

Exhibit E

Recommended Amendments to the 2018 International Plumbing Code City of Amarillo, Texas

The following sections, paragraphs, and sentences of the 2018 International Plumbing Code are hereby amended as follows: Standard type is text from the IPC. Underlined type is text inserted. ~~Lined through type is deleted text from the IPC.~~ A double asterisk at the beginning of a section identifies an amendment carried over from the 2015 edition of the code and a triple asterisk identifies a new or revised amendment with the 2018 edition of the code.

Note: Amendments to Chapter 1 has been limited in order to allow each city to insert their local policies and procedures. We now have suggested certain items to be brought to the attention of cities considering adoption of the code that may be of concern to several jurisdictions. **It is still intended to be discretionary to each city to determine which Chapter 1 amendments to include.**

*****Table of Contents, Chapter 7, Section 713; change to read as follows:**

713 Engineered ~~Computerized~~ Drainage Design 69

(Reason: Editorial change to make compatible with amendment to Section 713.1)

****Section R101.1; change to read as follows:**

R101.1 Title. These regulations shall be known as the Plumbing Code of the City of Amarillo hereinafter referred to as "this code."

(Reason: Standard insertion point: [insert] to assist with local adoption.)

*****Section 102.8; change to read as follows:**

102.8 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in Chapter 15 and such codes, when specifically adopted, and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Section 102.8.1 and 102.8.2.

102.8.1 Conflicts. ~~Where the differences occur between provisions of this code and the referenced standards, the provisions of this code shall be the minimum requirements.~~ *{Existing text to remain}*

102.8.2 Provisions in referenced codes and standards. Whenever amendments have been adopted to the referenced codes and standards, each reference to said code and standard shall be considered to reference the adopted amendments. Any reference to NFPA 70 shall mean the Electrical Code as adopted.

(Reason: Legal wording to recognize locally adopted codes and amendments adopted with referenced codes)

****Section 106.6; Amend Sections 106.6.1 thru 106.6.3 to read as follows:**

106.6.1 Work commencing before permit issuance. Any person who commences any work on a plumbing system before obtaining the necessary permits shall be subject to fees as provided in Chapter 4-1 of the City of Amarillo Municipal Code of Ordinances.

Section 106.6.2 Fee schedule. The fees shall be as provided in Chapter 4-1, Article I, Division 4, Section 4-1-40 of the City of Amarillo Municipal Code of Ordinances.

Section 106.3.3. *{Delete section}*

(Reason: Established fees per Chapter 4-1 of the City of Amarillo Municipal Code)

****Section 108.5; Amend Section 108.5 to read as follows:**

108.5 Stop work orders. Upon notice from the Code Official that plumbing work that is being performed contrary to the provisions of this code or in a dangerous or unsafe manner, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's authorized agent, or to the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the Code Official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for a fine as specified in the City of Amarillo Municipal Code of Ordinances.

(Reason: Established fees per Chapter 4-1, Article I, Division 1, Section 4-1-1 thru 4-1-4 of the City of Amarillo Municipal Code)

*****Section 109; delete entire section and insert the following:**

SECTION 109
MEANS OF APPEAL

109.1 Application for appeal. Any person shall have the right to appeal a decision of the Code Official to the Board of Appeals established by ordinance. The board shall be governed by the enabling ordinance.

(Reason: Most jurisdictions already have an ordinance establishing and governing an appeals board for this code. This also calls to the attention of jurisdictions not having such a board that it needs to be established)

*****Section 305.1; change to read as follows:**

305.1 Protection against contact. Metallic piping, except for cast iron and ductile iron, shall not be placed in direct contact with steel framing members, concrete or cinder walls and floors or other masonry. Metallic piping shall not be placed in direct contact with corrosive soil. Where sheathing is used to prevent direct contact, the sheathing shall have a thickness of not less than 0.008 inch (8 mil) (0.203 mm) and the sheathing shall be made of approved material plastic. Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.

(Reason: Allows for other materials to be accepted)

****Section 305.4.1; change to read as follows:**

305.4.1 Sewer depth. ~~Building sewers that connect to private sewage disposal systems shall be a minimum of [number] inches (mm) below finished grade at the point of septic tank connection. Building sewers shall be a minimum of 12 inches (304 mm) below grade.~~

(Reason: Provides sewer depth that is common in this region. Deleted reference to private sewage disposal because a private sewage disposal code is not typically adopted in this region)

*****Section 305.7; change to read as follows:**

305.7 Protection of components of plumbing system. Components of a plumbing system installed within 3 feet along alleyways, driveways, parking garages or other locations in a manner in which they could be exposed to damage shall be recessed into the wall or otherwise protected in an approved manner.

(Reason: Provide a common cutoff point to designate a general separation distance at which plumbing systems should be safe for consistency in enforcement)

*****Section 306; change to read as follows:**

306.2.4 Plastic sewer and DWV piping installation. Plastic sewer and DWV piping installed underground shall be installed in accordance with the manufacturer's installation instructions. Trench

width shall be controlled to not exceed the outside the pipe diameter plus 16 inches or in a trench which has a controlled width equal to the nominal diameter of the diameter of the piping multiplied by 1.25 plus 12 inches. The piping shall be bedded in 4 inches of granular fill and then backfilled compacting the side fill in 6-inch layers on each side of the piping. The compaction shall be to minimum of 85 percent standard proctor density and extend to a minimum of 6 inches above the top of the pipe.

(Reason: To follow manufacturer backfill requirements and to be clear to Inspectors out in the field)

****Section 312.2. Amend to read as follows:**

312.2 Drainage and vent water test. A water test shall be applied to the drainage system either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening, and the system shall be filled with water to the point of overflow. If the system is tested in sections, each opening shall be tightly plugged except the highest openings of the section under test, and each section shall be filled with water, but no section shall be tested with less than a 5 foot (1524 mm) head of water. In testing successive sections, a lowest opening head test at each floor level if multiple floors shall be tested at the plumbing rough-in inspection. This test shall be held for not less than 15 minutes.

****Section 312.9. Amend to read as follows:**

312.9 Shower liner test. Where shower floors and receptors are made watertight by the application of materials required by Section 417.5.2, the completed liner installation shall be tested prior to the installation of the shower floor covering. The pipe from the shower drain shall be plugged watertight for the test. The floor and receptor area shall be filled with potable water to a depth of not less than 2 inches (51mm) measured at the threshold. Where a threshold of at least 2 inches (51mm) high does not exist, a temporary threshold shall be constructed to retain the test water in the lined floor or receptor area to a level not less than 2 inches (51mm) deep measured at the threshold. The water shall be retained for a test period of not less than 15 minutes, and there shall not be evidence of leakage.

****Sections 312.10.1 and 312.10.2; amend to read as follows:**

312.10.1 Inspections. Annual inspections shall be made of all backflow prevention assemblies and air gaps to determine whether they are operable. In the absence of local provisions, the owner is responsible to ensure that testing is performed.

312.10.2 Testing. Reduced pressure principle backflow preventer assemblies, double check-valve assemblies, pressure vacuum breaker assemblies, reduced pressure detector fire protection backflow prevention assemblies, double check detector fire protection backflow prevention assemblies, hose connection backflow preventers, and spill-proof vacuum breakers shall be tested at the time of installation, immediately after repairs or relocation and at least annually. The testing procedure shall be performed in accordance with applicable local provisions. In the absence of local provisions, the owner is responsible to ensure that testing is done in accordance with one of the following standards: *{stated list of standards is adopted as is without change}*

*****Section 314.2.1; change to read as follows:**

314.2.1 Condensate disposal. Condensate from all cooling coils and evaporators shall be conveyed from the drain pan outlet to an approved place of disposal. ... *{Existing text unchanged}* ... Condensate shall not discharge into a street, alley, sidewalk, rooftop, or other areas so as to cause a nuisance.

(Reason: Greater specificity in prohibited locations for condensate discharge. It is the intent of this amendment to send condensate discharge into a sanitary sewer drain. Consistent with regional amendment to IMC 307.2.1)

*****Section 409.2; change to read as follows:**

409.2 Water connection. The water supply to a commercial dishwashing machine shall be protected against backflow by an air gap or backflow preventer in accordance with Section 608. *{Remainder of section unchanged}*

(Reason: Domestic dishwashing machines would be difficult to enforce and should already come equipped with backflow preventers. Consistent with regional amendments in IPC Section 608)

*****Section 413.4; change to read as follows:**

413.4 Required location for floor drains ~~Public laundries and central washing facilities.~~ Floor drains shall be installed in the following areas:

1. In public laundries and in the central washing facilities of multiple family dwellings, the rooms containing automatic clothes washers shall be provided with floor drains located to readily drain the entire floor area. Such drains shall have a minimum outlet of not less than 3 inches (76 mm) in diameter.
2. Commercial kitchens. In lieu of floor drains in commercial kitchens, the Code Official may accept floor sinks.
3. Public restrooms.

(Reason: To make more compatible with local health code practices)

*****Section 502.3; change to read as follows:**

502.3 Water heaters installed in attics. Attics containing water heaters shall be provided . . . *{Bulk of paragraph unchanged}* . . . side of the water heater. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), and large enough to allow removal of the largest appliance. As a minimum, for access to the attic space, provide one of the following: If access to the attic space is provided by more than an access opening, any of the following items shall be provided:

- ~~1. A permanent stair.~~
- ~~2. 1. A pull-down stair with a minimum 300 lb. (136 kg) capacity.~~
- ~~3. 2. An access door from an upper floor level.~~

Exceptions:

- ~~1. The passageway and level service space are not required where the appliance can be serviced and removed through the required opening.~~
- ~~2. Where the passageway is unobstructed...{Remaining text unchanged}~~

(Reason: To provide a safe means of accessibility to appliances in attics and to allow for different types of construction limitations. Consistent with regional amendment to IMC and IFGC.)

*****Section 502.6; add Section 502.6 to read as follows:**

502.6 Water heaters above ground or floor. When the attic, roof, mezzanine or platform in which a water heater is installed is more than eight (8) feet (2,438 mm) above the ground or floor level, it shall be made accessible by a stairway or permanent ladder fastened to the building.

Exception: A max 10-gallon water heater (or larger with approval) is capable of being accessed through a lay-in ceiling and a water heater is installed is not more than ten (10) feet (3,048 mm) above the ground or floor level and may be reached with a portable ladder.

(Reason: To provide safe access to water heaters. Consistent with regional amendments to IFGC 306.7 and IMC 306.3. Note reference to amendment above.)

*****Section 504.6; change to read as follows:**

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap ~~located in the same room as the water heater.~~
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.

4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.

~~**Exception:** Multiple relief devices may be installed to a single T & P discharge piping system when approved by the administrative authority and permitted by the manufactures installation instructions and installed with those instructions.~~

5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or an approved location or to the outdoors.

{Remainder unchanged}

Local Amendments:

1. Use of flexible copper on discharge piping serving a pressure-relief valve, temperature-relief valve or combination valve is prohibited.
2. When a water heater is located in the interior of a building/residence with no method to drain the pan according to this code, a water alarm and/or automatic shut-off device shall be installed.
3. If the discharge piping serving a pressure-relief valve, temperature-relief valve or combination valve is unable to be discharged to the outside according to this code, alternate discharge means or methods may be approved by the Code Official on a case by case basis.

(Reason: To provide a higher degree of safety)

*****Section 504.7.1; change to read as follows:**

Section 504.7.1 Pan size and drain to read as follows: The pan shall be not less than 1 1/2 inches (38 mm) in depth and shall be of sufficient size and shape to receive all dripping or condensate from the tank or water heater. The pan shall be drained by an indirect waste pipe having a diameter of not less than 3/4 inch (19 mm). Piping for safety pan drains shall be of those materials listed in Table 605.4. Multiple pan drains may terminate to a single discharge piping system when approved by the administrative authority and permitted by the manufactures installation instructions and installed with those instructions.

(Reason: To recognize local requirements)

*****Section 608.1; change to read as follows:**

608.1 General. A potable water supply system shall be designed, installed and maintained in such a manner so as to prevent contamination from non-potable liquids, solids or gases being introduced into the potable water supply through cross-connections or any other piping connections to the system. Backflow preventer applications shall conform to applicable local regulations, Table 608.1, ~~except~~ and as specifically stated in Sections 608.2 through 608.16.10.

(Reason: To recognize local requirements)

*****Section 608.17.5; change to read as follows:**

608.17.5 Connections to lawn irrigation systems. The potable water supply to lawn irrigation systems shall be protected against backflow by an atmospheric-type vacuum breaker, a pressure-type vacuum breaker, a double-check assembly or a reduced pressure principle backflow preventer. A valve shall not be installed downstream from an atmospheric vacuum breaker. Where chemicals are introduced into the system, the potable water supply shall be protected against backflow by a reduced pressure principle backflow preventer.

(Reason: To recognize regional practices)

*****Section 608.18; change to read as follows:**

608.18 Protection of individual water supplies. An individual water supply shall be located and constructed so as to be safeguarded against contamination in accordance with applicable local regulations. Installation shall be in accordance with Sections 608.17.1 through 608.17.8.

(Reason: To allow local requirements to govern.)

*****Section 703.6; Delete**

(Reason: not a standard practice in this region.)

*****Section 704.5; added to read as follows:**

704.5 Single stack fittings. Single stack fittings with internal baffle, PVC schedule 40 or cast iron single stack shall be designed by a registered engineer and comply to a national recognized standard.

(Reason: to allow owners, installers, inspectors, and design professionals to readily identify product markers to determine they meet all required standards.)

*****Section 712.5; add Section 712.5 to read as follows:**

712.5 Dual Pump System. All sumps shall be automatically discharged and, when in any "public use" occupancy where the sump serves more than 10 fixture units, shall be provided with dual pumps or ejectors arranged to function independently in case of overload or mechanical failure. For storm drainage sumps and pumping systems, see Section 1113.

(Reason: To address dual pump system. To provide reference for storm drainage systems.)

*****Section 713, 713.1; change to read as follows:**

ENGINEERED COMPUTERIZED DRAINAGE DESIGN

713.1 Design of drainage system. The sizing, design and layout of the drainage system shall be ~~permitted to be~~ designed by a registered engineer using approved computer design methods.

(Reason: Code was too restrictive.)

*****Section 803.3; added to read as follows:**

803.3 Special waste pipe, fittings, and components. Pipes, fittings, and components receiving or intended to receive the discharge of any fixture into which acid or corrosive chemicals are placed shall be constructed of CPVC, high silicone iron, PP, PVDF, chemical resistant glass, or glazed ceramic materials.

(Reason: To clarify the allowable materials which are specifically listed for chemical drainage applications.)

****Section 903.1; change to read as follows:**

~~**903.1 Roof extension.** Open vent pipes that extend through a roof shall terminate not less than six (6) inches (152 mm) above the roof. Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2,134 mm) above the roof.~~

903.1 Roof extension. All open vent pipes that extend through a roof shall be terminated at least 12 inches (305 mm) above the roof, except that where a roof is to be used for any purpose other than weather protection, the vent extensions shall be run at least 7 feet (2,134 mm) above the roof.

(Reason: To provide regional guideline on standard installation method for this area and address reference number correction.)

*****Section 918.8; change to read as follows.**

918.8 Where permitted. Individual, branch and circuit vents shall be permitted to terminate with a connection to an individual or branch-type air admittance valve in accordance with Section 918.3.1. Stack vents and vent stacks shall be permitted to terminate to stack-type air admittance valves in accordance with Section 918.3.2. Air admittance valves shall only be installed with the prior approval of the Code Official.

(Reason: Mechanical Device that is subject to fail and not installed per manufacturer.)

*****Section 1003; delete entire section:**

(Reason: The City of Amarillo Environmental Health Department has adopted a new grease interceptor per Ordinance No. 7865 and Chapter 8-5, Article IV, Section 8-5-27 of the City of Amarillo Municipal Code.)

*****Section 1106.1; change to read as follows:**

1106.1 General. The size of the vertical conductors and leaders, building storm drains, building storm sewers, and any horizontal branches of such drains or sewers shall be based on six (6) inches per hour the 100-year hourly rainfall rate indicated in Figure 1106.1 or on other rainfall rates determined from approved local weather data.

(Reason: Specify the roof drain size normally used in the area.)

*****Section 1108.3; change to read as follows:**

1108.3 Sizing of secondary drains. Secondary (emergency) roof drain systems shall be sized in accordance with Section 1106 ~~based on the rainfall rate for which the primary system is sized in Figure 1106.1 or on other rainfall rates determined from approved local weather data.~~ Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.7. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when sizing the secondary roof drain system.

(Reason: Specify that overflow drainage is to be the same size as the normal roof drains.)

*****Section 1109; delete this section.**

*****Section 1202.1; delete Exceptions 1 and 2.**

(Reason: State law already specifies that Med Gas systems must comply with NFPA 99.)

END