerline of the fixture outlet.
- The floor and wall must have a flat mounting surface a min. of 5" (127 mm) to the right and left of the fixture outlet centerline.
- The fixture must be secured to the wall outlet flange or drainage connection and to the floor by corrosion-resistant screws or bolts.
- The closet flange must be secured to a firm base.
- Where floor-mounted, back-outlet water closets are used, soil pipe must be a min. of 3" (80 mm) dia.
- Offset, eccentric or reducing closet flanges must not be used.

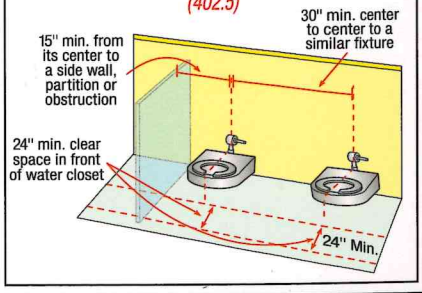
PLUMBING FIXTURES AND FIXTURE FITTINGS – MATERIALS & INSTALLATION *(Based on UPC 401 - 402)*

- Plumbing fixtures:
  - must be constructed of dense, durable, non-absorbent materials
  - must have smooth, impervious surfaces, free from unnecessary concealed fouling surfaces.
  - must be installed to provide easy access for repairs and cleaning.
- Pipes from fixtures must be run to the nearest wall.
- Where a fixture comes in contact with the wall or floor, the joint between the fixture and the wall or floor must be made watertight.
- Floor-outlet or floor-mounted fixtures must be rigidly secured to the drainage connection and to the floor by screws or bolts of copper, copper alloy or other equally corrosion-resistant material.
- Wall-hung fixtures must be rigidly supported by metal supporting members so that no strain is transmitted to the connections.
- Flush tanks and similar appurtenances must be secured by approved non-corrosive screws or bolts.
- Fixtures must be set level & in proper alignment to adjacent walls.
- Water Closet/Bidet Center to Side-Wall/Obstruction Clearance: 15" (381 mm) Min.
- Water Closet/Bidet Center to Center Clearance: 30" (762 mm) Min.
- Clear space in front of a water closet, lavatory or bidet: 24" (610 mm) Min.
- No urinal must be set closer than 12" (305 mm) from its center to a side wall/partition or closer than 24" (610 mm) center to center.

URINALS CLEARANCES *(402.5)*



WATER CLOSET CLEARANCES *(402.5)*



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PLUMBING FIXTURES & FIXTURE FITTINGS (Cont.)

LAVATORIES *(Based on UPC 407)*

- Maximum flow rate for public lavatory faucets: 0.5 gpm at 60 psi
- Maximum flow rate for private lavatory faucets: 2.2 gpm at 60 psi.
- Metered faucets max. flow rate: 0.25 gallons per metering cycle.
- Hot water delivered from public-use lavatories must be limited to a max. temperature of 120°F (49°C) by a device compliant with ASSE 1070/ASME A112.01070/CSA B125.70.
- Lavatories must have a waste outlet and fixture tailpiece at least 1¼" in diameter.
- Continuous wastes and fixture tailpieces must be of approved materials.
- Waste outlets must be provided with an approved stopper or strainer.
- Overflows provided must comply with 404.2.
- Lavatories meant to serve the transient public must have self-closing or metering faucets.

URINALS *(Based on UPC 412)*

- Urinals average water consumption: maximum of 1 gallon of water per flush.
- Nonwater urinals:
  - must have a liquid barrier sealant to maintain a trap seal.
  - must allow the uninhibited flow of waste through the urinal to the sanitary drainage system.
  - must have at least one water supplied fixture rated at a min. of 1 water supply fixture unit (WSFU) installed upstream on the same drain line to help drain line flow and rinsing.
- A water supply to a urinal must be protected by an approved-type vacuum breaker or other approved backflow prevention device.

BIDETS *(Based on UPC 410)*

- The water supply to the bidet must have an air gap, an Atmospheric Vacuum Breaker (AVB), a Spill-resistant Pressure Vacuum Breaker (SVB) or a Pressure Vacuum Breaker Backflow Prevention Assembly (PVB).
- The max. hot water temperature discharging from a bidet must be limited to 110°F (43°C).

SHOWER COMPARTMENTS *(Based on UPC 408)*

- Showerheads maximum flow rate: 2.5 gpm at 80 psi.
- Showers must have a waste outlet and fixture tailpiece 2" (51 mm) Min. in diameter.
- Strainers serving shower drains must have a waterway at least equivalent to the area of the tailpiece.
- Shower compartments finished interior size: 1024 in² (0.6606 m²)(regardless of shape) and able to fit a 30" (762 mm) diameter circle.
- Min. required area and dimensions of a shower compartment:
  - must be measured at a height equal to the top of the threshold and at a point tangent to its centerline.
  - must be maintained to a point of not less than 70" (1778 mm) above the shower drain outlet with no protrusions other than the fixture valve or valves, showerhead, soap dishes, shelves and safety grab bars or rails.
- Fold-down seats in accessible shower stalls are allowed to protrude into the 30" (762 mm) circle.
- Built in place, permanent seat or seating area must be lined with sheet plastic, lead, copper or with other durable and watertight materials that extend a min. of 3" (76 mm) above horizontal surfaces of the seat or the seating area.
- Showers and tub-shower combinations must be provided with individual control valves of the pressure balance, thermostatic or combination pressure balance or thermostatic mixing valve type that provide scald and thermal shock protection for the rated flow rate of the installed showerhead.
- Where a shower receptor has a finished dam, curb or threshold it must not be less than 1" (25 mm) lower than the sides and back of such receptor.
- In no case must a dam or threshold be less than 2" (51 mm) or more than 9" in depth where measured from the top of the dam or threshold to the top of the drain.
- Each receptor must be provided with an integral nailing flange to be located where the receptor meets the vertical surface of the finished interior of the shower compartment.
- The flange must be watertight and extend vertically a min. of 1" (25 mm) above the top of the sides of the receptor.
- The finished floor of the receptor must slope uniformly from the sides towards the drain a min. of 1/8" per foot (10.4 mm/m) and a max. of 1/2" (41.6 mm/m) per foot.
- Thresholds: must accommodate a door 22" (559 mm) Min. in width.
- Shower doors must open so as to maintain a min. of 22" (559 mm) unobstructed opening for egress.
- Shower receptors must have the subfloor and rough side of walls to a min. height of 3" (76 mm) above the top of the finished dam or threshold must be first lined with sheet plastic, lead or copper or other durable and watertight materials.

BATHTUBS & WHIRLPOOL BATHTUBS *(Based on UPC 409)*

- Bathtubs and whirlpool bathtubs must have a waste outlet and fixture tailpiece a min. of 1½" (40 mm) in diameter.
- Waste outlets must be provided with a stopper or a strainer.
- Max. hot water temperature discharging from the bathtub and whirlpool bathtub filler: 120°F (49°C).
- The water supply to a bathtub and whirlpool bathtub filler valve must be protected by an air gap.
- Bathtubs and whirlpool bathtubs must be installed according to the manufacturer's installation instructions.
- Access openings must be of a size and opening to permit the removal and replacement of the circulation pump.
- Whirlpool pump access located in the crawl space must be located a max. of 20 ft. ((6096 mm) from an access door, trap door or crawl hole.)
- Circulation pump location: above the crown weir of the trap.
- The pump and the circulation piping must be self-draining to minimize water retention.

WATER CLOSETS *(Based on UPC 411)*

- Water closet bowls for public use must be of the elongated type.
- Water closets must have a max. water consumption of 1.6 gallons of water per flush.
- Flushometer valve activated water closets must have a max. flush volume of 1.6 gallons of water per flush.
- Water closet seats must be properly sized for the water closet bowl type and must be of smooth, non-absorbent material.
- Seats for public use, must be of the elongated type and either of the open front type or have automatic seat cover dispenser.

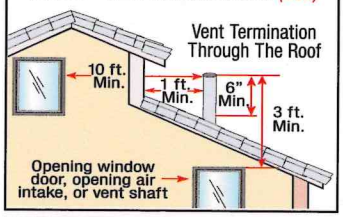
SUSTAINABLE PRACTICES – MAX. FIXTURE & FIXTURE FITTINGS FLOW RATES *(UPC Table L 402.1)*

Fixture Type	Flow Rate
Showerheads	2.0 gpm at 80 psi
Kitchen Faucets - Residential	1.8 gpm at 60 psi
Lavatory Faucets - Residential	1.5 gpm at 60 psi
Lavatory Faucets - Other Than Residential	0.5 gpm at 60 psi
Metering Faucets	0.25 gallons/cycle
Water Closets	1.28 gallons/flush
Urinals	0.5 gallons/flush
Commercial Pre-Rinse Spray Valves	1.3 gpm at 60 psi

Note: This is an abridged table. For complete table see 2021 UPC Table L 402.1

VENTS

ROOF TERMINATION *(906)*



MAX. UNITS & LENGTH OF VENT PIPING – HORIZONTAL & VERTICAL *(Based on UPC Table 703.2)*

Size of Pipe	Max. Units	Max. Length
1¼"	1	45 ft.
1½"	8	60 ft.
2"	24	120 ft.
3"	84	212 ft.
4"	256	300 ft.
5"	600	390 ft.
6"	1380	510 ft.
8"	3600	750 ft.

Note: This is an abridged table. For complete table see 2021 UPC Table 703.2

VENTS *(Based on UPC 901-902)*

- Air circulation must be ensured throughout all parts of the drainage system by means of vent pipes.
- The vent system must be designed to prevent a trap seal from being exposed to a pressure differential that exceeds 1" (25 mm) water column on the outlet side of the trap.
- The size of vent piping must be determined from its length and total number of fixture units connected. See Table 703.2
- Diameter of an individual vent: 1¼" (32 mm) Min. and not less than ½ the diameter of the connected drain.
- Not more than 1/3 of the total permitted length of a minimum sized vent must be installed in a horizontal position.

TERMINATIONS *(Based on UPC 906)*

- Each vent pipe or stack must extend through its flashing and terminate vertically 6" (152 mm) Min. above the roof and 1 ft. (305 mm) Min. from a vertical surface.
- Each vent must terminate a min. of 10 ft. (3048 mm) from or 3 ft. (914 mm) above an openable window, door, opening, air intake or vent shaft.
- Each vent must terminate a min. of 3 ft. (914 mm) in every direction from a lot line, alley and street excepted.
- Vent pipes must be extended separately or combined a min. of 6" (152 mm) above the roof or fire wall.
- Vents within 10 ft. (3048 mm) of a part of the roof that is used for other assembly purposes or parking must extend a min. of 7 ft. (2134 mm) above such roof and must securely stay.
- Vent pipes for outdoor installations must extend not less than 10 ft. (3048 mm) above the surrounding ground and must be securely supported.
- Joints at the roof around vent pipe must be made watertight by the use of approved flashings or flashing material.

VENT PIPE GRADES & CONNECTIONS *(Based on UPC 905)*

- Vent and branch vent pipes must be free from drops or sags.
- Each vent must be level or must be so graded and connected as to drip back by gravity to the drainage pipe it serves.
- Where vents connect to a horizontal drainage pipe, each vent pipe must have its invert taken off above the drainage centerline of such pipe downstream of the trap being served.
- Each vent must rise vertically to a point not less than 6" (152 mm) above the flood-level rim of the fixture served before offsetting horizontally.
- Where 2 or more vent pipes converge, each such vent pipe must rise to a point not less than 6" (152 mm) in height above the flood-level rim of the plumbing fixture it serves before being connected to any other vent.
- Vents less than 6" (152 mm) above the flood-level rim of the fixture must be installed with approved drainage fittings, material and grade to the drain.
- Vent pipes must extend undiminished in size above the roof or must be reconnected with a soil or waste vent of proper size.
- The vent pipe opening from a soil or waste pipe must not be below the weir of the trap. Example: water closets and similar.
- Two fixtures must be permitted to be served by a common vertical pipe where each such fixture wastes separately into an approved double fitting having inlet openings at the same level.

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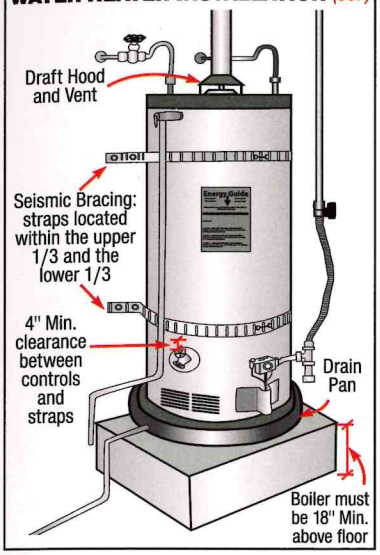
WATER HEATERS

WATER HEATER INSTALLATION *(507)*



VENTS & CLEARANCES
(Based on UPC 504.2 & 504.3)

- Water heaters of other than the direct-vent type must be located as close as practical to the chimney or gas vent.
- Clearances must not interfere with combustion air, draft hood clearance and relief and accessibility for servicing.
- Listed water heaters clearances: see listings and manufacturer's instructions.
- Unlisted water heaters clearances: 12" on all sides and rear.
- Combustible floors under unlisted water heaters must be protected.

INSTALLATION *(Based on UPC 507)*

Ground Support.
- A water heater supported from the earth must rest on level concrete or other approved base extending a min. of 3" (76 mm) above the adjoining ground level.

Drainage Pan.
- Where a water heater is located in an attic, in or on an attic-ceiling assembly, floor-ceiling assembly or floor-subfloor assembly where damage results from a leaking water heater, a watertight pan of corrosion-resistant materials must be installed beneath the water heater with a min. of 3/4" (20 mm) dia. drain to an approved location.
- Such pan must be a min. of 1½" (38 mm) in depth.

Installation in Residential Garages.
- Appliances in residential garages and in adjacent spaces that open to the garage and that are not part of the living space of a dwelling unit must be installed so that all burners and burner-ignition devices are located a min. of 18" (457 mm) above the floor, unless listed as flammable vapor ignition resistant.
- Appliances installed in garages, warehouses or other areas subject to mechanical damage must be installed behind protective barriers or be elevated or located out of the normal path of vehicles.
- Appliances installed in a separate, enclosed space having access only from outside of the garage, must be permitted to be installed at floor level, providing the required combustion air is taken from the exterior of the garage.

Seismic Provisions.
- In seismic design categories C, D, E and F water heaters must be anchored or strapped to resist horizontal displacement due to earthquake motion.
  - Strapping must be at points within the upper 1/3 and lower 1/3 of its vertical dimensions.
  - At the lower point, a min. of at least 4" (102 mm) clearance is required betwen the controls & strapping.

INFO YOU MUST KNOW! *(Based on UPC 502.1)*

It is unlawful for a person to install, remove or replace a water heater without first obtaining a permit from the Authority Having Jurisdiction.

ADDITIONAL REQUIREMENTS
(Based on UPC 504.6; 505.1; 507.26)

- Appliances must be located with respect to the building construction and other equipment so as to permit access to the appliance.
- For attic installation, the passageway and servicing area adjacent to the appliance must be floored.
- A water heater installation must be provided with overpressure protection and overtemperature protection by a listed device.
- A shutoff valve must not be placed between the relief valve and the water heater or on discharge pipes between such valves and the atmosphere.
- The hourly Btu discharge capacity or the rated steam relief capacity of the device must not be less than the input rating of the water heater.
- Water heaters deriving heat from fuels or types of energy other than gas must comply with the standards referenced in Table 501.1(1).

WATER HEATERS *(UPC Table 501.1(1))*

Type	Standard
Electric, Household	UL 174
Oil-Fired Storage Tank	UL 732
Indirect-Fired Water Heaters	ASME
Gas, 75,000 Btu/h or less	CSA Z21.10.1
Gas, Above 75,000 Btu/h	CSA Z21.10.3
Electric, Commercial	UL 1453
Solid Fuel	UL 2523
Electric Instantaneous	UL 499

WATER TEMPERATURE

Appliances/ Fixtures	Maximum Temperature
Bathtubs and Whirlpool Bathtubs *(409.4)*	120°F
Bidets *(410.3)*	110°F
Public Lavatories *(407.3)*	120°F
Water Heater or Hot Water Heating Boiler *(225.0)*	210°F

FIRST HOUR RATING *(Based on UPC Table 501.1(2))*

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
Number of Bedrooms	1	2	3	2	3	4	5	3	4	5	6
First Hour Rating, Gallons	38	49	49	49	62	62	74	62	74	74	74

WATER SUPPLY AND DISTRIBUTION

ASSEMBLIES – GENERAL
(Based on UPC 603.4 & 603.5)

Access and Clearance. 12" (305 mm) Min. between the lowest portion of the assembly and grade, floor or platform.

Elevated Installations. Installations exceeding 5 ft. (1524 mm) above the floor or grade must be provided with a platform capable of supporting a tester or maintenance person.

Connections.
- Direct connections between potable water piping and sewer-connected wastes are prohibited.
- Where potable water is discharged to the drainage system, it must be by means of an approved air gap of two pipe dia. of the supply inlet, but in no case less than a 1" (25 mm) air gap.
- Connection must be permitted to be made to the inlet side of a trap provided that an approved vacuum breaker is installed not less than 6" (152 mm), or the distance according to the device's listing, above the flood-level rim of such trapped fixture, so that at no time will such device be subjected to backpressure.

Backflow Prevention. Water closet flushometer tanks must be protected against backflow by an approved backflow prevention assembly, device or method. For atmospheric vacuum breaker and ballcock requirements see UPC code.

WATER SUPPLY INLETS *(Based on UPC 603.5.5)*

Water supply inlets to tanks, vats, sumps, swimming pools and other receptors must be protected by either:

- An approved air gap.
- A listed vacuum breaker installed on the discharge side of the last valve with the critical level not less than 6" or in accordance with its listing.
- A backflow preventer suitable for the degree of hazard, installed in accordance with the requirements for that type of device or assembly.

MIN. AIR GAPS FOR WATER DISTRIBUTION
(Based on UPC Table 603.3.1)

Fixtures	Where Not Affected by Sidewalls	Where Affected by Sidewalls
Effective openings not greater than 1/2" in diameter	1"	1½"
Effective openings not greater than 3/4" in diameter	1½"	2¼"
Effective openings not greater than 1" in diameter	2"	3"
Effective openings greater than 1" in diameter	2X the diameter of effective opening	3X the diameter of effective opening

WATER SUPPLY FIXTURE UNITS & MIN. FIXTURE BRANCH PIPE SIZES – SINKS
(Based on UPC Table 610.3)

Type of Sink	Min. Fixture Branch Pipe Size	Private	Public
Bar	1/2"	1.0	2.0
Clinical Faucet	1/2"	–	3.0
Clinical Flushometer Valve with or without faucet	1"	–	8.0
Kitchen, domestic with or without dishwasher	1/2"	1.5	1.5
Laundry	1/2"	1.5	1.5
Service or Mop Basin	1/2"	1.5	3.0
Washup each set of faucets	1/2"	–	2.0

WATER SUPPLY FIXTURE UNITS & MIN. FIXTURE BRANCH PIPE SIZES *(Based on UPC Table 610.3)*

Fixture	Min. Fixture Branch Pipe Size	Private	Public
Bathtub or Combination Bath/Shower (fill)	1/2"	4.0	4.0
Bathtub or Combination Bath/Shower (fill) 3/4" Bathtub Fill Valve	3/4"	10.0	10.0
Bidet	1/2"	1.0	–
Clothes Washer	1/2"	4.0	4.0
Dental Unit, Cuspidor	1/2"	–	1.0
Dishwasher, Domestic	1/2"	1.5	1.5
Drinking Fountain or Water Cooler	1/2"	0.5	0.5
Hose Bibb	1/2"	2.5	2.5
Lavatory	1/2"	1.0	1.0
Lawn Sprinkler, Each Head	–	1.0	1.0
Mobile Home, Each (min.)	–	12.0	–
Shower, per Head	1/2"	2.0	2.0
Urinal, Flush Tank	1/2"	2.0	2.0
Wash Fountain, Circular Spray	3/4"	–	4.0
Water Closet, 1.6 GPF Gravity Tank	1/2"	2.5	2.5
Water Closet, 1.6 GPF Flushometer Tank	1/2"	2.5	2.5
Water Closet, Greater Than 1.6 GPF Gravity Tank	1/2"	3.0	5.5

Note: This is an abridged table. For complete table see 2021 UPC Table 610.3.

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SANITARY DRAINAGE

INFO YOU MUST KNOW!

The min. size of vertical and horizontal drainage piping is determined by the total of connected fixture units and by the total length run of the pipe.
See Unit Loading and Length Piping Table.

DRAINAGE FITTINGS *(Based on UPC 701.3; 701.6; 701.7)*

- Materials for drainage fittings must comply with Table 701.2.
- Fittings must be of the same diameter as the piping served.
- Fittings must be compatible with the type of pipe used.
- Fittings on screwed pipe must be of recessed drainage type.
- Burred ends must be reamed to the full bore of the pipe.
- Threads of drainage fittings must be tapped to allow 1/4" per ft. grade.
- Fittings used for drainage must be of the drainage type, have a smooth interior water-way and be constructed to allow 1/4" per ft. grade.
- Caulking ferrules and soldering bushings must be manufactured from copper or copper alloy.

GRADE OF HORIZONTAL DRAINAGE PIPING *(Based on UPC 708-709)*

- Horizontal drainage piping must be run in practical alignment and a min. uniform slope of 1/4" (20.8 mm/m) per foot or 2% toward the point of disposal. Exc. 1/8" (10.4 mm/m) per foot or 1% where impractical.
- Where practicable, plumbing fixtures must be drained to public sewer or private sewage disposal system by gravity.

CHANGES IN DIRECTION OF DRAINAGE FLOW *(Based on UPC 706.1)*

Horizontal to Vertical.

- Horizontal drainage lines, connecting with a vertical stack, must enter through 45° wye branches, 60° wye branches, combination wye and 1/8 bend branches, sanitary tee, sanitary tapped tee branches, or other approved fittings of equivalent sweep.
- No fitting having more than 1 inlet at the same level must be used unless such fitting is constructed so that the discharge from one inlet cannot readily enter any other inlet.
- Double sanitary tees are permitted to be used where the barrel of the fitting is not less than two pipe sizes larger than the largest inlet, (pipe sizes recognized for this purpose are 2", 2½", 3", 3½", 4", 4½", 5", 6", etc.)

Horizontal to Horizontal.

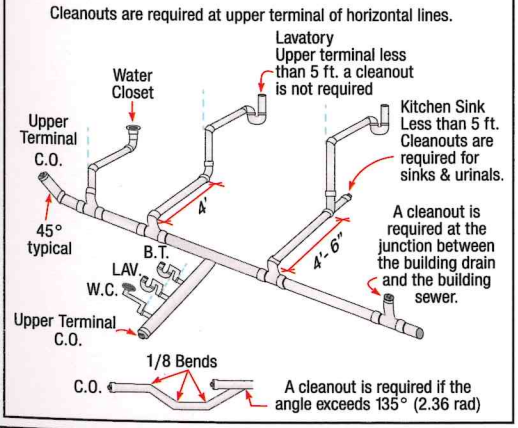
- Horizontal drainage lines connecting with other horizontal drainage lines must enter through 45° wye branches, combination wye and 1/8 bend branches, or other approved fittings of equivalent sweep.

Vertical to Horizontal

- Vertical drainage lines connecting with horizontal drainage lines must enter through 45° wye branches, combination wye and 1/8 bend branches, or other approved fitting of equivalent sweep.
- Branches or offsets of 60° must be permitted to be used where installed in a true vertical position.

CLEANOUTS *(707)*

Cleanouts are required at upper terminal of horizontal lines.



SIZE OF DRAINAGE PIPING *(Based on UPC 703)*

- Horizontal piping sizing: must be determined from the number of total of fixture units connected thereto.
- Vertical piping sizing: must be determined from the total number of fixture units connected thereto and the total length of the vertical pipe.
- See Table 703.2 to see the maximum number of fixture units allowed.

CLEANOUTS *(Based on UPC 707)*

- Each cleanout fitting for cast-iron pipe must consist of a cast-iron or copper alloy body and an approved plug.
- Each cleanout for galvanized wrought-iron, galvanized steel, copper or copper alloy pipe must consist of a plug or a standard weight copper alloy cap, or an approved ABS or PVC plastic plug, or an approved stainless steel cleanout or plug.
- Plugs must have raised square heads or approved countersunk rectangular slots.
- Cleanouts must be watertight and gastight.
- Each horizontal drainage pipe must be provided with a cleanout at its upper terminal, and each run of piping, that is more than 100 ft. (30 480 mm) in total developed length, must be provided with a cleanout for each 100 ft. (30 480 mm), or fraction thereof, in length of such piping.
- An additional cleanout must be provided in a drainage line for each aggregate horizontal change in direction exceeding 135° (2.36 rad).
- A cleanout must be installed above the fixture connecting fitting, serving each urinal, regardless of the location of the urinal in the building.
- Each cleanout must be installed so that it opens to allow cleaning in the direction of flow of the soil or waste or at right angles thereto and vertically above the flow line of the pipe.
- Each cleanout extension must be considered as drainage piping and each 90° (1.57 rad) cleanout extension must be extended from a wye-type fitting or approved fitting of equivalent sweep.
- Each cleanout for an interceptor must be outside of such interceptor.
- Each cleanout, unless installed under an approved cover plate, must be above grade, readily accessible and so located as to serve the purpose for which it is intended.
- Each cleanout in piping 2" (50 mm) or less in size must be installed so a min. clearance of 18" (457 mm) x 18" (457 mm) is in front of the cleanout.
- Cleanouts in piping exceeding 2" (50 mm) must be installed so a min. clearance of 24" (610 mm) x 24" (610 mm) in front of the cleanout.
- Cleanouts in under-floor piping must be extended to or above the finished floor or must be extended outside the building where there is less than 18" (457 mm) vertical overall, allowing for obstructions such as ducts, beams and piping and 30" (762 mm) of horizontal clearance from the means of access to such cleanout.
- No under-floor cleanout must be more than exceeding 5 ft. (1524 mm) from an access door, trap door or crawl hole.
- Cleanout fittings size: see Table 707.1
- Cleanouts must be provided for pressure drainage systems.
- Countersunk cleanout plugs must be installed where raised heads are a hazard.
- Where a hubless blind plug is used for a required cleanout, the complete coupling and plug must be accessible for removal or replacement.

DRAINAGE FIXTURE UNIT VALUES *(Based on UPC Table 702.1)*

Fixture	Min. Size Trap & Trap Arm	Private	Public	Assembly
Bathtub or Combination Bath/Shower (fill)	1½"	2.0	2.0	—
Bidet	1¼"	1.0	—	—
Clothes Washer, domestic	2"	3.0	3.0	3.0
Dishwasher, domestic	1½"	2.0	2.0	2.0
Drinking Fountain or Water Cooler	1¼"	0.5	0.5	1.0
Lavatory	1¼"	1.0	1.0	1.0
Kitchen, domestic	1½"	2.0	2.0	—
Shower, single-head trap	2	2.0	2.0	2.0
Urinal, integral trap 1.0 GPF	2	1.0	1.0	1.0
Water Closet, 1.6 GPF Gravity Tank	3	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Tank	3	3.0	4.0	6.0

Note: This is an abridged table. For complete table see 2021 UPC Table 702.1.

MAX. DRAINAGE FIXTURE UNITS FOR A TRAP & TRAP ARM *(Based on UPC Table 702.2(1))*

Size of Trap & Trap Arm (inches)	Drainage Fixture Unit Values (DFU)
1¼"	1 unit
1½"	3 units
2	4 units
3	6 units
4	8 units

DISCHARGE CAPACITY IN GALLONS PER MINUTE FOR INTERMITTENT FLOW ONLY* *(Based on UPC Table 702.2(2))*

Gallons Per Minute (GPM)	Fixture Units
Up to 7½"	Equals 1 fixture unit
Greater than 7½" to 15	Equals 2 fixture units
Greater than 15 to 30	Equals 4 fixture units
Greater than 30 to 50	Equals 6 fixture units

*Discharge capacity exceeding 50 gallons per minute must be determined by the authority having jurisdiction.

MAX. UNIT LOADING & LENGTH *(Based on UPC Table 703.2)*

Size of Pipe (inches)	1¼	1½	2	3	4	5	6	8	10	12
Drainage Piping Maximum Units										
Vertical	1	2[2,7]	16[3]	48[4]	256	600	1380	3600	5600	8400
Horizontal	1	1[7]	8[3]	35[4]	216[5]	428[5]	720[5]	2640[5]	4680[5]	8200[5]
Drainage Piping Maximum Length										
Vertical (ft.)	45	65	85	212	300	390	510	750	-	-
Horizontal	Unlimited									
Vent Piping – Horizontal & Vertical[6] – Maximum Units & Lengths										
Units	1	8[3]	24	84	256	600	1380	3600	-	-
Lengths (ft.)	45	60	120	212	300	390	510	750	-	-

[1]Excluding trap arm. [2]Except sinks, urinals and dishwashers - exceeding 1 fixture unit.
[3]Except for six-unit traps or water closets. [4]Up to 5 water closets or 5 six-unit traps.
[5]Based on ¼" per ft. (20.8 mm/m) slope. For 1/8" (10.4 m/m) per ft. slope, multiply horizontal fixture units by a factor of 0.8.
[6]A single vent must be no less than 1¼" nor less than 1/2 the diameter of the drain it is connected to.
[7]Up to 8 public lavatories may be on a 1½" (40 mm) vertical branch or horizontal sanitary branch sloped at ¼" per ft. (20.8 mm/m).

CAULKING FERRULES *(Based on UPC Table 701.6)*

Pipe Size (inches)	Inside Diameter (inches)	Length (inches)	Min. Weight Each	
			Pounds	Ounces
2	2¼	4½	1	0
3	3¼	4½	1	12
4	4¼	4½	2	8

CLEANOUTS *(Based on UPC Table 707.1)*

Size of Pipe (inches)	Size of Cleanout (inches)	Threads (per inches)
1½"	1½"	11½"
2	1½"	11½"
2½"	2½"	8
3	2½"	8
4 & larger	3½"	8

SOLDERING BUSHINGS *(Based on UPC Table 701.7)*

Pipe Size (inches)	Min. Weight Each	
	Pounds	Ounces
1¼	0	6
1½	0	8
2	0	14
2½	1	6
3	2	0
4	3	8

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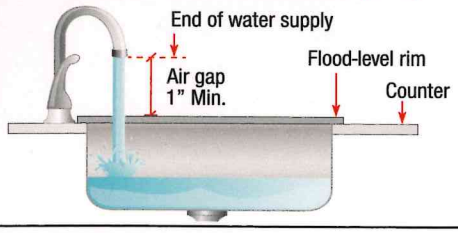
INDIRECT WASTES

AIR GAP OR AIR BREAK *(801.2)*



AIR GAP OR AIR BREAK *(Based on UPC 801.2)*

- Indirect waste piping must discharge into the building drainage system through an air gap or air break.
- Where a drainage air gap is required, the vertical distance as measured from the lowest point of the indirect waste pipe or the fixture outlet to the flood-level rim of the receptor must be a min. of 1" (25.4 mm).

CONNECTIONS FROM WATER DISTRIBUTION SYSTEM *(Based on UPC 801.5)*

- Indirect waste connections must be provided for drains, overflows or relief pipes from potable water pressure tanks, water heaters, boilers and similar equipment that is connected to the potable water distribution system.
- Such indirect waste connections must be made using a water-distribution air gap. See Table 603.3.1.

PIPE CONNECTIONS IN BLOWOFF CONDENSERS & SUMPS (inches) *(Based on UPC Table 810.1)*

Boiler Blowoff	Water Outlet	Vent
3/4*	3/4*	2
1	1	2½
1¼	1¼	3
1½	1½	4
2	2	5
2½	2½	6

*For boilers of 100 sq. ft. heating surface or less. SI units: 1" (25 mm)

MIN. CONDENSATE PIPE SIZE *(Based on UPC Table 814.3)*

Equipment Capacity in Tons of Refrigeration	Min. Condensate Pipe Diameter
Up to 20	3/4
21 - 40	1
41 - 90	1¼
91 - 125	1½
126 -250	2

INDIRECT WASTE PIPING
(Based on UPC 803.3 & 805.1)

- The size of indirect waste piping must be in accordance with other sections of this code applicable to drainage and vent piping.
- No vent from indirect waste piping must combine with a sewer-connected vent, but must extend separately to the outside air.
- Indirect waste pipes exceeding 5 ft. (1524 mm) but less than 15 ft. (4572 mm) long must be directly trapped, but such traps don't need to be vented.
- Indirect waste pipes less than 15 ft. (4572 mm) long must be at least the diameter of the drain outlet or tailpiece of the fixture, appliance or equipment served and at least 1/2" (15 mm).
- Angles and changes of direction in indirect waste pipes must be provided with cleanouts to permit flushing and cleaning.
- Plumbing fixtures or other receptors receiving the discharge of indirect waste pipes must be approved for the use, of a shape and capacity to prevent splashing or flooding, and must be where they are accessible for inspection and cleaning.
- Indirect waste connections must be provided for drains, overflows or relief vents from the water supply and no piping or equipment carrying wastes or producing wastes or other discharges under pressure may be directly connected to a part of the drainage system.

INDIRECT WASTE RECEPTORS
(Based on UPC 804.1)

- Plumbing fixtures or other receptors receiving the discharge of indirect waste pipes must:
  - be approved for the use proposed.
  - be of a shape and capacity to prevent splashing or flooding.
  - be located where they are readily accessible for inspection and cleaning.
- A standpipe receptor for a clothes washer must extend between 18" (457 mm) and 30" (762 mm) above its trap.
- A trap for a clothes washer standpipe receptor must be roughed in between 6" (152 mm) and 18" (457 mm) above the floor.
- No trap for a clothes washer standpipe receptor may be installed below the floor.
- No indirect waste receptor may be installed in a toilet room, closet, cupboard, storeroom or in a portion of a building not in general use by the occupants.
- Standpipes for clothes washers may be installed in toilet and bathroom areas if the clothes washer is installed in the same room.

TERM ALERT!

Air Gap, Drainage: The unobstructed vertical distance through the free atmosphere between the lowest opening from a pipe, plumbing fixture, appliance or appurtenance conveying waste to the flood-level rim of the receptor.

STEAM & HOT WATER DRAINAGE CONDENSERS & SUMPS *(Based on UPC 810.0)*

- Steam pipes must not be directly connected to plumbing or drainage system.
- Water with a temperature above 140°F (60°C) must not be discharged under pressure directly into a drainage system.
- Pipes from boilers must discharge by means of indirect waste piping as determined by the Authority Having Jurisdiction or the boiler manufacturer's recommendations.
- Pipes from boilers may be indirectly connected by discharging into an open or closed condenser or an intercepting sump to prevent the direct entrance of such water into the drainage system.
- Closed condensers or sumps must be given a vent that must be taken off the top and extended separately, full size above the roof.
- Condensers and sumps must be properly trapped at the outlet with a deep seal trap extending to within 6" (152 mm) of the bottom of the tank.
- The top of the deep seal trap must have a 3/4" (19.1 mm) opening at the highest point of the trap to be a siphon breaker.
- Outlets must be taken off from the side in a way to allow a waterline to be maintained that will permanently occupy at least 1/2 the capacity if the condenser or sump.
- Inlets must enter above the waterline.
- Wearing plate or baffles must be installed in the tank to protect the shell.
- The sizes of the blowoff line inlet, the water outlets and the vent must comply with Table 810.0.
- The condensers receiving steam or hot water under pressure must have their contents pass through an open sump before entering the drainage system.

SUMPS, CONDENSERS & INTERCEPTING TANKS *(Based on UPC 810.2; 810.3; 810.4)*

- Sumps, condensers or intercepting tanks that are constructed of concrete must have walls and bottom a min. of 4" (102 mm) thick and the inside must be cement plastered a min. of 1/2" (12.7 mm) thick.
- Condensers constructed of metal must at least No. 12 U.S. standard gauge (0.109") (2.77 mm) and such metal condensers must be protected from external corrosion by an approved bituminous coating.
- Sumps and condensers must be provided with suitable means of access for cleaning.
- Sumps and condensers must contain a volume at least 2x the volume of the water removed from the connected boiler(s) where the normal water level of such boiler(s) is reduced at least 4" (102 mm).
- An indirect waste interceptor receiving discharge-containing particles that can clog the receptor drain must have a readily removable beehive strainer.

TRAPS

TRAPS *(Based on UPC 1001.2, 1005.1)*

- Each plumbing fixture must be separately trapped by an approved type of liquid seal trap.
- The liquid seal must be 2" (51 mm) & 4" (102 mm) long.
- One trap is permitted per trap arm.
- Food waste disposers installed in a set of restaurant, commercial or industrial sinks must be connected to a separate trap.
- Each domestic clothes washer and each laundry tub must be connected to a separate and independent trap.
- A trap serving a laundry tub can also receive the waste from a clothes washer set adjacent to it.
- The vertical distance between a fixture outlet and the trap weir must be as short as practicable.
- The tailpiece from a fixture must not exceed 24" (610 mm) in length.
- One trap can serve a set of 3 single compartment sinks or laundry tubs of the same depth or 3 lavatories immediately adjacent to each other and in the same room where the waste outlets are no more than 30" (762 mm) apart.
- The trap must be centrally located where 3 compartments are installed.

TRAPS (CONT.)
(Based on UPC 1003)

- Each trap, except for traps within an interceptor or similar device must be self cleaning.
- Traps must be of ABS, cast-brass, cast-iron, lead, PP, PVC or other approved material.
- A maximum of one approved slip joint fitting must be permitted to be used on the outlet side of a trap and no tubing trap must be installed without a listed tubing trap adapter.
- Listed plastic trap adapters are permitted to be used to connect listed metal tubing traps.
- The size (diameter) of a trap for a given fixture must be sufficient to drain the fixture rapidly but in no case less than nor more than 1 pipe size larger than given in Table 702.1.
- The trap must be the same size as the trap arm to which it is connected.

TRAPS PROTECTED BY VENT PIPES *(Based on UPC 1002)*

- Each plumbing fixture trap must be protected against siphonage, backpressure and air circulation must be assured throughout the drainage system by means of a vent pipe.
- Each fixture trap must have a protecting vent so located that the developed length of the trap arm from the trap weir to the inner edge of the vent must be within the distance given in Table 1002.2 but in no case less than two times the diameter of the trap arm.
- A trap arm is permitted to change direction without the use of a cleanout if the change of direction does not exceed 90° F.
- Horizontal changes in direction of trap arms must comply with Section 706.3.

TERM ALERT!

Trap: a fitting or device that prevents the back passage of air without materially affecting the flow of sewage or waste-water through it.

HORIZONTAL LENGTHS OF TRAP ARMS* *(Based on UPC Table 1002.2)*

Trap Arm Pipe Diameter	Distance Trap to Vent Minimum	Length Maximum
1¼"	2½"	30"
1½"	3"	42"
2"	4"	60"
3"	6"	72"
4"	8"	120"
Exceeding 4"	2 x Diameter	120"

*Except for water closets and similar fixtures.

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STORM DRAINAGE

STORM DRAINAGE *(Based on UPC 1101.2)*

- Roofs, paved areas, yards, courts, courtyards, vent shafts, light wells or similar areas having rainwater, must be drained into a separate storm sewer system or into a combined sewer system where a separate system is not available.
- In one- and two-family dwellings, storm water is permitted to be discharged on flat areas, such as streets or lawns, so long as the storm water flows away from the building and away from adjoining property and does not create a nuisance.

SUBSOIL DRAINS *(Based on UPC 1101.6)*

- Buildings having basements, cellars, crawl spaces or floors below grade must have subsoil drains around the perimeter.
- Such subsoil drains are permitted to be positioned inside or outside of the footing.
- Subsoil drains must be of perforated or open-jointed approved drain tile or pipe, 3" (80 mm) Min. in diameter
- Subsoil drains must be laid in gravel, slag, crushed rock, approved 3/4" (19.1 mm) crushed, recycled glass aggregate or other approved porous material with not less than 4" (102 mm) surrounding the pipe.
- Provide filter media in exterior subsoil piping.
- Subsoil drains must be piped to a storm drain, an approved water course, the front street curb or gutter, an alley or the discharge must be conveyed to the alley by a concrete gutter.
- Where a continuously flowing spring or groundwater is encountered, subsoil drains must be piped to a storm drain or an approved water course.
- Where it is not possible to convey the drainage by gravity, subsoil drains must discharge to an accessible sump provided with an approved automatic electric pump.
- Sump size: 15" (381 mm) Min. in diameter and 18" (457 mm) deep.
- The sump must be provided with a fitted cover.
- The sump pump must have an adequate capacity to discharge water coming into the sump as it accumulates to the required discharge point and the capacity of the pump must be a min. of 15 (0.95 L/s)gpm.
- The discharge piping from the sump pump must be a min. of 1½" (40 mm) in diameter and have a union or other approved quick-disconnect assembly to make the pump accessible for servicing.
- Subsoil drains subject to backflow where discharging into a storm drain must be provided with a backwater valve in the drain line so located as to be accessible for inspection and maintenance.

ROOF DRAINS *(Based on UPC 1102)*

- Roof drains must be constructed of aluminum, cast-iron, copper alloy of not more than 15% zinc, leaded nickel bronze, stainless steel, ABS, PVC, polypropylene, polyethylene or nylon.
- Roof drains must have domed strainers.
- Connection between the roof and roof drains that pass through the roof and into the interior of the building must be made watertight by the use of proper flashing material.
- Lead flashing: 4 lb/ft.^{2} (19 kg/m^2) Min.
- Copper flashing: 12 ozft.^{2} (3.7 kg/m^2) Min.

ROOF DRAINAGE *(Based on UPC 1101.12)*

Primary Roof Drainage

- Roof areas must be drained by roof drains or gutters.
- The location and sizing of drains and gutters must be coordinated with the structural design and pitch of the roof.
- Roof drains, gutters, vertical conductors or leaders and horizontal storm drains for primary drainage must be sized based on a storm of 60 minutes duration and 100 year return period.

Secondary Drainage (Emergency Drainage)

- Secondary roof drainage must be provided by an open-sided roof or scuppers where the roof perimeter construction extends above the roof in such a manner that water will be entrapped.
- An open-sided roof or scuppers must be sized to prevent the depth of ponding water from exceeding that for which the roof was designed.
  Note: Same applies to height of roof drain.
- Scupper openings: 4" (102 mm) Min. high with a width equal to the circumference of the roof drain required for the area served, sized according with Table 1103.1.
- Location: 2" (51 mm) Min. above roof surface.
- Must connect to a piping system in through a separate piping system or a combined system.

SIDE WALLS DRAINING ONTO ROOF *(Based on UPC 1103)*

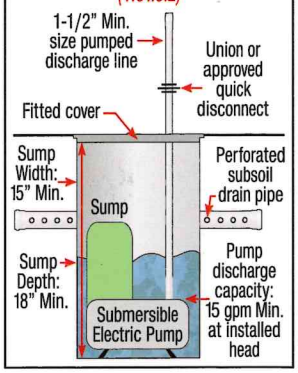
Where vertical walls project above a roof to permit storm water to drain into the roof area below, the adjacent roof area is permitted to be computed from Table 1103.1, as follows:

1. **For one wall:** add 50% of the wall area to the roof area figures.
2. **For two adjacent walls of equal height:** add 35% of the total wall areas.
3. **For two adjacent walls of unequal height:** add 35% of the total common height and add 50% of the remaining height of the highest wall.
4. **For two opposite walls of same height:** add no additional area.
5. **For two opposite walls of differing heights:** add 50% of the wall area above the top of lower wall.
6. **For walls on three sides:** add 50% of the area of the inner wall below the top of the lowest wall, plus an allowance for the area of the wall above the top of the lowest wall, in accordance with #3 & #5 above.
7. **For walls on four sides:** no allowance for wall areas below the top of the lowest wall – add for areas above the top of the lowest wall in accordance with #1, #3, #5 & #6 above.

CONTROLLED-FLOW ROOF DRAINAGE *(Based on UPC 1105)*

- A roof drainage system is permitted to be sized by controlled flow and storage of storm water on the roof if certain conditions are met.
- Additionally, see Table 1105.1(1) & (2).

SUBSOIL SUMP PUMP *(1101.6.2)*



CONTROLLED-FLOW MAX. ROOF WATER DEPTH *(Based on UPC Table 1105.1(1))*

Roof Rise (inches)	Max. Water Depth at Drain (inches)
Flat	3
2	4
4	5
6	6

DISTANCE OF SCUPPER BOTTOMS ABOVE ROOF *(Based on UPC Table 1105.1(2))*

Roof Rise (inches)	Above Roof Level At Drain (inches)
Flat	3
2	4
4	5
6	6

SIZING ROOF DRAINS, LEADERS & VERTICAL RAINWATER PIPING *(Based on UPC Table 1103.1)*

Size of Drain, Leader or Pipe	Flow	Maximum Allowable Horizontal Projected Roof Areas at Various Rainfall Rates (square feet)											
inches	gpm	1 (in/h)	2 (in/h)	3 (in/h)	4 (in/h)	5 (in/h)	6 (in/h)	7 (in/h)	8 (in/h)	9 (in/h)	10 (in/h)	11 (in/h)	12 (in/h)
2	30	2880	1440	960	720	575	480	410	360	320	290	260	240
3	92	8800	4400	2930	2200	1760	1470	1260	1100	980	880	800	730
4	192	18400	9200	6130	4600	3680	3070	2630	2300	2045	1840	1675	1530
5	360	34600	17300	11530	8650	6920	5765	4945	4325	3845	3460	3145	2880
6	563	54000	27000	17995	13500	10800	9000	7715	6750	6000	5400	4910	4500
8	1208	116000	58000	38660	2900	23200	19315	16570	14500	12890	11600	10545	9600

IDENTIFICATION OF POTABLE & NONPOTABLE WATER SYSTEMS

IDENTIFICATION OF POTABLE & NONPOTABLE WATER SYSTEMS *(Based on UPC 601.3)*

Classification	Background Color**	Color of Letters	Wording
Potable Water	Green	White	"POTABLE WATER"
Nonpotable Water Systems	Yellow	Black	"CAUTION: NONPOTABLE WATER, DO NOT DRINK."
Gray Water Systems	Purple*	Black	"CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK."
Reclaimed (recycled) Water Systems	Purple*	Black	"CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK."
On-site Treated Water Systems	Purple*	Black	"CAUTION: ON-SITE TREATED NONPOTABLE WATER, DO NOT DRINK."
Rainwater Catchment Systems	Purple*	Black	"CAUTION: NONPOTABLE RAINWATER WATER, DO NOT DRINK."
Outlets on Nonpotable Water Lines	Purple*	Black	"CAUTION: NONPOTABLE WATER, DO NOT DRINK."

* The purple must be Pantone Color No. 512, 522C or equivalent.

** The background color and required information must be indicated every 20 ft. but not less than once per room and must be visible from the floor level.

COLOR & INFORMATION *(Based on UPC 601.3.2)*

- Each system must be identified with a colored pipe or band and coated with paints, wraps and materials compatible with the piping.
- The background color and required information must be indicated every 20 ft. but not less than once per room and must be visible from the floor level.

MIN. LENGTH OF COLOR FIELD & SIZE OF LETTERS *(Based on UPC Table 601.3.2)*

Outside Diameter of Pipe or Covering	Min. Length of Color Field	Min. Size of Letters
½" to 1¼"	8"	½"
1½" to 2"	8"	¾"
2½" to 6"	12"	1¼"
8" to 10"	24"	2½"
Over 10"	32"	3½"

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