

# Houston Amendments to the 2012 Uniform Plumbing Code



Adopted by Ord. No. -----

Passed ---

Effective -----

**DRAFT FOR PUBLIC COMMENT – NOT YET ADOPTED**

# Proposed Houston Amendments to 2012 UPC

## CHAPTER 2 DEFINITIONS

### Section 203.0

- A -

**Authority Having Jurisdiction** ~~ó The organization, office, or individual responsible for The jurisdiction~~ Director of the Department of Public Works and Engineering enforcing the requirements of a code or standard, or for approving equipment, materials, installations, or procedures. The Authority Having Jurisdiction shall be a federal, state, local, or other regional department or an individual such as a plumbing official, mechanical official, labor department official, health department official, building official, or others having statutory authority. In the absence of a statutory authority, the Authority Having Jurisdiction may be some other responsible party. This definition shall include the Authority Having Jurisdiction's duly authorized representative or representatives.

### Section 204.0

- B -

**Bathroom.** A room equipped with a shower, bathtub, or combination bath/shower.

**Bathroom Group.** ~~A group of fixtures consisting of a~~ Any combination of fixtures, not to exceed one water closet, one or two lavatories, and either a one bathtub, a or one combination bath/shower, or a and one shower, and may include a ~~urinal or~~ bidet and an emergency floor drain.

### Section 205.0

- C -

**City Code** - The Code of Ordinances, Houston, Texas.

### Section 206.0

- D -

**Dry Vent** - A vent that does not receive the discharge of any sewage or waste.

### Section 208.0

- G -

**Gravity Grease Interceptor** - A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oils, and greases (FOG) from a wastewater discharge and is identified by volume, 30 minute retention time, baffle(s), not less than two compartments, a total volume of not less than ~~300~~ 500 gallons (1135 L), and gravity separation. [These interceptors comply with the requirements of Chapter 10 or are designed by a registered professional engineer.] Gravity grease interceptors are generally installed outside.

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**Section 210.0**

**- H -**

**Health Department – The jurisdiction of Health and Human Services Department.**

**Section 214.0**

**- L -**

**~~Lot - A single or individual parcel or area of land legally recorded or validated by other means acceptable to the Authority Having Jurisdiction on which is situated a building or which is the site of any work regulated by this code, together with the yards, courts, and unoccupied spaces legally required for the building or works, and that is owned by or is in the lawful possession of the owner of the building or works. A portion or parcel of land considered as a unit.~~**

**Section 217.0**

**- O -**

**On-Site Treated Nonpotable Water.** Nonpotable water, including gray water that has been collected, treated, and intended to be used on-site and is suitable for direct beneficial use. The level of treatment and quality shall be approved by the Texas Commission of Environmental Quality.

**Section 220.0**

**- R -**

**Reclaimed (Recycled) Water.** Nonpotable water provided by a water/wastewater utility that, as a result of tertiary treatment of domestic wastewater, meets requirements of the public health Authority Having Jurisdiction for its intended uses. The level of treatment and quality of the on-site recycled water shall be approved by the Texas Commission on Environmental Quality.

**Section 225.0**

**- V -**

**Vent.** See Plumbing vent; Dry Vent; Wet Vent.

CHAPTER 3  
GENERAL REGULATIONS

**301.2 Alternate Materials and Methods of Construction Equivalency.** Nothing in this code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this code. Technical documentation shall be submitted to the Authority Having Jurisdiction to demonstrate equivalency. The Authority Having Jurisdiction shall have the authority to approve or disapprove the system method or device for the intended purpose ~~when determined to be equivalent or superior.~~

~~However, the exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of said Authority Having Jurisdiction. Any alternate material or method of construction so approved shall not be considered as conforming to the requirements and/or intent of this code for any purpose other than that granted by the Authority Having Jurisdiction when the submitted data does not prove equivalency.~~

**301.3 Reserved. See Chapter 19 of the City Code. Flood Hazard Resistance.**

~~**301.3.1 General.** Plumbing systems shall be located above the design flood elevation.~~

~~**Exception:** Plumbing systems are permitted to be located below the design flood elevation provided that the systems are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation.~~

~~**301.3.2 Flood Hazard Areas Subject to High Velocity Wave Action.** Plumbing systems in buildings located in flood hazard areas subject to high velocity wave action shall meet the requirements of Section 301.3.1, and the plumbing systems, pipes, and fixtures shall not be mounted on or penetrate through walls that are intended to breakaway under flood loads as required by the building code.~~

**319.2 Med Gas Systems.** All brazing on medical gas systems shall be performed by certified installers meeting the requirements of the Texas Board of Plumbing Examiners.

CHAPTER 4  
PLUMBING FIXTURES AND FIXTURE FITTINGS

**403.2 Water Closets.** Water closets, either flush tank, flushometer tank, or flushometer valve operated, shall have an average consumption not to exceed ~~4.6~~ 1.28 gallons (~~6.1~~ 4.85 L) of water per flush or be a high efficiency fixture.

**403.3 Urinals.** Urinals shall have an average water consumption not to exceed ~~4~~ .5 gallon (~~4~~ 2 L) of water per flush.

**403.4 Metered Faucets.** Self-closing or self-closing metering faucets shall be installed on lavatories intended to serve the transient public, such as those in, but not limited to, service stations, train stations, airports, restaurants, and convention halls. Metered faucets shall deliver a maximum of 0.26 gallons (0.98 L) of water per use.

**Exception:** When required by the Health Department to meet minimum temperature requirements.

~~**422.1 Fixture Count.** Plumbing fixtures shall be provided for the type of building occupancy and in the minimum number shown in Table 422.1. The total occupant load and occupancy classification shall be determined in accordance with the building code. Occupancy classification not shown in Table 422.1 shall be considered separately by the Authority Having Jurisdiction.~~

~~The minimum number of fixtures shall be calculated at 50 percent male and 50 percent female based on the total occupant load. Where information submitted indicates a difference in distribution of the sexes such information shall be used in order to determine the number of fixtures for each sex. Once the occupancy load and occupancy are determined, Table 422.1 shall be applied to determine the minimum number of plumbing fixtures required. Where applying the fixture ratios in Table 422.1 results in fractional numbers, such numbers shall be rounded to the next whole number. For multiple occupancies, fractional numbers shall be first summed and then rounded to the next whole number.~~

Each building shall be provided with sanitary facilities as prescribed in Chapter 29 of the City of Houston Building Code.

[note: Table will be copied here for reference]

CHAPTER 5  
WATER HEATERS

**507.13 Installation in Garages.** Appliances in garages and in adjacent spaces that open to the garage and are not part of the living space of a dwelling unit shall be installed so that burners, ignition sources and burner-ignition devices are located not less than 18 inches (457 mm) above the floor unless listed as flammable vapor ignition resistant. [NFPA 54:9.1.10.1]

**508.3.2 Access Type.** The inside means of access shall be a permanent, ~~or fold-away inside stairway or ladder, terminating in an enclosure, scuttle, or trap door.~~ Such ~~scuttles or trap doors shall be not less than 22 inches by 24 inches (559 mm by 610 mm) in size.~~ pull-down stairway with a clear opening not less than 22 inches in width and a load capacity of not less than 350 pounds or a ladder permanently fastened to the building. Such a ladder or stairway shall not be more than eighteen (18) feet (5486 mm) in length between landings and not less than fourteen (14) inches (355 mm) in width and shall open easily and safely under all conditions, especially snow; and shall be constructed so as to permit access from the roof side unless deliberately locked on the inside. The ladder shall have rungs spaced not more than fourteen (14) inches (355 mm) center to center and not less than six (6) inches (152.4 mm) from the face of the wall. Each stile is to extend thirty (30) inches (762 mm) above the surface to be reached, or as high as possible, if height is limited. Permanent ladders for water heater access need not be provided at parapets or walls less than thirty (30) inches (762 mm) in height.

Not less than 6 feet (1829 mm) of clearance shall be between the access opening and the edge of the roof or similar hazard, or rigidly fixed rails or guards not less than 42 inches (1067 mm) in height shall be provided on the exposed side. Where parapets or other building structures are utilized in lieu of guards or rails, they shall be not less than 42 inches (1067 mm) in height. [NFPA 54:9.4.3.3]

**508.4 Appliances in Attics and Under-Floor Spaces.** An attic or under-floor space in which an appliance is installed shall be accessible through an opening and passage-way not less than as large as the largest component of the appliance, and ~~not less than 22 inches by 30 inches (559 mm by 762 mm).~~ shall be made accessible by a pull-down stairway with a clear opening not less than 22 inches in width and a load capacity of not less than 350 pounds or a ladder permanently fastened to the building. Such a ladder or stairway shall not be more than eighteen (18) feet (5486 mm) in length between landings and not less than fourteen (14) inches (355 mm) in width. The ladder shall have rungs spaced not more than fourteen (14) inches (355 mm) center to center and not less than six (6) inches (152.4 mm) from the face of the wall. Each stile is to extend thirty (30) inches (762 mm) above the surface to be reached, or as high as possible, if height is limited.

**Exception:** A portable ladder may be used for access for water heaters in attics in buildings with lift out ceilings.

CHAPTER 6  
WATER SUPPLY AND DISTRIBUTION

603.5.8.1 Water used for cooling of equipment or similar purposes shall not be returned to the potable water distributing system. When discharged to the building drainage system, wastewater shall be discharged through an indirect waste pipe or air gap.

603.5.19.2 Water Treatment Units. Reverse osmosis drinking water treatment units shall meet the requirements of the appropriate standards referenced in Table 14-1. Waste or discharge from reverse osmosis or other types of water treatment units shall enter the drainage system through an airgap. Water supply for water softeners shall be protected by a double check valve assembly.

**604.11 Lead Content.** Water pipe and fittings with a lead content which exceeds 8 .25 percent shall be prohibited in piping systems used to convey potable water.

606.8 Draindown valve. A means for draining the building piping shall be installed at each building entry. The drain down valve shall not be installed in an underground service pipe, but shall be installed at a location in the pipe above ground before the pipe enters the building.

**607.0 Gravity Supply Water Tanks.**

**607.1 General.** Gravity tanks for potable water shall be tightly covered, and have not less than a sixteen (16) square inch (10,323 mm<sup>2</sup>) overflow screened with copper screen having not less than fourteen (14) nor more than eighteen (18) openings per linear inch (25.4 mm).

**607.2 Potable Water-supply Tanks.** Potable water tanks, interior tank coatings, or tank lines intended to supply drinking water shall be in accordance with NSF 61. All potable water-supply tanks shall be properly covered or sealed to prevent entrance of foreign material into the water supply. Soil or waste lines shall not pass directly over nonpressure water-supply tanks or over manholes in pressure tanks.

**607.3 Cleaning, Painting, Repairing Water Tanks.** A potable water-supply tank for domestic purposes shall not be lined, painted or repaired with any material that is not in compliance with the current ANSI/AWWA D102 Standards and has not been approved by the Authority Having Jurisdiction.

**607.4 When Required.** When the water pressure from the public water main during flow is insufficient to supply fixtures that are likely to be in simultaneous operation, the supply shall be from a gravity house tank, pressure tank, or booster system.

No pumps are permitted to take suction directly from a jurisdiction main.

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**Exception:** Pumps may be allowed to take suction from the jurisdiction main when approved by the Authority Having Jurisdiction if the main is of sufficient size as determined and approved by the Water Engineering Division of the jurisdiction's Public Works and Engineering Department.

**607.5 Overflow for Water-Supply Tanks.** Overflow pipes for gravity tanks shall discharge above and within 6 inches of a roof drain, floor drain or catch basin, or they shall discharge into an open hub drain or water supplied sink. Adequate overflow pipes properly screened against the entrance of insects and vermin shall be provided.

**607.6 Drains.** Water-supply tanks shall be provided with valved drain lines located at their lowest point and discharged as indirect waste or as required for overflow pipes.

### **607.7 Tanks. Below-rim supply.**

- (1) Where a potable water outlet terminates below the rim of a tank, the tank shall have an overflow of diameter not less than that given in the following table:

**Sizes of Overflow Pipes for Water-supply Tanks**

<u>Maximum Capacity of Water Supply Line to Tank</u>	<u>Diameter of Overflow Pipe (inches ID)</u>	<u>Maximum Capacity of Water-supply Line to Tank</u>	<u>Diameter of Overflow Pipe (inches ID)</u>
<u>0-50 gpm</u>	<u>2</u>	<u>400-700 gpm</u>	<u>5</u>
<u>50-150 gpm</u>	<u>2½</u>	<u>700-1,000 gpm</u>	<u>6</u>
<u>100-200 gpm</u>	<u>3</u>	<u>over 1,000 gpm</u>	<u>8</u>
<u>200-400 gpm</u>	<u>4</u>		

- (2) The potable water inlet to the tank or vat shall terminate a distance of not less than one and one half times the height to which water can rise in the tank above the top of the overflow.

- (3) The distance from the inlet to the high water level shall be measured from the critical point of the potable water supply overflow.

**607.8 Construction of Tanks.** Tanks used for potable water supply or to supply standpipes for fire-fighting equipment only shall be equipped with tight vermin-proof covers. Such tanks shall be vented with a return bend vent pipe having an area not less than one half of the area of the overflow riser. The vent opening and overflow riser shall be covered with a metallic screen of not less than 100 mesh. To provide an air gap, the top of the overflow riser shall not be less than 2 inches (50.8 mm) below the fill connection. The potable water supply shall be protected from contamination by the fire standpipe supply by a divided suction tank or a separate tank for potable water supply or by installing on the downstream side of the fire pumps an approved backflow preventer. When a divided tank is used, the tank shall be divided by a double wall

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partition extending to the top of the tank, and each wall shall be sealed with a continuous weld between the wall and four sides of the tank. There shall be an air space between the walls of the partition of not less than four inches (100.16 mm) with an opening (not threaded) at the bottom of the partition to give visual evidence of loss of integrity of the walls of the partition (see Figure 6.5). The air space between the partition walls shall be given a one PSI air test with all welds soaped to assure no leaks in the partition chamber. The tank fabricator shall furnish a certificate of compliance with this test and a metal nameplate on the tank giving the name of the fabricator, the date of fabrication, and a serial number. All tanks for potable water service shall be constructed of new material to assure against possibility of contamination from previous usage.

**607.9 Piping.** Water piping from potable gravity and suction tanks to the suction side of the water pumps and from the discharge end of the pumps to the check valve shall be galvanized.

**607.10 Vacuum Breaker.** Pressure tanks used for supplying water to the potable water distribution system, to both the fire standpipes and the potable system or to supply standpipes for fire equipment only, shall be equipped with an acceptable vacuum breaking device located on the top of the tank. The air inlet of this device shall be covered with a metallic screen of not less than 100 mesh.

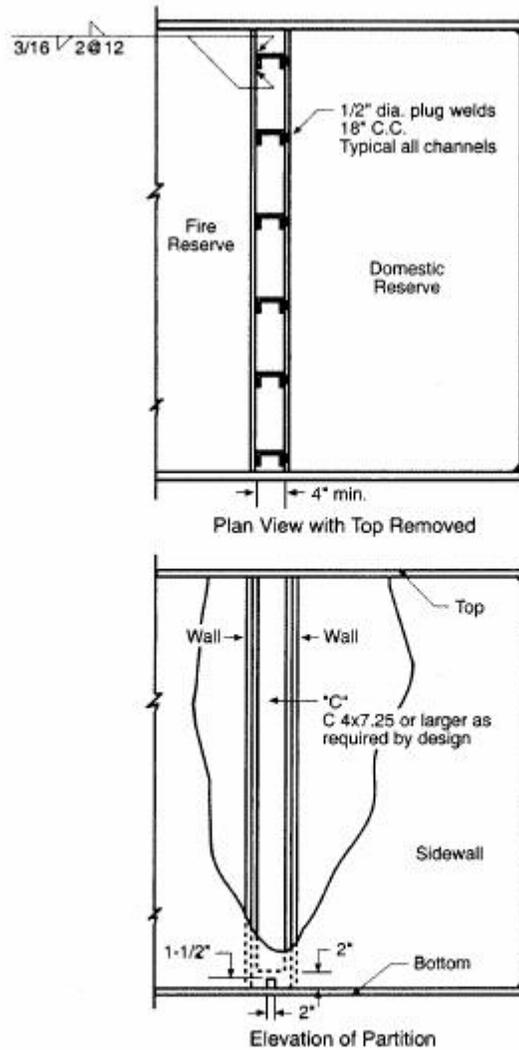
**609.3 Under Concrete Slab.** Water piping installed within a building and in or under a concrete floor slab resting on the ground shall be installed in accordance with the following requirements:

- (1) Ferrous piping shall have a protective coating of an approved type, machine applied and in accordance with recognized standards. Field wrapping shall provide equivalent protection and shall be restricted to those short sections and fittings necessarily stripped for threading. Zinc coating (galvanizing) shall not be deemed adequate protection for piping or fittings. Approved nonferrous piping shall not be required to be wrapped.
- (2) Copper tubing shall be installed without joints where possible. Where joints are permitted, they shall be brazed, and fittings shall be wrought copper.

For the purpose of this section, "within a building" shall mean within the fixed limits of the building foundation.

**609.3.1 Sleeves through floors.** Approved materials shall be installed without joints and must be sleeved where they penetrate the floor. Pipe sleeves shall have a minimum wall thickness of 1/16 inch. No portion of the water pipe shall be in contact with the concrete. In water services that are 3 inches or larger, one fitting may be installed under the slab within 5 feet of the exterior of the building. The fitting shall be installed to allow for replacement without any damage being done to the structure. Galvanized pipe shall not be used in or under slabs.

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1. Tank must have a minimum of a 24-inch manway on each compartment.
2. Tank must have a ladder on the outside to access both manways.
3. Tank must have interior ladders inside to access bottom of tank from each manway.

Figure 6-1

[Re- number to Figure 6.5]

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### CHAPTER 7 SANITARY DRAINAGE

**701 .1 Drainage Piping.** Materials for drainage piping shall be in accordance with one of the referenced standards in Table 701.1 except that:

(1) No galvanized wrought-iron or galvanized steel pipe shall be used underground and shall be kept not less than 6 inches (152 mm) aboveground.

(2) ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Table 1401.1 and Chapter 15 "Fires top Protection." Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of a maximum of 25 and a smoke-developed index of a maximum 50, where tested in accordance with ASTM E 84 and UL 723.

(3) No vitrified clay pipe or fittings shall be used aboveground or where pressurized by a pump or ejector.

They shall be kept not less than 12 inches (305 mm) belowground.

(4) Copper tube for drainage and vent piping shall have a weight of not less than that of copper drainage tube Type DWV.

(5) Stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6

inches (152 mm) aboveground.

(6) Cast-iron soil pipe and fittings shall be listed and tested in accordance with standards referenced in Table 1401.1. Such pipe and fittings shall be marked with country of origin and identification of the original manufacturer in addition to markings required by referenced standards.

(7) SDR 35 plastic pipe in sizes 8 inches or larger.

**701.6 Below slab.** Piping installed below a slab on grade or matt type foundation shall be not less than two (2) inches in diameter.

**704.3 Commercial Dishwashing Machines and Sinks.** Pot sinks, scullery sinks, dishwashing sinks, silverware sinks, commercial dishwashing machines, silverware-washing machines, and other similar fixtures shall be connected indirectly to the drainage system. ~~A floor drain shall be provided adjacent to the fixture, and the fixture shall be connected on the sewer side of the floor drain trap, provided that no other drainage line is connected between the floor drain waste connection and the fixture drain. The fixture and floor drain shall be trapped and vented as required by this code.~~

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**711.1 General.** Drainage connections shall not be made into a drainage piping system within eight (8) feet (2438 mm) of any vertical to horizontal change of direction of a stack containing suds-producing fixtures. ~~Bathtubs, Laundries, and 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 eight (8) feet (2,438 mm) above the lowest point of the drainage stack.

### **Exceptions:**

- (1) Single-family residences.
- (2) Stacks receiving the discharge from less than three (3) stories of plumbing fixtures.

**713.4 Public Sewer Availability.** The public sewer may be considered as not being available when such public sewer or any building or any exterior drainage facility connected thereto is located more than ~~two-three~~ two hundred (200-300) feet (60.8 m) from ~~any proposed building or exterior drainage facility~~ on any lot or premises that abuts and is served by such public sewer.

**715.1 Materials.** The building sewer, beginning two (2) feet (610 mm) from any building or structure, shall be of such materials as prescribed in this code. Pipe sizes 6 inches and smaller shall be PVC Schedule 40, and pipe sizes 8 inches or larger may be SDR 35.

**722.1 Building (House) Sewer.** Every abandoned building (house) sewer, or part thereof, shall be plugged or capped in an approved manner within five (5) feet (1524 mm) of the property line. Before any building may be demolished, a sewer disconnect permit shall be obtained and an inspection made to verify that the sewer has been properly capped within 5 feet of the property line and that the water service has been disconnected and capped at the meter.

### **724.0 Private Sewage Disposal Systems**

Private sewage disposal systems shall conform to all applicable state laws and regulations, including the Construction Standards for Private Sewage Facilities, as published by the Texas Commission on Environmental Quality.

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## CHAPTER 8 INDIRECT WASTES

**804.2 Accessible receptors.** Accessible indirect waste receptors may be fabricated utilizing a P trap, riser stub, and an increaser to form a funnel.

**810.1 High Temperature Discharge.** No steam pipe shall be directly connected to a plumbing or drainage system, nor shall water having a temperature above 140°F (60°C) be discharged under pressure directly into a drainage system. Pipes from boilers shall discharge by means of indirect waste piping, as determined by the Authority Having Jurisdiction or the boiler manufacturer's recommendations. Such pipes shall be permitted to be indirectly connected by discharging into an open or closed condenser or an intercepting sump of an approved type that will prevent the entrance of steam or such water under pressure into the drainage system. Closed condensers or sumps shall be provided with a vent that shall be taken off the top and extended separately, full size above the roof.

Condensers and sumps shall be properly trapped at the outlet with a deep seal trap extending to within 6 inches (152 mm) of the bottom of the tank. The top of the deep seal trap shall have a 1/2 inch (12.7 mm) opening located at the highest point of the trap to serve as a siphon breaker. Outlets shall be taken off from the side in such a manner as to allow a waterline to be maintained that will permanently occupy not less than one-half the capacity of the condenser or sump. Inlets shall enter above the waterline. Wearing plates or baffles shall be installed in the tank to protect the shell. The sizes of the blowoff line inlet, the water outlets, and the vent shall be as shown in Table 810.1. The contents of condensers receiving steam or hot water under pressure shall pass through an open sump before entering the drainage system. Water above 113°F shall not be discharged to the jurisdiction's drainage system.

**811.9 Sizing.** An approved vented neutralizing basin is a basin with a bolted removable cover and dip-pipe outlet that is constructed of acid-resistant material such as molded seamless polyethylene, one-piece acid-proof chemical stoneware, lined carbon steel, or other material approved by the Authority Having Jurisdiction. Neutralizing basins shall be sized according to Table 8-2.

**TABLE 811.9**

<u>Number of sinks</u>	<u>Tank Capacity (Gallons)</u>
<u>1</u>	<u>5</u>
<u>4</u>	<u>15</u>
<u>8</u>	<u>30</u>
<u>16</u>	<u>55</u>
<u>25</u>	<u>100</u>

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<u>40</u>	<u>150</u>
<u>60</u>	<u>200</u>
<u>75</u>	<u>275</u>
<u>100</u>	<u>350</u>
<u>200</u>	<u>675</u>
<u>300</u>	<u>1200</u>
<u>500</u>	<u>2000</u>

1. Tank capacities are measured from invert inlet.
2. Neutralization basins receiving intermittent discharge from equipment shall be sized according to the manufacturer's recommendations. Sizing criteria shall be shown on drawings.

**811.10 Material.** Neutralization basins shall be provided with neutralizing material such as pieces of marble or limestone, 1 inch to 3 inches in size, so as to render effluent to a pH not less than 6 nor more than 10 before the effluent is discharged into the sewer system.

**814.0 Condensate Wastes and Control.** See Houston Mechanical Code

~~**814.1 Condensate Disposal.** Condensate from air washers, air cooling coils, fuel burning condensing appliances, the overflow from evaporative coolers, and similar water-supplied equipment or similar air conditioning equipment shall be collected and discharged to an approved plumbing fixture or disposal area. If discharged into the drainage system, equipment shall drain by means of an indirect waste pipe. The waste pipe shall have a slope of not less than 1/8 inch per foot (10.5 mm/m) or one percent slope and shall be of approved corrosion resistant material not smaller than the outlet size as required in either Section 310.3 or 310.4 for air cooling coils or condensing fuel burning appliances, respectively. Condensate or wastewater shall not drain over a public way.~~

~~**814.2 Size.** Air conditioning condensate waste pipes shall be independent of any drainage and waste system and shall not be smaller than shown in Table 8-2.~~

**TABLE 8-2**

**Minimum Condensate Pipe Size**

<b>Equipment Capacity in Tons of Refrigeration (kW)</b>	<b>Minimum Condensate Pipe Diameter in Inches (mm)</b>
Up to 20 (Up to 70.34)	3/4 (20)

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21640 (73.856140.67)	1 (25)
41690 (144.196316.6)	1 1/4 (32)
916125 (320.036439.6)	1-1/2 (40)
1266250 (443.126879.2)	2 (50)

~~— The size of condensate waste pipes may be for one unit or a combination of units, or as recommended by the manufacturer. The capacity of waste pipes assumes a one-eighth (1/8) inch per foot (10.5 mm/m) or one percent slope, with the following pipe conditions:~~

~~Outside Air ó 20% — Room Air ó 80%~~

~~DB — WB ——— DB — WB~~

~~90°F — 73°F ——— 75°F — 62.5°F~~

~~(32°C) (23°C) ——— (24°C) (17°)~~

~~— Condensate drain sizing for other slopes or other conditions shall be approved by the Authority Having Jurisdiction.~~

~~— Air conditioning waste pipes shall be constructed of materials specified in Chapter 7.~~

**814.3 Point of Discharge.** ~~Air conditioning condensate waste pipes shall connect indirectly to the drainage system through an airgap or airbreak to properly trapped and vented receptors dry wells, leach pits, or the tailpiece of plumbing fixtures.~~

~~— Condensate waste shall not drain over a public way.~~

CHAPTER 9

VENTS

**908.2 Horizontal Wet Venting for a Bathroom Groups.**

**908.2.1 Where Permitted.** A bathroom group located on the same floor level shall be permitted to be vented by a horizontal wet vent where all of the conditions of Section 908.2.1.1 through Section 908.2.1.5 are met. ~~Water closets, bathtubs, showers, and floor drains within one or two bathroom groups located on the same floor level and for private use shall be permitted to be vented by a wet vent. The wet vent shall be considered the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream fixture drain or trap arm connection to the horizontal branch drain. Each wet-vented fixture drain or trap arm shall connect independently to the wet-vented horizontal branch drain. Each individual fixture drain or trap arm shall connect horizontally to the wet-vented horizontal branch drain or shall be provided with a dry vent. The trap to vent distance shall be in accordance with Table 1002.2. Only the fixtures within the bathroom groups shall connect to the wet-vented horizontal branch drain. The water closet fixture drain or trap arm connection to the wet vent shall be downstream of the fixture drain or trap arm connections. Additional fixtures shall discharge downstream of the wet vent system and be conventionally vented~~

**908.2.1.1 Vent Connection.** ~~The dry vent connection to the wet vent shall be an individual vent or common vent for the lavatory, urinal, for the bidet, shower, or bathtub. One or two vented lavatory(s) shall be permitted to serve as a wet vent for a bathroom group. Only one wet-vented fixture drain or trap arm shall discharge upstream of the dry-vented fixture drain connection. All dry vent connections to the horizontal wet vent shall be in accordance with Section 905.2 and Section 905.3~~

**908.2.1.2 Size.** The wet vent shall be sized based on the fixture unit discharge into the wet vent. The wet vent shall be not less than 2 inches (50 mm) in diameter for 4 drainage fixture units (dfu) or less, and not less than 3 inches (80 mm) in diameter for 5 dfu or more. The dry vent shall be sized in accordance with Table 702.1 and Table 703.2 based on the total fixtures units discharging into the wet vent.

**908.2.1.3 Trap Arm.** The length of the trap arm shall not exceed the limits in Table 1002.2. The trap size shall be in accordance with Section 1005.3.3. The vent pipe opening from the horizontal wet vent, except for water closets and similar fixtures, shall not be below the weir of the trap.

**908.2.1.4 Water Closet.** The water closet fixture drain or trap arm connection to the wet vent shall be downstream of tall fixture drain or trap arm connections to the horizontal wet vent.

**908.2.1.5 Additional Fixtures.** Additional fixtures shall discharge downstream of the wet vent system and be conventionally vented. Only the fixtures within the bathroom group shall connect to the wet-vented horizontal branch.

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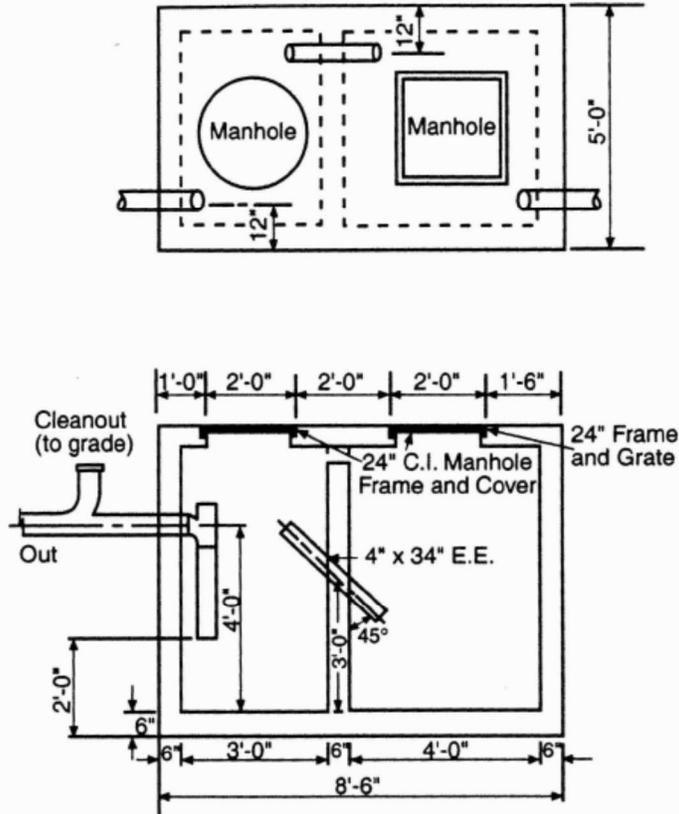
**CHAPTER 10  
TRAPS AND INTERCEPTORS**

**1009.8 Sample Wells.** Each interceptor shall be provided with a sample well on the discharge side of the interceptor.

**1011.1 General.** A private or public wash rack, or floor or slab used for cleaning machinery or machine parts shall be adequately protected against storm or surface water and shall drain or discharge into an approved interceptor (clarifier). See Figure MT-1, for minimum size and construction criteria.

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Figure No. M.T 1



Based on Usage of Precast Unit  
Mud and Grease Interceptor for Wash Rack

**1012.1 General.** Laundry equipment in commercial and industrial buildings that does not have integral strainers shall discharge into an interceptor having a wire basket or similar device that is removable for cleaning and that will prevent passage into the drainage system of solids 1/2 of an inch (12.7 mm) or larger in maximum dimension, such as string, rags, buttons, or other solid materials detrimental to the public sewerage system.

An approved lint interceptor shall be installed for all commercial laundries.

**Exceptions:**

- (1) A laundry containing no more than 4 automatic clothes washers.
- (2) A laundry in an R-2 Occupancy containing no more than 10 automatic clothes washers.

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For other than a mechanical lint interceptor properly sized to manufacturer's instructions, see Figures LT-1, LT-2, and LT-3, for minimum size and construction criteria.

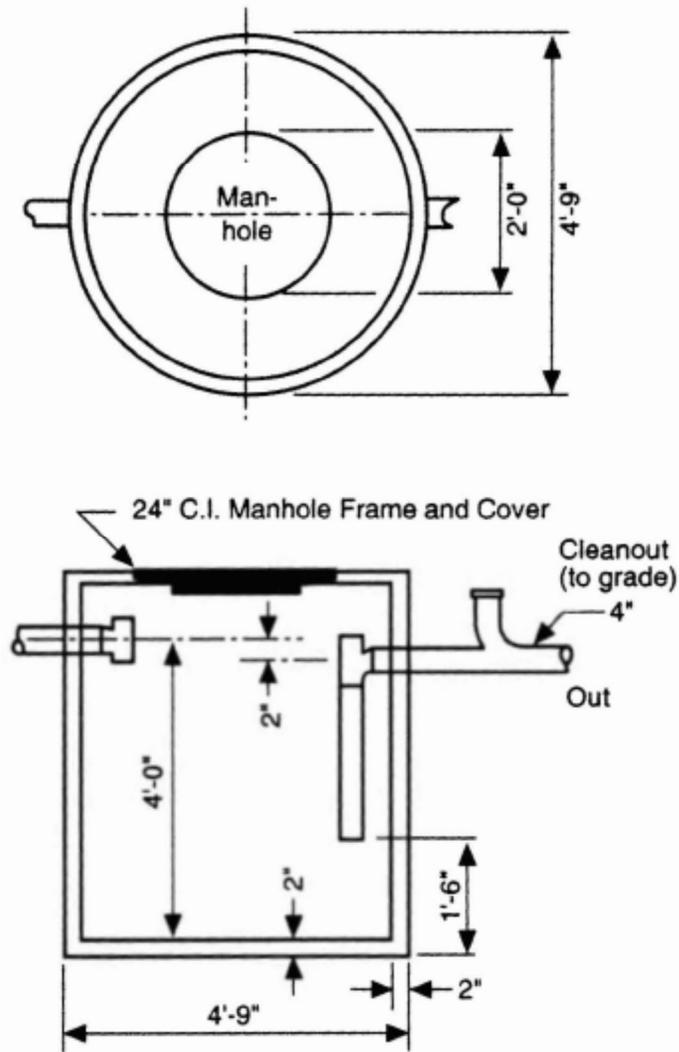
**1014.1.3 Food Waste Disposal Units and Dishwashers.** Unless specifically required or permitted by the Authority Having Jurisdiction, no food waste disposal unit ~~or dishwasher~~ shall be connected to or discharge into any grease interceptor. Commercial food waste disposers shall be permitted to discharge directly into the building's drainage system.

### **1014.3.5 Construction Requirements.**

Gravity grease interceptors shall be designed to remove grease from effluent and shall be sized in accordance with this section. Gravity grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor. ~~It is recommended that a~~ A sample box well be located at the outlet end of gravity grease interceptors so that the Authority Having Jurisdiction can periodically sample effluent quality.

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Figure No. L.T. 1



Based on Usage of Precast Unit

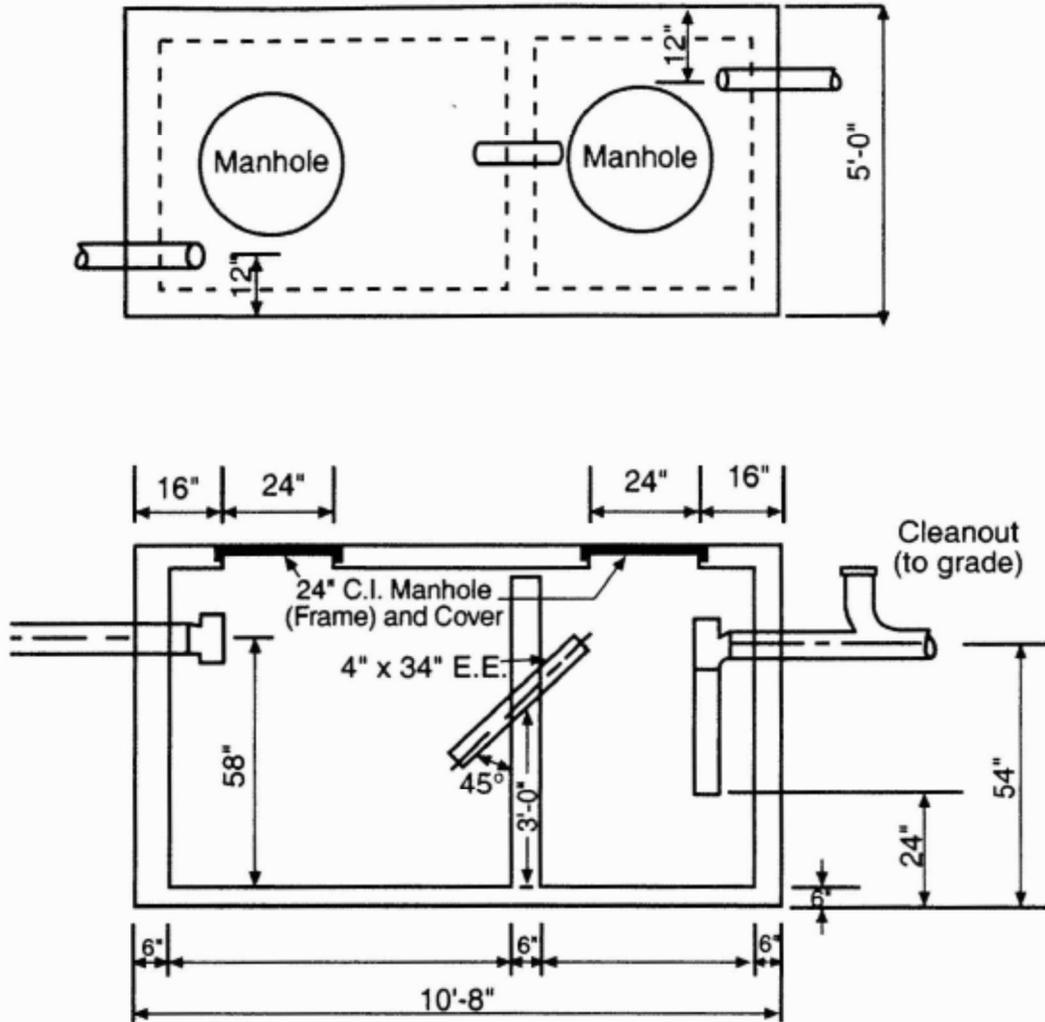
Lint Interceptor Washateria Operation for 5 to 10 Machines

Drawing LT-1



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Figure No. L.T. 3



Based on Usage of Precast Unit

Lint Interceptor Washateria Operation for 21 to 30 Machines

Larger establishments and commercial-type laundries require an approved design by the project professional engineer.

**Proposed Houston Amendments to 2012 UPC**

Drawing LT-3

**DRAFT FOR PUBLIC COMMENT  
NOT ADOPTED**

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## Proposed Houston Amendments to 2012 UPC

### CHAPTER 11 STORM DRAINAGE

**1101.3 Material Uses.** Rainwater piping placed within the interior of a building or run within a vent or shaft shall be of cast iron, galvanized steel, wrought iron, brass, copper, lead, Schedule 40 ABS DWV, Schedule 40 PVC DWV, SDR 35 for 8 inch or larger PVC, stainless steel 304 or 316L (stainless steel 304 pipe and fittings shall not be installed underground and shall be kept at least six inches (152 mm) aboveground), or other approved materials, and changes in direction shall conform to the requirements of Section 706.0. ABS and PVC DWV piping installations shall be installed in accordance with IS 5, IS 9, and Chapter 15 "Firestop Protection." Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of not more than 25 and a smoke-developed index of not more than 50, where tested in accordance ASTM E-84 and ANSI/UL 723.

**1101.11.1 Primary Roof Drainage.** Roof areas of a building shall be drained by roof drains or gutters. The location and sizing of drains and gutters shall be coordinated with the structural design and pitch of the roof. Unless otherwise required by the Authority Having Jurisdiction, roof drains, gutters, vertical conductors or leaders, and horizontal storm drains for primary drainage shall be sized based on a storm rainfall rate of 8 inches per hour of sixty (60) minutes duration and 100-year return period. Refer to Table D-1 (in Appendix D) for 100-year, 60-minute storms at various locations.

**1101.11.2.2.(B) Combined System.** The secondary roof drains shall connect to the vertical piping of the primary storm drainage conductor downstream of any horizontal offset below the roof. The primary storm drainage system shall connect to the building storm water that connects to an underground public storm sewer. The combined secondary and primary roof drain systems shall be sized in accordance with Section 1106.0 ~~based on double the rainfall rate for the local area.~~

**1102.1.1 Inside of Conductors.** The inside of conductors installed above ground level shall be of seamless copper water tube, Type K, L, or M; Schedule 40 copper pipe or Schedule 40 copper alloy pipe; Type DWV copper drainage tube; service weight cast-iron soil pipe or hubless cast-iron soil pipe; standard weight galvanized steel pipe; stainless steel 304 or 316L (stainless steel 304 pipe and fittings shall not be installed underground and shall be kept at least 6 inches (152 mm) aboveground); or Schedule 40 ABS or Schedule 40 PVC plastic pipe; or SDR 35 plastic pipe.

**1102.2 Leaders.** Leaders installed outside shall be in accordance with the applicable standards referenced in Table 701.1 for aboveground drain, waste, and vent pipe; aluminum sheet metal; galvanized steel sheet metal; ~~or copper sheet metal~~ or SDR 35 plastic pipe.

#### TABLE 1101.7

**Proposed Houston Amendments to 2012 UPC**

**Sizing of Horizontal Rainwater Piping<sup>1,2</sup>**

Size of Pipe, Inches	Flow a 1/8 in./ft. Slope, gmp	Maximum Allowable Horizontal Projected Roof Areas Square Feet at Various Rainfall Rates						
		1 in./h	2 in./h	3 in./h	4 in./h	5 in./h	6 in./h	<u>8 in./h</u>
3	34	3288	1,644	1,096	822	657	548	<u>411</u>
4	78	7,520	3,760	2,506	1,880	1,504	1,253	<u>906</u>
5	139	13,360	6,680	4,453	3,340	2,672	2,227	<u>1,670</u>
6	222	21,400	10,700	7,133	5,350	4,280	3,566	<u>2,675</u>
8	478	46,000	23,000	15,330	11,500	9,200	7,670	<u>5,750</u>
10	860	82,800	41,400	27,600	20,700	16,580	13,800	<u>10,350</u>
12	1384	133,200	66,600	44,400	33,300	26,650	22,200	<u>16,650</u>
15	2473	238,000	119,000	79,333	59,500	47,600	39,650	<u>29,750</u>

Size of Pipe, Inches	Flow a 1/4 in./ft. Slope, gmp	Maximum Allowable Horizontal Projected Roof Areas Square Feet at Various Rainfall Rates						
		1 in./h	2 in./h	3 in./h	4 in./h	5 in./h	6 in./h	<u>8 in./h</u>
3	48	4,640	2,320	1,546	1,160	928	773	<u>580</u>
4	110	10,600	5,300	3,533	2,650	2,120	1,766	<u>1,325</u>
5	196	18,880	9,440	6,293	4,720	3,776	3,146	<u>2,360</u>
6	314	30,200	15,100	10,066	7,550	6,040	5,033	<u>3,775</u>
8	677	65,200	32,600	21,733	16,300	13,040	10,866	<u>8,150</u>
10	1214	116,800	58,400	38,950	47,000	23,350	19,450	<u>14,600</u>
12	1953	188,000	94,000	62,600	47,000	37,600	31,350	<u>23,500</u>
15	3491	336,000	168,000	112,000	84,000	67,250	56,000	<u>43,000</u>

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Size of Pipe, Inches	Flow a 1/2 in./ft. Slope, gmp	Maximum Allowable Horizontal Projected Roof Areas Square Feet at Various Rainfall Rates						
		1 in./h	2 in./h	3 in./h	4 in./h	5 in./h	6 in./h	8 in./h
3	68	6,576	3,288	2,192	1,644	1,310	1,096	<u>822</u>
4	156	15,040	7,520	5,010	3,760	3,010	2,500	<u>1,880</u>
5	278	26,720	13,360	8,900	6,680	5,320	4,450	<u>3,340</u>
6	445	42,800	21,400	14,267	10,700	8,580	7,140	<u>5,350</u>
8	956	92,000	46,000	30,650	23,000	18,400	15,320	<u>11,500</u>
10	1721	165,600	82,800	55,200	41,400	33,150	27,600	<u>20,700</u>
12	2768	266,400	133,200	88,800	66,600	53,200	44,400	<u>33,300</u>
15	4946	476,000	238,000	158,700	119,000	95,200	79,300	<u>59,500</u>

**Notes:**

1. The sizing data for horizontal piping are based on the pipes flowing full.
2. For rainfall rates other than those listed, determine the allowable roof area by dividing the area given in the 1 inch/hour (25 mm/hour) column by the desired rainfall rate.

## Proposed Houston Amendments to 2012 UPC

### CHAPTER 12 FUEL PIPING

**1201.3 Application.** This code shall not apply to the following (reference standards for some of which appear in Chapter 14):

- (1) Portable LP-Gas appliances that are not connected to a fixed fuel piping system.
- (2) Installation of appliances such as brooders, dehydrators, dryers, and irrigation equipment used for agricultural purposes.
- (3) Raw material (feedstock) applications, except for piping to special atmosphere generators.
- (4) **Reserved.** ~~Oxygen-fuel gas cutting and welding systems.~~
- (5) **Reserved.** ~~Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen, and nitrogen.~~
- (4) ~~(6)~~ Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms, and natural gas processing plants.
- (5) ~~(7)~~ Large integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by chemical reactions or used in chemical reactions.
- (6) ~~(8)~~ LP-Gas installations at utility gas plants.
- (7) ~~(9)~~ Liquefied natural gas (LNG) installations.
- (8) ~~(10)~~ Fuel gas piping in electric utility ~~power~~ plants.
- (9) ~~(11)~~ Proprietary items of equipment, apparatus, or instruments such as gas-generating sets, compressors, and calorimeters.
- (10) ~~(12)~~ LP-Gas appliances for vaporization, gas mixing, and gas manufacturing.
- (11) ~~(13)~~ LP-Gas piping for buildings under construction or renovations that are not to become part of the permanent building piping system- that is, temporary fixed piping for building heat.
- (12) ~~(14)~~ Installation of LP-Gas systems for railroad switch heating
- (13) ~~(15)~~ Installation of LP-Gas and compressed natural gas systems on vehicles.
- (14) ~~(16)~~ Gas piping, meters, gas-pressure regulators, and other appurtenances used by the serving gas supplier in distribution of gas, other than undiluted LP-Gas. [NFPA 54-12: 1.1.1.2]
- (15) This chapter shall not be applicable to liquid petroleum gas facilities regulated by the Railroad Commission of Texas pursuant to Chapter 113 of the Texas Natural Resources Code.

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**1201.4 Other requirements.** All fuel oil facilities and piping shall conform to the requirements of Article 79 of the City of Houston Fire Code.

### **1201.5 Gas Tests.**

A permit shall be required for all gas tests. Gas systems shall require a complete test and inspection in the following circumstances:

- (1) During rough inspection and before startup of new installations.
- (2) Before resumption of use of a system where service has been interrupted for more than 365 days for any reason.
- (3) Before resumption of use of a system where service has been interrupted for any period of time because of one or more leaks or a fire.
- (4) When the system was found to be unsafe by the serving gas supplier or the Authority Having Jurisdiction.
- (5) Where required by the City of Houston Fire Code.
- (6) Where service is not commenced within 180 days following a gas test.

### **1202.0 General.**

The regulations of this chapter shall govern the installation of all fuel gas piping in or in connection with any building or structure or within the property lines of any premises ~~up to 5 psi,~~ other than service pipe. Fuel oil piping systems shall be installed in accordance with NFPA 31.

**Exception:** Gas piping, meters, gas-pressure regulators, and other appurtenances used by the serving gas supplier in distribution of gas, other than undiluted LP-Gas [NFPA 54: 1.1.1.2(16)]

**1203.3.1 Rough Piping Inspection.** This inspection shall be made after gas piping authorized by the permit has been installed and before such piping has been covered or concealed or fixture or appliance has been attached thereto. This inspection shall include a determination that the gas piping size, material, and installation meet the requirements of this code. This inspection shall also include a pressure test. The gas piping shall pass an air pressure test of 25 psi for a period of fifteen (15) minutes with no perceptible drop.

**Exception:** For metal welded piping, and for piping carrying gas at pressure in excess of fourteen (14) inches (0.4 m) water column pressure, the test pressure shall be not less than one hundred (100) psi (689 kPa) for thirty (30) minutes. These tests shall be made using air, CO<sub>2</sub>, or nitrogen pressure only and shall be made in the presence of the inspector. All necessary apparatus for conducting tests shall be furnished by the permit holder.

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**1203.3.2 Final Piping Inspection.** This inspection shall be made after piping authorized by the permit has been installed and after portions thereof that are to be covered or concealed are so concealed and before any fixture, appliance, or shutoff valve has been attached thereto and after the completed system is ready to be put into service. This inspection shall comply with Section 1213.1. Test gauges used in conducting tests shall be in accordance with Section 318.0.

**1208.6.1.2 Additional requirements.** Gas meters shall not be located under a show window or under interior stairways or in engine, boiler, heater, or electric meter rooms. Gas meters shall be located at least three (3) feet from known sources of ignition or air intakes.

**1210.1.6 Piping Underground Beneath Buildings.** Where gas piping is installed underground beneath buildings, the piping shall be either:

(1) Encased in an approved conduit designed to withstand the imposed loads and installed in accordance with Section 1210.1.6.1 or Section 1210.1.6.2.

(2) A piping or encasement system listed for installation beneath buildings. [NFPA54-12:7.1.6]

Pipe must be removable without causing damage to the structure. Sleeves for corrugated stainless steel piping may terminate within the building.

**1210.1.6.1 Conduit with One End Terminating Outdoors.** The conduit shall extend into a normally usable and accessible portion of the building and, at the point where the conduit terminates in the building, the space between the conduit and the gas piping shall be sealed to prevent the possible entrance of a gas leakage. Where the end sealing is of a type that will retain the full pressure of the pipe, the conduit shall be designed for the same pressure as the pipe. The conduit shall extend not less than 4 inches (102 mm) outside the building, be vented outdoors above finished ground level, and be installed so as to prevent the entrance of water and insects and shall be graded to the outside. [NFPA 54:7.1.6.1]

**1210.1.7.2 Tracer Wire.** An electrically continuous corrosion-resistant tracer wire (not less than AWG 14 yellow) or tape shall be buried with the plastic pipe to facilitate locating. ~~One~~ Both ends shall be ~~brought~~ aboveground at a building wall or riser. [~~NFPA 54:7.1.7.3~~]

**1213.3 Test Pressure.** This inspection shall include an air, CO<sub>2</sub>, or nitrogen pressure test, at a pressure of at least six (6) inches (152 mm) of mercury, measured with a manometer or slope gauge at which time the gas piping shall stand a pressure of not less than 10 psi (69 kPa) gauge pressure. Test pressures shall be held for a length of time satisfactory to the Authority Having Jurisdiction, but in no case less than 15 minutes with no perceptible drop in pressure. The test pressure shall not be less than twice the pressure that the system will be subjected to when in service. These tests shall be made in the presence of an inspector. All necessary apparatus for conducting tests shall be furnished by the permit holder. A final inspection shall be required for

## Proposed Houston Amendments to 2012 UPC

all gas systems that require a permit as specified in Section 1201.1. For annual gas tests and GTOs, the tests shall be done at the pressure required for the final gas inspection.

**Exception:** In lieu of the mercury gauge one of the following may be used:

- (1) Low Pressure Systems - A low pressure diaphragm gauge with a minimum dial size of 3 1/2 inches with a set hand and a pressure range not to exceed six (6) psi with 1/10 pound incrementation. The minimum test pressure shall not be less than three (3) psi and the maximum test pressure to be applied shall not exceed four (4) psi.
- (2) Medium Pressure Systems - A diaphragm type pressure gauge with a minimum dial size of 3 2 inches with a set hand and a pressure range not to exceed twenty (20) psi with 2/10 pound incrementation. The minimum test pressure shall not be less than ten (10) psi and the maximum test pressure shall not exceed twelve (12) psi.
- (3) High Pressure Systems - Gauges for high pressure tests shall be as follows:
  - A. Required pressure tests exceeding ten (10) pounds (69 kPa) but less than one hundred (100) pounds (689 kPa) shall be performed with gauges that have one (1) pound (6.9 kPa) incrementation or less.
  - B. Required pressure tests exceeding one hundred (100) pounds (689 kPa) shall be performed with gauges incremented for two (2) percent or less of the required test pressure.
  - C. Test gauges shall have a pressure range not greater than twice the test pressure applied.

~~For welded piping, and for piping carrying gas at pressures in excess of 14 inches water column pressure (3.5 kPa), the test pressure shall be not less than 60 psi (414 kPa) and shall be continued for a length of time satisfactory to the Authority Having Jurisdiction, but in no case for less than 30 minutes. These tests shall be made using air, CO<sub>2</sub>, or nitrogen pressure and shall be made in the presence of the Authority Having Jurisdiction. Necessary apparatus for conducting tests shall be furnished by the permit holder. Test gauges used in conducting tests shall be in accordance with Section 318.0.~~

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**CHAPTER 13**

**HEALTH CARE FACILITIES AND MEDICAL GAS AND VACUUM SYSTEMS**

~~1311.5 Health Care Organization personnel shall be permitted to install piping systems if all the requirements of this chapter are met during installation. [NFPA 99 4-3.1.2.10(b)]~~ Piping and installation procedures shall comply with NFPA 99C, latest edition, as adopted by the Texas Department of Health.

**CHAPTER 16**

**ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS**

**1601.2 System Design.** Alternate water source systems complying with this chapter shall be designed by a person registered or licensed to perform plumbing design work. All components, piping and fittings used in any alternate water source system shall be listed

**Exceptions:**

- (1) A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems used for irrigation with a maximum storage capacity of 360 gallons (1,363 L).
- (2) A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems for single family dwellings where all outlets, piping and system components are located on the exterior of the building.
- (3) A person registered or licensed to perform plumbing design work is not required to design gray water systems having a maximum discharge capacity of 250 gallons (946 L) per day for single family and multi-family dwellings.
- (4) A person registered or licensed to perform plumbing design work is not required to design a listed on-site treated nonpotable water system for single family dwellings saving a maximum discharge capacity of 250 gallons (946 L) per day.

Systems subject to Title 30 of the Texas Administrative Code shall be designed and installed as required by the Texas Commission on Environmental Quality.

**APPENDIX K  
POTABLE RAINWATER CATCHMENT SYSTEMS**

**K 1 01.2 System Design.** Potable rainwater catchment systems in accordance with this appendix shall be designed by a person registered, licensed, or deemed competent by the Authority Having Jurisdiction to perform potable rainwater catchment system design work. Systems subject to Title 30 of the Texas Administrative Code shall be designed and installed as required by the Texas Commission on Environmental Quality.