

**CITY OF PHOENIX ADOPTED  
2006 UNIFORM PLUMBING CODE (UPC) AMENDMENTS**

UPC Chapter 1 to be revised as follows:

**Administrative Provisions in 2006 UPC**

A number of the administrative provisions in the 2006 UPC provide guidance to plumbers that is found no where else in the Code. We recommend a cover sheet for Chapter I (Administrative) that would read as follows:

**CHAPTER 1**

**ADMINISTRATION**

Sections of Chapter 1 in the 2006 UPC that deal exclusively with plumbing issues are applicable as written. Other items in Chapter 1 of the UPC that are addressed in the “*Phoenix Building Construction Code – Administrative Provisions (PBCC-AP)*”, and that are not exclusive to plumbing, shall be superseded by provisions in the Phoenix Building Construction Code. Reference shall be made to the PBCC-AP when addressing matters that are found in both Codes. The PBCC-AP is the principal source of administrative guidance.

UPC Chapter 3 to be revised as follows:

**Chapter 3  
GENERAL REGULATIONS**

**~~Section 301.2 Alternate Materials and Methods Equivalency.~~** Refer to 104.10 of the Phoenix Building Construction Code Administrative Provisions.

**~~Section 301.3 Flood Hazard Resistance.~~**

**~~301.3.1 General.~~** Plumbing systems shall be located above 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.

**~~Section 301.4.5 Design Approval.~~** Where the Authority Having Jurisdiction determines that the alternative engineering design conforms to the intent of the Code, the plumbing system shall be approved. If the alternative engineering design is not approved, the Authority Having Jurisdiction shall notify the registered professional engineer in writing, stating the reasons therefore.

**Section 320.0 Medical Gas and Vacuum Systems.** All such piping shall be installed, tested, and verified ~~in~~ for compliance with the appropriate consensus standards referenced in Chapter 14 and the requirements of ~~in~~ Chapter 13. ~~The Authority Having Jurisdiction shall require evidence of the competency of the installers and verifiers. The reporting engineers shall include copies of all required Certifications.~~ Installation of this system shall be as required under the special inspection requirements of the Phoenix Building Construction Code .

UPC Chapter 4 to be revised as follows:

## Chapter 4 PLUMBING FIXTURES AND FIXTURE FITTINGS

### 412.3 Separate Facilities.

Separate toilet facilities shall be provided for each sex.

Exceptions:

- (1) In occupancies serving ~~ten (10)~~ fifteen (15) or fewer people, one (1) toilet facility, designed for use by no more than one (1) person at a time, shall be permitted for use by both sexes.
- (2) ~~In businesses and mercantile occupancies with a total floor area of fifteen hundred (1500) square feet or less, one (1) toilet facility, designed for use by no more than one (1) person at a time, shall satisfy the requirements for serving customers and employees of both sexes.~~

Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 50 or less.

### Reference UPC Table 4-1 and insert Table 2902.1

Replace the contents of UPC Table 4-1 with the contents of IBC Table 2902.1 and its footnotes. The title of this Table will remain Table 4-1.

Table A from the 2006 UPC (delete Table A)

UPC Chapter 5 to be revised as follows:

## Chapter 5 WATER HEATERS

**Section 501.0 General.** The regulations of this chapter shall govern the construction, location, and installation of fuel-burning and other water heaters heating potable water, together with all chimneys, vents, and their connectors. The minimum capacity for water heaters shall be in accordance with the first hour rating listed in Table 5-1. All design, construction, and workmanship shall be in conformity with accepted engineering practices, manufacturer's installation instructions, and applicable standards and shall be of such character as to secure the results sought to be obtained by this code. No water heater shall be hereinafter installed that does not comply in all respects with the type and model of each size thereof approved by the Authority Having Jurisdiction. A list of accepted gas equipment standards is included in Table 14-1. A water heater (boiler) that exceeds any of the following limitations shall not be placed in service until the vessel is separately inspected pursuant to A.R.S Title 23, Chapter 2, Article 11.

- (a) 120 gallons (454.2L) nominal water capacity.
- (b) 160 psi (1,103.2 kPa) operating pressure.
- (c) 210° F (98.9° C) operating temperature
- (d) 200,000 btu/h (58,620W) heat input

### **505.0 Water Heater Requirements.**

**505.1 Location.** ~~Water Heater Installations in bedrooms and bathrooms shall comply with one of the following [NFPA 54: 10.28.1]:~~

- (1) ~~Fuel burning water heaters may be installed in a closet located in the bedroom or bathroom provided the closet is equipped with a listed, gasketed door assembly and a listed self-closing device. The self-closing door assembly shall meet the requirements of Section 505.1.2. All Combustion air for such installations shall be obtained from the outdoors in accordance with Section 507.4. The closet shall be for the exclusive use of the water heater.~~

~~(2) Water heaters shall be of the direct vent type [NFPA 54: 10.28.1.2]~~

~~**505.1.1. Self Closing Doors.** Self-closing doors shall swing easily and freely and shall be equipped with a self-closing device to cause the door to close and latch each time it is opened. The closing mechanism shall not have a hold-open feature. [NFPA 80: 2-1.4.1]~~

~~**505.1.2 Gasketing.** Gasketing on gasketed doors or frames shall be furnished only in accordance with the published listings of the door, frame, or gasketing material manufacturer. *Exception:* Where acceptable to the Authority Having Jurisdiction, gasketing of non-combustible or limited-combustible material (See NFPA 220, Standard on Types of Building Construction) shall be permitted to be applied to the frame, provided closing and latching of the door are not inhibited. [NFPA 80:2-4.8]~~

~~**505.2** Water heaters of other than direct vent type shall be located as close as practical to the chimney or gas vent. [NFPA 54:9.28.1.2]~~

And Substitute with the following language:

**505.0 Prohibited Locations**

Water heaters which depend upon the combustion of fuel for heat shall not be installed under a stairway or landing in a room used, or designed to be used for sleeping purposes, a bathroom, a shower room, or a clothes closet, and shall not open into such bathroom or bedroom.

Exception: Direct Vent Heaters.

Where not prohibited by other regulations, water heaters may be located under a stairway or landing that is not the sole means of egress.

~~**Section 509.3.2** Buildings more than 15 feet (4.6m) in height shall have an inside means of access to the roof, unless other means acceptable to the Authority Having Jurisdiction are used. [NFPA 54:9.4.3.2]~~

~~**Section 509.3.3** The inside means of access shall be a permanent, or a fold-away inside stairway or ladder, terminating in an enclosure, scuttle, or trap door. Such scuttles or trap doors shall be at least 22 inches x 24 inches (560 mm x 610 mm) in size, 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.~~

~~— At least 6 feet (1.8 m) of clearance shall be available between the access opening and the edge of the roof or similar hazard, or rigidly fixed rails or guards a minimum of 42 inches (1.1 m) 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 a minimum of 42 inches (1.1 m) in height. [NFPA 54:9.4.3.3]~~

~~**Section 509.3.4** Permanent lighting shall be provided at the roof access. The switch for such lighting shall be located inside the building near the access means leading to the roof. [NFPA 54:9.4.3.4]~~

**Section 510.6.2 [Gas Vent Termination]** currently has six (6) subsections. It was recommended that a seventh (7<sup>th</sup>) sub-section be added for consistency with the IFGC. It would read as follows:

(7) No venting system shall terminate less than four (4) feet (1219 mm) from any property line except a public way.

Chapter 6 to be revised as follows:

## Chapter 6 WATER SUPPLY AND DISTRIBUTION

(Add new section)

**Section 603.3.11 SECONDARY BACKFLOW PROTECTION.** The following occupancies shall have Reduced Pressure Principle Backflow Prevention Assemblies installed as near as practical to the water service meter connection:

- Hospitals
- Surgical Clinics
- Laboratories
- Morgues
- Mortuaries
- Chemical Plants
- Construction Water Services
- Surgical Clinics
- Veterinary Hospitals
- Industrial Occupancies
- Packing Plants
- Slaughter Houses
- Municipal Waste Treatment

NOTE: Multiple water services which are interconnected onsite shall be provided with not less than a Double Check Valve Assembly at each service connection.

**Section 608.5** Relief valves ~~located inside a building~~ shall be provided with a drain, not smaller than the relief valve outlet, of galvanized steel, hard drawn copper piping and fittings, CPVC, or listed relief valve drain tube with fittings that will not reduce the internal bore of the pipe or tubing (straight lengths as opposed to coils) and shall extend from the valve to the outside of the building, with the end of the pipe not more than two (2) feet nor less than six (6) inches above the ground or the flood level of the area receiving the discharge and pointing downward. Such drains may terminate at other approved locations. Relief valve drains shall not terminate in a building's crawl space. No part of such drain shall be trapped or subject to freezing. The terminal end of the drain pipe shall not be threaded.

Chapter 7 to be revised as follows:

## Chapter 7 SANITARY DRAINAGE

**Section 723.0 Building Sewer Test.** (Add the following exception)

Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to the highest point thereof, or by approved equivalent low-pressure air test. The building sewer shall be watertight at all points.

EXCEPTION: Sewer tests may be waived at the discretion of the Building Official.

UPC Chapter 8 to be revised as follows:

## Chapter 8 INDIRECT WASTES

**Section 801.2.3 Food and Beverage Handling Establishments.** Food preparation sinks, steam kettles, potato peelers, ice cream dipper wells, and similar equipment shall be indirectly ~~connected~~ discharged into the drainage system by means of an airgap. Bins, sinks, and other equipment having drainage connections and used for storage of unpackaged ice use for human ingestion, or used in direct contact with ready-to-eat food, shall be indirectly ~~connected~~ discharged into the drainage system by means of an airgap. Multiple compartment food preparation sinks shall have all compartments utilized for a common purpose. All compartments

of a multiple-compartment food preparation sink shall be discharged into the drainage system by means of an airgap. Each indirect waste pipe from food-handling fixtures or equipment shall be separately piped to the indirect waste receptor and shall not combine with other indirect waste pipes. The piping from the equipment to the receptor shall not be smaller than the drain outlet on the unit, and it shall not be smaller than one-half (1/2) inch (15 mm).

~~**Section 801.3. Bar and Fountain Sink Traps.** Where the sink in a bar, soda fountain, or counter is so located that the trap serving the sink cannot be vented, the sink drain shall discharge through an airgap or airbreak (see Section 801.2.3.) into an approved receptor that is vented. The developed length from the fixture outlet to the receptor shall not exceed five (5) feet (1524 mm).~~

**Section 807.4** Replace Section 807.4. with amended language that eliminates the requirement for a dishwasher airgap fitting as follows:

The discharge pipe of a domestic dishwashing machine may be directly connected to the tailpiece of a sink drain, or into the waste 'boss' of a food waste disposer without installation of an intervening air-gap fitting. The dishwasher discharge line shall be securely fastened as high as possible, but in no case lower than two (2) inches [50.8 mm] below the flood rim of the sink to which it is connected.

**Section 807.5** No dishwashing machine utilized for commercial purposes may be directly connected to a drainage system. Commercial dishwashers shall discharge into an approved receptor (e.g., floor sink or hub drain) through an airgap of not less than one inch.

UPC Chapter 9 to be revised as follows:

## Chapter 9 VENTS

### ~~**908.4 Bathroom Wet Venting.**~~

~~**908.4.1. Where Permitted.** Any combination of fixtures within one (1) or two (2) bathrooms located on the same floor level in dwellings and guest rooms 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 connection to the horizontal branch drain. Only the fixtures within the bathroom(s) shall connect to the wet vented horizontal branch drain. Any additional fixtures shall discharge downstream of the wet vent system and be conventionally vented.~~

~~**908.4.2 Vent Connection.** The dry vent connection to the wet vent shall be an individual vent or common vent for the lavatory, bidet, shower, or bathtub.~~

~~**908.4.3. Size.** The wet vent shall be sized based on the fixture unit discharge into the wet vent. The wet vent shall be a minimum size of 2 inches for 4 dfu or less, and three inches for more than 4 dfu.~~

UPC Chapter 11 to be revised as follows:

## Chapter 11 STORM DRAINAGE

**Section 1101.11.1 Primary Roof Drainage.** Roof areas of a building shall be drained by roof drains, scuppers, or gutters. The location and sizing of drains, scuppers, and gutters shall be coordinated with the structural design and pitch of the roof. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.11.1. Scupper openings shall be a minimum of 4" high and shall have a width equal to the circumference of the roof drain required for the area served, as sized using Table 11-1. Roof drains, scuppers, and gutters shall be sized based upon a rainfall of six (6) inches per hour. Sizing shall be as required by the amended Table 11-1, and Tables 11-2 and 11-3.

**Section 1101.11.2.2 Secondary Roof Drain.** Secondary Roof Drains. Secondary roof drains shall be provided. The secondary roof drains or scuppers shall be located a minimum of 2 inches above the roof surface. The maximum height of the roof drains shall be a height to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.11.1. The secondary roof drains shall connect to a piping system conforming to Section 1101.11.2.2.1. ~~or 1101.11.2.2.2.~~

~~Section 1101.11.2.2.2 Combined Systems. **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 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.**~~

~~Section 1101.12.1 Cleanouts for building storm drains shall comply with the requirements of Section 719.0 of this Code.~~

~~Section 1101.12.2 Rain leaders and conductors connected to a building storm sewer shall have a cleanout installed at the base of the outside conductor before it connects to the horizontal drain.~~

~~Section 1104.3 Combining Storm with Sanitary Drainage. **The sanitary and storm drainage system of a building shall be entirely separate, except where a combined sewer is used, in which case the building storm drain shall be connected in the same horizontal plane through single wye fittings to the combined sewer at least ten (10) feet (3,048 mm) downstream from any soil stack.**~~

UPC Chapter 12 to be revised as follows:

## Chapter 12 FUEL PIPING

**Section 1211.1.6 Piping Underground Beneath Buildings.** (Add an exception to Section 1211.1.6)

EXCEPTION: Corrugated Stainless Steel gas tubing may be installed underground within a sleeve when it serves an "island" appliance. When this sleeve terminates above ground at both ends it need not be pressure tested or sealed at either end. The end of the CSST tubing that terminates at the island appliance shall terminate by connection to a gas shut-off valve. This valve shall be securely anchored to a structural surface and shall not rely upon the CSST for support.

### **Section 1211.1.7 (C) Plastic Pipe**

(C) An electrically continuous corrosion resistant tracer wire (minimum AWG 14 18) ~~or tape or other approved conductor~~ shall be buried with the plastic pipe to facilitate locating. One end shall be brought above ground at a building wall or riser.

### **Section 1211.3.2 Connections**

Connections. Where gas tubing is to be concealed, unions, tubing fittings, ~~right and left couplings~~, bushings, swing joints, and compression couplings made by combinations of fittings shall not be used. Connections shall be of the following type:

Where necessary to insert fittings in gas pipe that has been installed in a concealed location, the pipe shall be reconnected by welding, heavy duty flanges, or ~~of a ground joint union with the nut center punched to prevent loosening by vibration~~ the installation of a right and left nipple and coupling. **Note:** A correction needs to be made to the IFGC for correlation with this code amendment.

### **Section 1214.3.2 [Test Pressures]**

The test pressure to be used shall be no less than 1 ½ times the proposed maximum working pressure, but not less than ~~3 psi (20 kPa)~~ 10 psig (67 kPa gauge) irrespective of the design pressure. EXCEPTION: A manometer may be utilized for applying test pressures of no less than 3 psi (20 kPa) when testing an existing system.

**Note:** A correction needs to be made to the IFGC for correlation with this code amendment.

### **Section 1214.5 System and Equipment Leakage Test.**

#### **1214.5 System and Equipment Leakage Test.**

~~1214.5.1. Test Gases.~~ Leak checks using fuel gas shall be permitted in piping systems that have been pressure tested in accordance with Section 1214.0.

~~1214.5.2. Before Turning Gas On.~~ Before gas is introduced into a system of new gas piping, the entire system shall be inspected to determine that there are no open fittings or ends and all valves at unused outlets are closed and plugged or capped.

~~1214.5.3. Test for Leakage.~~ Immediately after the gas is turned on into a new system or into a system that has been initially restored after an interruption of service, the piping system shall be checked for leakage. Where leakage is indicated, the gas supply shall be shut off until the necessary repairs have been made.

~~1214.5.4. Placing Equipment in Operation.~~ Gas utilization equipment shall not be placed in operation until after the piping system has been tested in accordance with Section 1214.5.3. and purged in accordance with Section 1214.6.2.

#### ~~Section 1214.6. Purging.~~

~~1214.6.1. Removal From Service.~~ When gas piping is to be opened for servicing, addition, or modification, the section to be worked on shall be turned off from the gas supply at the nearest convenient point and the line pressure vented to be the outdoors or to ventilated areas of sufficient size to prevent accumulation of flammable mixtures. The remaining gas in this section of pipe shall be displaced with an inert gas as required by Table 12-5.

**TABLE 12-5**  
**Length of Piping Requiring Purging with Inert Gas for Servicing or Modification**  
 [NFPA 54: Table 8.3.1]

Nominal Pipe Size (in.)	Length of Piping Requiring Purging (ft.)
2	>50
3	>30
4	>15
6	>10
8 or larger	Any length

For SI units: 1 ft = 0.305 m.

~~1214.6. Placing in Operation~~ When piping full of air is placed in operation, the air in the piping shall be displaced with fuel gas, except where such piping is required by Table 12-6 to be purged with an inert gas prior to introduction of fuel gas. The air can be safely displaced with fuel gas provided that a moderately rapid and continuous flow of fuel gas is introduced at one end of the line and air is vented out at the other end. The fuel gas flow shall be continued without interruption until the vented gas is free of air. The point of discharge shall not be left unattended during purging. After purging, the vent shall then be closed. Where required by Table 12-6, the air in the piping shall be first be displaced with an inert gas, and the inert gas shall then be displaced with fuel gas. [NFPA 54: 8.3.2.]

**TABLE 12-6**  
**Length of Piping Requiring Purging with Inert Gas Before Placing in Operation**  
 [NFPA 54: Table 8.3.2]

Nominal Pipe Size (in.)	Length of Piping Requiring Purging (ft.)
3	>30
4	>15
6	>10
8 or larger	

Any length

~~For SI units: 1 ft. = 0.305 m.~~

~~**1214.6.3. Discharge of Purged Gases.** The open end of piping systems being purged shall not discharge into confined spaces or areas where there are sources of ignition unless precautions are taken to perform this operation in a safe manner by ventilation of the space, control of purging rate, and elimination of all hazardous conditions. [NFPA 54: 8.3.3]~~

~~**1214.6.4. Placing Equipment in Operation.** After the piping has been placed in operation, all equipment shall be purged and then placed in operation, as necessary. [NFPA 54: 8.3.4.]~~

For clarification of purpose, the following language is proposed to explain the replacement of language in Chapter 13 with the requirements found in NFPA 99C:

### **Chapter 13 HEALTH CARE FACILITIES AND MEDICAL GAS AND VACUUM SYSTEMS**

**Current language in the 2006 UPC is deleted and has been replaced by reference to NFPA 99C (2005 Edition) as a design and installation guideline. Later editions of NFPA 99C will be approvable for reference when necessary to achieve compliance with stipulations mandated by third-party agencies that certify Health Care Facilities.**

Chapter 15 to be revised as follows:

### **Chapter 15 FIRESTOP PROTECTION**

~~**1501. Applicability.** All piping penetrations of required fire resistance-rated walls, partitions, floors, floor/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the Building Code and this chapter.~~

Chapter 16 to be revised as follows:

### **Chapter 16 GRAY WATER SYSTEMS**

#### **Section 1601.0 Gray Water Systems- General. (A)**

The provisions of this chapter shall apply to the construction, alteration, and repair of gray water systems for underground landscape irrigation. ~~Installations shall be allowed only on the single-family dwellings.~~ The system shall have no connection to any potable water system and shall not result in any surfacing of the gray water. Except as otherwise provided for in this chapter, the provisions of this code shall be applicable to gray water installation.

**Proposal:** Adopt 2006 UPC Appendices A, B, and I

UPC Appendix D to be revised as follows:

~~**APPENDIX D**~~  
~~**SIZING STORM WATER DRAINAGE SYSTEMS**~~  
(Deletion of Appendix D and its provisions)

UPC Appendix F to be revised as follows:

~~**APPENDIX F**~~  
~~**FIREFIGHTER BREATHING AIR REPLENISHMENT SYSTEMS**~~  
(Deletion of Appendix F and its Provisions )

UPC Appendix L to be revised as follows:

~~**APPENDIX L**~~  
~~**ALTERNATE PLUMBING SYSTEMS**~~  
(Deletion of Appendix L and its Provisions)