2015 Uniform Plumbing Code Seminar

PREVIEW OF UPCOMING CHANGES IN THE 2015 EDITION OF THE UPC

Story by Geoff Bilau

Presented by city of Houston Senior Plumbing Inspector John Jordan, the Uniform Plumbing Code® (UPC) seminar at IAPMO's 85th annual Education and Business Conference in Minneapolis covered upcoming notable changes in the 2015 edition of the UPC. Jordan has been involved with plumbing in the Houston area since 1976, where he began his career as an apprentice with UA Plumbers Local 68. In addition to being an instructor for IAPJAC for Local 68 since 1995, he teaches for the Institute of Continuing Education for license renewal of all state of Texas plumbing licenses.

Jordan covered new and/or revised definitions, fixture applications for waterless urinals, lavatories, showers, floor drains, single wall heat exchangers, valve requirements in parallel water systems and myriad other topics. Code text that is underlined indicates new or revised language in the 2015 edition.

103.5.2 New Plumbing Work. New plumbing work and such portions of existing systems as affected by new work, or changes, shall be inspected by the Authority Having Jurisdiction to ensure compliance with the requirements of this code and to ensure that the installation and construction of the plumbing system is in accordance with approved plans. The Authority Having Jurisdiction shall make the following inspections and other such inspections as necessary. The permittee or the permittee’s authorized agent shall be responsible for the scheduling of such inspections as follows:
• (1) Underground inspection shall be made after trenches or ditches are excavated and bedded, piping installed, and before backfill is put in place.

• (2) Rough-in inspection shall be made prior to the installation of wall or ceiling membranes.
• (3) Final inspection shall be made upon completion of the installation.

“We know this has been implied by the code,” Jordan said, “it has now been codified.”

202.0 Definition of Terms.
204.0
Bathroom Group. Any combination of fixtures, not to exceed one water closet, two lavatories, either one bathtub, or one combination bath/shower, or a shower, and may include a bidet and an emergency floor drain.

“The bathroom group definition is important in our horizontal wet venting and other sections of the code,” Jordan said. He then introduced some new definitions.

Bottle Filling Station. A plumbing fixture connected to the potable water distribution system and sanitary drainage system that is designed and intended for filling personal use drinking water bottles or containers not less than 10 inches (254 mm) in height. Such fixtures can be separate from or integral to a drinking fountain and can incorporate a water filter and a cooling system for chilling the drinking water.

Bedpan Steamer. A fixture that is used to sterilize bedpans by way of steam.

Clinical Sink. A fixture that has the same flushing and cleansing characteristics of a water closet that is used to receive the wastes from a bedpan. Also known as a bedpan washer.

Drinking Fountain. A plumbing fixture connected to the potable water distribution system and sanitary drainage system that provides drinking water in a flowing stream so that the user can...
320.0 Rehabilitation of Piping Systems.

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consume water directly from the fixture without the use of accessories. Drinking fountains should also incorporate a bottle filling station and can incorporate a water filter and a cooling system for chilling the drinking water.

Exam Room Sink. A sink used in the patient exam room of a medical or dental office with a primary purpose for the washing of hands.

Sterilizer. A piece of equipment that disinfects instruments and equipment by way of heat.

“Again, as plumbers, installers, inspectors, most of these are things we already knew, but they’ve been added to the code as a definition to clarify,” Jordan said.

312.13 Exposed PVC Piping. PVC piping shall not be exposed to direct sunlight.

Exceptions:
• (1) PVC piping exposed to sunlight that is protected by water based synthetic latex paints.
• (2) PVC piping wrapped with not less than 0.04 inch (1.02 mm) thick tape or otherwise protected from UV degradation

“In our jurisdiction for years we’ve required latex paint, that’s been part of the code,” he said. “If you look into the Plastic Institute’s standards for installation instructions you’ll see that it’s not to be subjected to sunlight. We’ve added this to the code to clarify. This is something that most jurisdictions have practiced all along.”

Table 113.1.

(Footnotes) 7. Supports, hangers, and anchors shall be installed so as not to interfere with the free expansion and contraction of the piping between anchors. Piping systems shall be designed to prevent failure from thermal expansion or contraction.

“Often this is overlooked,” Jordan said. “Recently, I went to do an inspection at a building, a 37-story condo, that was completed several years ago, and in one of the closets they had a main riser that continued up through that particular unit and it literally had probably 3-4 inches of deflection in the pipe.”

320.0 Rehabilitation of Piping Systems
320.1 General
Where pressure piping systems are rehabilitated using an epoxy lining system it shall be in accordance with ASTM F2831.

“Like everything else, it has to have its listings and certifications,” he said.

403.3.1 Non-water Urinals. Where non-water urinals are installed, not less than one water supplied fixture rated at not less than 1 water supply fixture unit (WSFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. Where non-water urinals are installed they shall have a water distribution line rough-in to the urinal location to allow for the installation of an approved
backflow prevention device in the event of a retrofit.

“This is something new and it’s not a bad idea, it may be recommended in these installations,” Jordan said. “Even if you maintain the urinal in sanitary conditions, clean it properly, and use the proper installation instructions for maintaining that urinal, you still don’t get the waterflow. What we’re seeing is a build up in the piping systems and over time you’re going to see a failure of those systems.”

408.4 Waste Outlet. Showers shall have a waste outlet and fixture tailpiece not less than 2 inches (50 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in Section 701.1 for drainage piping. Strainers serving shower drains shall have a waterway at least equivalent to the area of the tailpiece. Exception: In a residential dwelling unit where a 2 inch (50 mm) waste is not readily available, and approval of the Authority Having Jurisdiction has been granted, the waste outlet, fixture tailpiece, trap, and trap arm shall be permitted to be 1 1/2 inch (40 mm) where an existing tub is replaced by a shower sized in accordance with Section 408.6. This exception only applies where one showerhead rated at 2.5 gpm (9.5 L/m) or less is installed.

“We see a lot of retrofits where people are trying to bring their home up to accessible standards, for instance,” he said. “Well, if it’s roughed in with an inch-and-a-half waste, then that becomes a problem so this facilitates the installation of those showers where you could use an inch-and-a-half.”

408.5 Finished Curb or Threshold. The immediate adjoining space to showers without thresholds shall be considered a wet location and shall comply with the requirements of the building, residential, and electrical codes.

“Good thing, right?” Jordan said. “If we’re going to take the threshold away, we need to make some kind of provision for waterproofing the areas adjacent to it.”

501.1 Applicability. No water heater shall be hereinafter installed that does not comply with the manufacturer’s installation instructions and the type and model of each size thereof approved by the Authority Having Jurisdiction.

Unlisted water heaters shall be permitted in accordance with Section 504.3.2.

“What we are seeing is that the manufacturers that introduce standards are getting much more creative,” Jordan said, “we’re seeing some new types of technology, things that we may not be familiar with. It’s very important that we pay attention to the manufacturer’s installation standards. We can easily violate those.”

505.4.1 Single-Wall Heat Exchanger. An indirect-fired water heater that incorporates a single-wall heat exchanger shall be in accordance with the following requirements:
1. The Heat transfer medium shall be either potable water or contains fluids recognized as safe by the Food and Drug Administration (FDA) as food grade.
5.07.4 Drainage Pan. Where a water heater is located in an attic, in or on an attic-ceiling assembly, floor-ceiling assembly, or floor-subfloor assembly where damage results from a leaking water heater, a watertight pan of corrosion-resistant materials shall be installed beneath the water heater with not less than 3/4 of an inch (20 mm) diameter drain to an approved location. Such pan shall be not less than 11/2 inches (38 mm) in depth.

“[a] I’ve had that question often from people who call the office, ‘What is the maximum depth of the pan?’” Jordan said. “It was implied in many cases and some other codes may require a certain type; now we have that in there in the language as 1 1/2 inches as far as depth is concerned.”

5.10.2.19 Chimneys and Vents. Table 510.2(1) through Table 510.2(5) shall be used for chimneys and vents not exposed to the...
outdoors below the roof line. A Type B vent or listed chimney lining system passing through an unused masonry chimney flue shall not be considered to be exposed to the outdoors. A Type B vent passing through an unventilated enclosure or chase insulated to a value of not less than R-8 shall not be considered to be exposed to the outdoors.

“That simplifies the installation, it changes it somewhat; it simplifies the language in such a way that most of us can easily understand, I’d say,” Jordan explained.

601.3 Recirculation Systems. Recirculation systems shall be installed in accordance with Section 601.3.1 through Section 601.3.8

601.3.1 Pump Operation. Circulating hot water systems shall be arranged so that the circulating pump(s) are capable of being turned off (automatically or manually) when the hot water system is not in operation. [ASHRAE 90.2.7.2]

601.3.2 Pumps Between Boilers and Storage Tanks. When used to maintain storage tank water temperature, recirculating pumps shall be equipped with controls limiting operation to a period from the start of the heating cycle to a maximum of 5 minutes after the end of the heating cycle. [ASHRAE 90.1.7.4.4.4]

601.3.3.2 Time Clock Controls. Time clock controls shall not let the pump operate more than 15 minutes every hour. Temperature sensors or other controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature. Controls shall be capable of limiting pump operation to the building’s hours of operation.

“Again, an idea to increase efficiency in order to save energy,” Jordan said.

604.11 Lead Content. Water pipe and fittings with a lead content which exceeds 8 percent shall be prohibited in piping systems used to convey potable water. The maximum allowable lead content in pipes and pipe fittings, plumbing fittings, and fixtures intended to convey or dispense water for human consumption and cooking shall be a weighted average of 0.25 percent with respect to the wetted surfaces of pipes and pipe fittings, plumbing fittings, and fixtures in accordance with NSF 372.

“I think you’ll find that if you were to poll different areas, you may see some slightly different interpretations of where lead-free would be required,” Jordan said. “I think we all agree on the majority of them; there are some areas where the new lead standard is not required, but again we see where it does say for human consumption and cooking it shall be weighted at 0.25 percent.”

604.13 Water Heater Connectors. Flexible metallic (copper, stainless steel) reinforced flexible braided stainless steel or polymer braided with EPDM cores water heater connectors that connect a water heater to the piping system shall be in accordance with ASME A112.18.6/CSA B125.6.

“That language was added to clarify what a water heater connector should be,” Jordan said.

607.0 Gravity Potable Water Supply Tanks.

607.5 Valves. Pressurized tanks shall be
814.4 Fuel-Burning Appliance Condensate Drains.

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provided with a listed pressure-relief valve installed in accordance with the manufacturer’s installation instructions. The relief valve shall be discharged in accordance with Section 608.5. Where a potable water supply tank is located above the fixtures, appliances, or system components it serves it shall be equipped with a vacuum relief valve that is in accordance with CSA Z21.22.

“Most of the tank systems we see in my jurisdiction are open,” Jordan said. “In other words, they have an overflow drain and they have a vent; they’re not closed systems, they’re not pressurized, they have an air gap with a discharge to the water supply into the tank, but if it was a pressurized situation like this then it would be required to be provided with these things.”

608.5 Discharge Piping. The discharge piping serving a temperature relief valve, pressure relief valve, or combination of both shall have no valves, obstructions, or means of isolation and be provided with the following:

(1) Equal to the size of the valve outlet and shall discharge full size to the flood level of the area receiving the discharge and pointing down.
(2) Materials shall be rated at not less than the operating temperature of the system and approved for such use.
(3) Discharge pipe shall discharge independently by gravity through an air gap into the drainage system or outside of the building with the end of the pipe not exceeding 2 feet (610 mm) and not less than 6 inches (152 mm) above the ground and pointing downwards.

(4) Discharge in such a manner that does not cause personal injury or structural damage.
(5) No part of such discharge pipe shall be trapped or subject to freezing.
(6) The terminal end of the pipe shall not be threaded.
(7) Discharge from a relief valve into a water heater pan shall be prohibited.

“I know there are some jurisdictions that would allow that into the pan and I’ve never thought that was a good idea,” Jordan said. “The Uniform Codes never allowed it to discharge into the pan; it’s not only implied, but actually stated here.”

707.4 Location

A cleanout shall be installed above the fixture connection fitting, serving each urinal, regardless of the location of the urinal in the building.

“This is something we’ve seen a lot of debate about,” Jordan said, “where it always said the exception was a urinal or a sink and whether each individual urinal had to have a cleanout or whether it could be the upper terminal of the branch that served the urinals. So this particular section would actually state that each urinal would have its own cleanout above the fixture connection, regardless of the orientation.”

707.4 Location. Exceptions:
(3) Excepting the building drain, and its horizontal branches, and urinals, a cleanout shall not be required on a pipe or piping that is above the floor level of the lowest floor of the building.

“So, what this is saying when it excludes urinals is that they would be required for additional floors above the lowest level of the building drain,” Jordan said.

814.4 Fuel-Burning Appliance Condensate Drains. Condensate drain lines from individual fuel burning condensing appliances shall be sized as required by the manufacturer’s instructions. Condensate drain lines serving more than one appliance shall be approved by the Authority Having Jurisdiction prior to installation.

“Basically, what we’re seeing with a lot of the high-efficiency appliances we have condensate drains that need to be addressed, so this has become an issue where retrofit is concerned
and many times where you take an existing application where there is no drain and now you’ve put in a high-efficiency furnace or water heater, the ducts have condensate discharge from the flue vents that has to be addressed,” Jordan said. “So, there’s additional language to address that within the plumbing code.”

1014.1 General. Where it is determined by the Authority Having Jurisdiction that waste pretreatment is required, an approved type of grease interceptor(s) in accordance with ASME A112.14.3, ASME A112.14.4, CSA B481, PDI G-101, or PDI G-102, and sized in accordance with Section 1014.2.1 or Section 1014.3.6, shall be installed in accordance with the manufacturer’s installation instructions to receive the drainage from sinks and drains, fixtures or equipment that produce grease-laden waste located in areas of establishments where food is prepared, or other establishments where grease is introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal systems.

“The big change there — I guess it’s really not a big change, maybe it’s a clarification — what we used to emphasise along the way was that only grease-bearing fixtures go to the interceptor,” Jordan said. “What we saw in the last couple of codes that were approved is where the sizing changed, which made it much easier in my opinion to size gravity interceptors, but the problem was it never specified what was the type of fixture that could drain there. It told you some of the fixtures that needed to drain there, but it didn’t prohibit other types of fixtures from draining. It only required that it be sized according to the total discharge.”

1101.11 Roof Drainage
1101.11.1 Primary Roof Drainage. 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 of 60 minutes duration and 100 year return period, with a maximum of 2 inches (51 mm) of ponding.
1101.11.2.1 Roof Scuppers or Open Side.
Where secondary roof drainage is provided by an open-sided roof or scuppers where the roof perimeter construction extends above the roof in such a manner that water will be entrapped, the ponding depth for roof load design shall be 1 inch (25.4 mm) above the (overflow level) height of the perimeter. Scupper openings shall be not less than 4 inches (102 mm) high and have a width equal to three times the diameter of the roof drain required for the area served, sized in accordance with Table 1101.11.
1101.11.2.2 Secondary Roof Drain. Secondary roof drains shall be provided. The secondary roof drain shall be located above the roof surface. Primary roof drains measured from the roof level at a point of 2 feet (610 mm) horizontal from the center of the primary drain. They shall be sized the same as the primary roof drain. The total depth of ponding for the roof design will be 2 inches (51 mm) for the primary and 2 inches (51 mm) additional for the secondary for a total of 4 inches (102 mm) ponding depth. The secondary roof drains shall connect to a piping system in accordance with Section 1101.11.2.2(A) or Section 1101.11.2.2(B).

“I recently went to a building that has no overflow drains,” Jordan said. “It’s a school and it has no parapet. And there was basically an engineered system that was approved that would allow the overflow of the roof to act as the emergency overflow drain. Basically the overflow of the roof is at the heights required by this. To me it was a very liberal interpretation.”

With that, Jordan concluded his presentation and thanked attendees for their participation.