

~~2006~~  
2018

# ARKANSAS PLUMBING CODE

Based on the ~~2006~~ 2018  
International Plumbing Code®





201806 Arkansas Plumbing Code

First Printing

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# FOREWORD

The Arkansas ~~State~~ Plumbing Code has been prepared for the purpose of setting forth minimum uniform standards to be followed by the Arkansas Plumbing Industry.

The following ~~regulation~~rule is duly adopted and promulgated by the Arkansas State Board of Health pursuant to the authority expressly conferred by the State of Arkansas in Act 200, of 1951, as amended, and Act 96 of 1913, as amended.

Revisions were made in 1953, 1957, 1963, 1970, 1991, 1995, 1999, 2003 and 2006 (2006 Code Revised in 2008, 2012, & 2013 for minor changes).

All questions/comments regarding this publication should be directed to the Arkansas Department of Health, Plumbing & Natural Gas Section, 4815 W. Markham St., Slot -24, Little Rock, Arkansas 72205-3867.

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<b>CHAPTER 1 ADMINISTRATION</b>	<b>1</b>
Section	
101 General	1
102 Applicability	1
103 Department of Health, Arkansas State Plumbing and Natural Gas Section	12
104 Duties and Powers of the Code Official	2
105 Approval	23
106 Permits	3
107 Inspections and Testing	45
108 Violations	56
109 Means of Appeal	67
110 Code Book Fees	6

<b>CHAPTER 2 DEFINITIONS</b>	<b>79</b>
Section	
201 General	79
202 General Definitions	79

<b>CHAPTER 3 GENERAL REGULATIONS</b>	<b>1519</b>
Section	
301 General	1519
302 Exclusion of Materials Detrimental to the Sewer System	1519
303 Materials	1519
304 Rodentproofing	1520
305 Protection of Pipes and Plumbing System Components	1620
306 Trenching, Excavation and Backfill	1621
307 Structural Safety	1721
308 Piping Support	1721
309 Flood Hazard Resistance	1822
310 Washroom and Toilet Room Requirements	1922
311 Toilet Facilities for Workers	1923
312 Tests and Inspections	1923
313 Equipment Efficiencies	2024
314 Condensate Disposal	2024
315 Penetrations	25

<b>CHAPTER 4 FIXTURES, FAUCETS AND FIXTURE FITTINGS</b>	<b>2327</b>
Section	
401 General	2327
402 Fixture Materials	2327
403 Minimum Plumbing Facilities	2327
404 Accessible Plumbing Facilities	2632
405 Installation of Fixtures	2632
406 Automatic Clothes Washers	2733
407 Bathtubs	2733
408 Bidets	2734
409 Dishwashing Machines	2834
410 Drinking Fountains	2834
411 Emergency Showers and Eyewash Stations	2834
424 412 Faucets and Other Fixture Fittings	3134
412 413 Floor and Trench Drains	2835

427 414 Floor Sinks	3235
425 415 Flushing Devices for Water Closets and Urinals	3235
413 416 Food Waste Grinder Units	2836
414 417 Garbage Can Washers	2836
415 418 Laundry Trays	2836
416 419 Lavatories	2836
426 420 Manual Food and Beverage Dispensing Equipment	3236
417 421 Showers	2937
418 422 Sinks	3038
423 Specialty Plumbing Fixtures	3138
419 424 Urinals	3038
420 425 Water Closets	3038
421 426 Whirlpool Bathtubs	3039
422 427 Health Care Fixtures and Equipment	3139

<b>CHAPTER 5 WATER HEATERS</b>	<b>3341</b>
Section	
501 General	3341
502 Installation	3341
503 Connections	3342
504 Safety Devices	3442
505 Insulation	3443

<b>CHAPTER 6 WATER SUPPLY AND DISTRIBUTION</b>	<b>3545</b>
Section	
601 General	3545
602 Water Required	3545
603 Water Service	3545
604 Design of Building Water Distribution System	3646
605 Materials, Joints and Connections	3747
606 Installation of the Building Water Distribution System	4254
607 Hot Water Supply System	4356
608 Protection of Potable Water Supply	4456
609 Health Care Plumbing	4762
610 Disinfection of Potable Water System	4762
611 Drinking Water Treatment Units	4763
612 Solar Systems	4763
613 Temperature Control Devices and Valves	4763
614 Testing and Repair	4763

<b>CHAPTER 7 SANITARY DRAINAGE</b>	<b>4965</b>
Section	
701 General	4965
702 Materials	4965
703 Building Sewer	5165
704 Drainage Piping Installation	67 51
705 Joints	5167
706 Connections Between Drainage Piping and Fittings	5471
707 Prohibited Joints and Connections	5572
708 Cleanouts	5572

709 Fixture Units . . . . .	<u>5675</u>
710 Drainage System Sizing . . . . .	<u>5675</u>
711 Offsets in Drainage Piping in Buildings of Five Stories or More . . . . .	<u>5676</u>
712 Sumps and Ejectors . . . . .	<u>5976</u>
713 <del>DELETED Health Care Plumbing</del> . . . . .	<u>5977</u>
714 <del>Backwater Valves Deleted</del> . . . . .	<u>6177</u>
715 <del>Vacuum Drainage Systems Backwater Valves</del> . . . . .	<u>6177</u>
716 Replacement of Underground Building Sewers and Building Drains by Pipe-Bursting Methods . . . . .	<u>77</u>

## **CHAPTER 8 INDIRECT/SPECIAL WASTE . . . . 6379**

### **Section**

801 General . . . . .	<u>6379</u>
802 Indirect Wastes . . . . .	<u>6379</u>
803 Special Wastes . . . . .	<u>6480</u>
804 <del>Materials, Joints and Connections</del> . . . . .	<u>64</u>

## **CHAPTER 9 VENTS . . . . . 6581**

### **Section**

901 General . . . . .	<u>6581</u>
902 Materials . . . . .	<u>6581</u>
903 <del>Vent Stacks and Stack Vents</del> . . . . .	<u>65</u>
904-903 Vent Terminals . . . . .	<u>6582</u>
904 Outdoor Vent Extensions . . . . .	<u>81</u>
905 Vent Connections and Grades . . . . .	<u>6682</u>
906 Vent Pipe Sizes . . . . .	<u>82</u>
907 Vents for Stack Offsets . . . . .	<u>83</u>
914-908 Relief Vents—Stacks of More Than 10 Branch Intervals . . . . .	<u>6883</u>
906-909 Fixture Vents . . . . .	<u>6683</u>
907-910 Individual Vent . . . . .	<u>6683</u>
908-911 Common Vent . . . . .	<u>6683</u>
909-912 Wet Venting . . . . .	<u>6685</u>
910-913 Waste Stack Vent . . . . .	<u>6785</u>
911-914 Circuit Venting . . . . .	<u>6786</u>
912-915 Combination Drain And Vent System . . . . .	<u>6887</u>
913 Deleted . . . . .	<u>68</u>
916 Island Fixture Venting . . . . .	<u>87</u>
917 Air Admittance Valves . . . . .	<u>70</u>
918 Deleted . . . . .	<u>70</u>

## **CHAPTER 10 TRAPS, INTERCEPTORS AND SEPARATORS . . . . .7389**

### **Section**

1001 General . . . . .	<u>7389</u>
1002 Trap Requirements . . . . .	<u>7389</u>
1003 Interceptors and Separators . . . . .	<u>7390</u>
1004 Materials, Joints and Connections . . . . .	<u>7593</u>

## **CHAPTER 11 STORM DRAINAGE . . . . .7793**

### **Section**

1101 General . . . . .	<u>7793</u>
1102 Materials . . . . .	<u>7793</u>
1103 Traps . . . . .	<u>7893</u>
1104 Conductors and Connections . . . . .	<u>7895</u>
1105 Roof Drains . . . . .	<u>7895</u>
1106 Size of Conductors, Leaders and Storm Drains . . . . .	<u>7895</u>
1107-1108 Secondary (Emergency) Roof Drains . . . . .	<u>85101</u>
1108 Deleted . . . . .	<u>86</u>
1109 Values for Continuous Flow . . . . .	<u>86</u>
1109 Combined Sanitary and Storm System . . . . .	<u>101</u>
1110 Controlled Flow Roof Drain Systems . . . . .	<u>86105</u>
1111 Subsoil Drains . . . . .	<u>86105</u>
1112 Building Subdrains . . . . .	<u>86105</u>
1113 Sumps and Pumping Systems . . . . .	<u>86105</u>

## **CHAPTER 12 REFERENCED STANDARDS . . . . . 87Deleted**

### **APPENDIX A PLUMBING PERMIT FEE SCHEDULE . . . . .95**

Permit Issuance . . . . .	<u>95</u>
Unit Fee Schedule . . . . .	<u>95</u>
Other Inspections and Fees . . . . .	<u>95</u>

## **CHAPTER 13 NONPOTABLE WATER SYSTEMS . . . . .106**

### **Section**

1301 Scope . . . . .	<u>106</u>
1302 On-Site Nonpotable Water Reuse System . . . . .	<u>108</u>
1303 Nonpotable Rainwater Collection And Distribution System . . . . .	<u>110</u>
1304 Reclaimed Water System . . . . .	<u>113</u>

## **CHAPTER 14 REFERENCE STANDARDS . . . . .114**

### **APPENDIX B RATES OF RAINFALL FOR VARIOUS CITIES . . . . .97136**

### **APPENDIX C GRAY WATER RECYCLING SYSTEMS . . . . .99**

#### **Section**

C101 Gray Water Recycling Systems . . . . .	<u>99</u>
C102 Systems for Flushing Water Closets and Urinals . . . . .	<u>99</u>
C103 Deleted . . . . .	<u>99</u>

### **APPENDIX D DEGREE DAY AND DESIGN TEMPERATURES . . . . .101139**

### **APPENDIX E SIZING OF WATER PIPING SYSTEM . . . . .107145**

#### **Section**

E101 General . . . . .	<u>107145</u>
------------------------	---------------

E102 Information Required ..... ~~107~~145  
E103 Selection of Pipe Size ..... ~~107~~145  
E201 Selection of Pipe Size ..... ~~124~~163  
~~APPENDIX F Deleted~~ ..... ~~127~~

~~APPENDIX G VACUUM DRAINAGE  
SYSTEM~~ ..... ~~129~~

Section  
G101 Vacuum Drainage System ..... 129

~~APPENDIX H PLUMBING AND NATURAL GAS  
INSPECTORS~~ ..... ~~131~~168

~~APPENDIX I AIR ADMITTANCE VALVES~~ ..... ~~133~~  
~~INDEX~~ ..... ~~137~~

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## ***Introduction***

The current Arkansas Plumbing Code (“Code” or “Rules”) is the 2006 Edition based on the 2006 Edition of the International Plumbing Code.

The proposed 2018 Edition of the Arkansas Plumbing Code is based on the 2018 Edition of the International Plumbing Code. State changes / modifications are being proposed to the 2018 International Plumbing Code primarily to ensure that the 2018 Arkansas Plumbing Code adequately addresses plumbing engineering issues which may be unique to Arkansas.

The regular adoption of an updated modern code is an ongoing effort intended to maintain comprehensive standards for ever changing systems, materials, methods, procedures, and equipment in plumbing health and safety.

## ***Major Changes to the 2006 Arkansas Plumbing Code***

User notes have been added to the beginning of all Chapters.

An exception to the requirement for public toilet facilities has been added to the code for tenant spaces intended for “quick transactions” such as takeout dining establishments of 300 square feet or less in area. (Section 403.3; P35-12)

Remove requirements for residential clothes washers --- making them optional. (Table 403.1)

Giving business owners more power to deny the use of public restrooms based on security. (Section 403.3 (a))

New innovative provisions for the replacement of underground sewers with minimal disruption for pipes up to six inches in diameter via the “pipe bursting method” have been added to the code. (Section 717; P159-12)

The storm drainage provisions of Chapter 11 have been substantially revised relative to the size of roof drainage systems. Research has shown that ponding of water can increase the pressure in the drainage system to the point where piping failures can occur. (Chapter 11; P211, P217, P218, P219 and P221-12)

Chapter 13 Gray Water Recycling Systems has been replaced with a broader new chapter entitled Non-potable Water Systems. It includes updates to the gray water provisions and new requirements for rainwater harvesting systems and systems utilizing reclaimed water for non-potable applications. These provisions are correlated with the International Green Construction Code. (Chapter 13; P11-12)

A more detailed summary of changes for each chapter are noted on the following pages.



# Chapter 1 SUMMARY

## Scope and Administration

**101.3 Intent:** The rewording of this code section is aimed at clarifying the intent of this code draft, establishing minimum standards in order to provide a reasonable level of safety, health and property protection.

**102.1: General:** New wording was added to this section of code to provide guidance in circumstances where conflict may occur between general requirements and specific requirements, with preference in favor of the specific requirements.

**102.3 Maintenance:** This code segment addresses the responsibility for maintaining the functionality of plumbing systems. The adjective “authorized” replaces “designated” with respect to owner’s agent. An agent may be authorized without being pre-designated.

**102.4 Additions, alteration or repair:** New wording to this section implies a preference for updating during the process of addition, alteration or repair while still allowing the option of retention of the original manner or arrangement if it is not hazardous and is approved.

**102.8 Referenced codes and standards:** The last sentence was removed and reworded in a new sub section 102.8.1.

**102.8.1 Conflicts:** A new subsection designed to resolve conflicts between this plumbing code and the reference standards, listed in Chapter 14, in favor of this plumbing code edition.

**102.10: Application of references:** This addition to plumbing code states that a general reference to a

Chapter Section number or Section shall be viewed as a code reference to the applicable provision referenced.

**103.1 Liability:** This segment addresses tort immunity for code officials discharging their duties within their jurisdiction and in good faith without malice.

**105.1 Modifications:** Minor grammatical change.

**105.2: Alternative materials, methods and Equipment.** Rewording to expand and clarify the existing code.

**105.4 Material and equipment reuse:** New code to address reuse of materials or equipment.

**106.5.3 Suspension or revocation of permit:** Language changed to add suspension to the code text and to clarify cause.

**160.5.5 Previous approvals:** Provides that approvals preceding this code adoption, remain valid.

**107.2.2 Equipment, material and labor for tests. / 108.1 Unlawful acts / 108.2 Notice of violation / 108.5 Stop work orders -:** Minor grammatical changes.

**108.7.2. Authority to disconnect service utilities.:** Added “or owners’ agent” to code.

**108.7.3 Connection after order to disconnect.** Minor grammatical changes.

**SECTION 110 CODE BOOK FEES:** Deleted – Fees are in a different Rule.

# Chapter 2 SUMMARY

## Definitions

Some rearranging was required in this chapter as the 2006 version contained sections that were not in alphabetical order. Several definitions have been added or removed due to changes in the industry.

**ACCESSIBLE:** Added definition.

**ALTERNATE ON-SITE NONPOTABLE WATER:** Added definition.

**ANTI-SCALD VALVE.:** Deleted.

**APPROVED AGENCY:** Reworded

**ASPIRATOR:** Deleted.

**BACKFLOW PREVENTER:** Expanded definition.

**BEDPAN STEAMER OR BOILER / BEDPAN WASHER AND STERILIZER / BEDPAN WASHER HOSE:** Deleted from the plumbing code.

**BRANCH:** Definition has been simplified.

**BUILDING SEWER:** Added “Combined definition” to the sub definitions.

**CIRCULATING HOT WATER SYSTEM:** Added definition.

**CLEANOUT:** “removable fixture or fixture trap” was added to the definition.

**COLLECTION PIPE:** Added definition.

**COMBINATION WASTE AND VENT SYSTEM:** Added lavatories and drinking fountains to the definition to correspond with already existing language in Chapter Nine.

**DEAD END:** “Potable water service” and “water distribution” were added to address stagnation concerns.

**DEMAND RECIRCULATION WATER SYSTEM:** Added definition.

**DEPTH OF TRAP SEAL:** Renamed.

**DESIGN FLOOD ELEVATION:** Expanded definition.

**DRINKING FOUNTAIN:** Added definition

**ENVIRONMENTAL HEALTH ADMINISTRATIVE AUTHORITY:** Deleted

**FIXTURE FITTING/Supply Fitting:** Minor grammatical changes for clarification.

**FULL-OPEN VALVE:** Definition added.

**GRAY WATER:** Added definition.

**GREASE INTERCEPTOR:** This term replaces the term “Grease Trap” and is defined with sub definitions to address each type of interceptor:

**Fats, oils and greases (FOG) disposal system:** Added definition.

**Gravity:** Added definition.

**Hydromechanical:** Added definition.

**GREASE TRAP:** Deleted, this term has been replaced with Grease Interceptor.

**LOCAL VENT STACK:** Definition deleted.

**MECHANICAL JOINT:** “Heat fused” was added to the definition.

**MEDICAL GAS SYSTEM:** Deleted, not applicable.

**MEDICAL VACUUM SYSTEMS:** Deleted, not applicable.

**METER:** Added definition.

**MINOR REPAIRS:** This definition has been reworded for clarity.

**ON-SITE NONPOTABLE WATER REUSE SYSTEM:** Added definition.

**PLUMBING APPLIANCE:** Wording changes for clarification.

**PLUMBING SYSTEM:** Minor rewording.

**PRESS-CONNECT JOINT:** Added definition to correspond with update pipe joining methods.

**PUBLIC SWIMMING POOL:** Added definition.

**RAINWATER:** Added definition.

**RECLAIMED WATER:** Added definition.

**REGISTERED DESIGN PROFESSIONAL:** Minor grammatical changes for clarification.

**SEWER/Public sewer:** The definition has been expanded.

**STERILIZER / STERILIZER VENT:** Definitions and all sub definitions have been deleted from this code.

**STORM WATER:** Added definition.

**SWIMMING POOL:** Definition has been expanded.

**TEPID WATER:** Added definition.

**THIRD-PARTY CERTIFICATION AGENCY:** Added definition.

**TOILET FACILITY:** Added definition.

**WASTE RECEPTOR:** Added definition.

**WATER COOLER:** Added definition.

**WATER DISPENSER:** Added definition.

**WATER HEATER:** Minor grammatical changes.

**WELL:** Deleted

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# Chapter 3 SUMMARY

## General Regulation

**301.3 Connections to the sanitary drainage system:** An exception was added to this section approving the discharge from specific fixtures to an alternate location for reuse as approved in Chapter 13 of this code edition.

**301.4 Connections to water supply:** The first portion of this code segment has been removed. It was restrictive in respect to locations and repetitive to other portions of this code with regard to potable water requirements.

**301.6 Prohibited locations:** This code segment prohibits plumbing system installations in elevator shafts or equipment rooms except for floor drains, sumps and sump pumps that are indirectly connected to the plumbing system. The exception was expanded to include Section 1003.4. Oil separator required.

**301.7 Conflicts:** This segment was altered to resolve conflicts between the plumbing code and manufacturers installation instructions in favor of the most restrictive of the two.

**303.1 Materials/Identification:** This paragraph of code contains an addition to include markings required by the reference standards to be bore on the materials.

**303.4 Materials/Third-party certification:** Wording was added to this segment requiring material to be listed by the third-party certification agencies with which reference standards they comply with.

**303.5 Cast-iron soil pipe, fittings and components.** New code pertaining to cast-iron pipe reference standards.

**304.4 Rodent proofing/Openings for pipes:** Alterations to this code segment approves gaskets or caulking to seal sleeve openings.

**305.1 Protection against contact:** Code added to prohibit metallic piping from be in contact with materials that could produce adverse effects due to composition or movement. Replaces 305.1 Corrosion.

**305.2 Stress and strain:** Replaces former "305.2 Breakage" which was deleted and combined with 305.3

**305.3 Pipes through or under footings or foundation walls:** Previous code section 305.2 was combined with this segment to maintaining protection of pipes passing through walls and under floors. Additional requirements

were added to sleeve water distribution piping passing through concrete barriers for protection from breakage. Was section 305.5

**305.4 Freezing:** This code section was renumbered and modified to remove the restriction prohibiting the installation of tub and shower valves in outside walls.

**305.6 Protection against physical damage.** Alterations made to this code segment approve lighter gauge shield plates for nail and screw protection.

**305.8 Sleeves:** This code section was renumbered from 305.4 with no changes.

**TABLE 303.4 PRODUCTS AND MATERIALS REQUIRING THIRD-PARTY TESTING AND THIRD-PARTY CERTIFICATION:** Deleted.

**307.2 Cutting, notching or bored holes:** The words "if possible" were added to this code to allow for circumstances beyond the plumbers control and language that defined exceptions, was deleted

**307.5 Protection of footings:** This new code segment outlines the parameters of the bearing plane of a footing or wall. Excavation inside these parameters could compromise the structural stability of the building.

**307.6 Trench location:** This new code segment provides an outline of an approved method to trench near the footing.

**TABLE 308.5 HANGER SPACING:** This table provides requirements for maximum spacing between hangers for approved piping material types. It had been updated with the addition of recently approved materials.

**308.6 Sway bracing.** This code was rewritten to limit it application to horizontal piping containing soil or waste.

**308.9 PIPING SUPPORT/Stacks:** Deleted.

**308.9 (renumbered) Parallel water distribution systems:** This segment has been worded to approve hot and cold-water lines to be bundled together if each hot water line is first insulated. Insulating is also required when only hot water lines are bundled together.

**308.10 Thermal expansion tanks.** New code to specify how this component is to be supported.

**309.2 Flood hazard.** The wording has been changed to reference the Arkansas Fire Protection Code and some minor grammatical changes.

**309.3 Flood hazard areas subject to high-velocity wave action.** Deleted

**310.2 Location of fixtures and compartments:** Renamed from piping to compartments. The original portion of this segment has been moved to 405.3.3. The new language added to this segment refers to the relocation of 310.4 - 310.4.1 Water closet & Urinal partitions to 405.3.

**310.4 - 310.4.1 Water closet & Urinal partitions:** Relocated to 405.3

**Section 311 TOILET FACILITIES FOR WORKERS:** Deleted.

**312.3 Drainage and vent air test:** Phrase add to reference plastic pipe's manufactures instructions regarding testing.

**312.4 Drainage and vent final test:** The clause "except that the plumbing shall be subject to a smoke test where necessary for cause" was removed from this text.

**312.5 Water supply system test:** This code segment was revised to raise the minimum amount of pressure required to test a water system with air from 75 pounds per square inch to 80 pounds per square inch. This change corresponds to changes made in 604.8.

**312.9 Shower liner test:** This code segment was added to approve a method for testing shower liners.

**312.10 Inspections and testing of backflow prevention assemblies:** The Sections numbers referenced in this segment were changed due to revisions and reordering of this code edition.

**312.10.1 Inspections:** This code section was reworded outlining inspection of backflow prevention devices in accordance with manufacture instructions. Annual inspection requirements were removed from this segment because maintenance tests are regulated by other state entities.

**314.2.2 Drain pipe materials and sizes.** This code segment was revised to add copper alloy and polypropylene pipe to the approved material types for this application. A notation has been added to approve joining methods applicable to the material being used as those outlined in Chapter 7. A sizing table reference has been added. See Table 314.2.2

**TABLE 314.2.2 CONDENSATE DRAIN SIZING:** This table was added to outline approved sizing for condensate drain sizing.

**314.2.3 Auxiliary and secondary drain systems:** The code segment was reworded to clarify that each cooling coil or fuel fired appliance must be provided with an auxiliary drainage system, except those that meet the parameters outlined in the exception.

**314.2.3 (1):** This subsection of code approves thinner galvanized pans for condensate disposal systems, than were approved in earlier code editions.

**314.2.3 (3):** This subsection of code has been amended with the addition of UL 508 reference standard for water level detection devices.

**314.2.3 (4):** This is a new subsection of code approving the various installation locations of water level detection devices.

**314.2.3 Exception:** This subsection of code has been added to approve the exclusion from section 314.2.3 Auxiliary and secondary drain systems, of appliances designed to automatically shut down operations when a stoppage occurs in the condensate system.

**314.2.3.1 Water-level monitoring devices:** This subsection of code was added to approve water-level monitoring device applications on down flow units where there is no secondary drain or pan installation possible. This section prohibits installation of the device in the drain line.

**314.2.3.2 Appliance, equipment and insulation in pans:** This subsection of code was added to require that equipment or components subject to damage by water shall be installed above the flood rim of the drain pan for protection.

**314.2.4.1 Ductless mini-split system traps:** This is a new subsection of code requiring traps on ductless mini- split system drains.

**314.2.5: Cleanout:** This code subsection requires cleanouts for condensate drains.

**SECTION 315 PENETRATIONS:** This is a new code Section pertaining to pipe penetrations.

**315.1: Sealing of annular spaces:** This segment of code defines the expectations of the plumbing department with regards to sealing between pipe wall or floor penetrations and pipe and sleeving penetrations. This is to ensure that the proper sealant is used for the application in question.

## CHAPTER 4 SUMMARY

### FIXTURES, FAUCETS AND FIXTURE FITTINGS

**401.2 Prohibited fixtures and connections:** A reference standard was updated in this section.

**403.1 Minimum number of fixtures:** Reworded to clarify the intent that occupancy loads should be based on the actual use of the space and not square footage. An exception has been added to allow the administrative authority to approve adjustments to occupancy calculations.

**403.1.1 Fixture calculations:** This is a new code addition that replaces 403.3 “Number of occupants of each sex”. This segment modifies an approved method for calculating the fixture ratios for each sex by explaining how to apply fractional numbers. An exception, addressing circumstances where statistical data supports an uneven ratio of genders, has been added that expands on the latter portion of the code being replaced.

**403.1.2 Single-user toilet and bath fixtures:** Renamed and numbered from code 403.1.1 Unisex. The noun “Unisex” has been replaced with “Single-user”. This segment was reworded to state that “single-users” restrooms “shall” contribute to the total number of required amenities instead of say “they are permitted” to be used as such. Also. Language added here allows for the Single-use, Family and Assisted toilet facilities be assigned for use by either sex.

#### 403.1.3

**Lavatory distribution:** This is a new code segment that address proportional relationship between lavatories and water closets.

#### 403.2 Separate facilities:

Exception #2 changed to increase the minimum occupancy load by from 15 to 25 before separate facilities are required for each sex and the word “less” was replaced by “fewer”.

Exception #3, “mercantile occupancies maximum count for a single restroom,” was changed from 50 to 100 and the word “less” was replaced by “fewer”.

#### 403.3 Number of occupants for each sex: Deleted

**TABLE 403.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES:** The “Occupancy” column and alpha numerical destinations has been deleted. Gaming areas; medical examination and treatment rooms and Employees in reformatories, detention and correction centers have been added to the Occupancy Descriptions. Description titles where changes to “Custodial” care from “Residential”; to “Medical care recipients” from “Ambulatory patients”; to “hospitals and nursing homes” from “other that residential care” and to “Congregate living facilities..” from “ Residential care/ assisted living facilities”. A spelling correction was made to “Reformatories” and the female occupancy load count to determine the water closets required in some “Assembly” type occupancies was increased from 1500 to 1520. Automatic clothes washer connections were removed from the mandatory requirement list of all occupancies. Service sink and drinking fountain requirements have been removed in businesses and mercantile occupancies with occupancy loads of 15 or fewer unless required by food services in Notation “e”. Also, Notation “f” references the International Swimming Pool and Spa code as determining the required plumbing facilities for outdoor pools. Notation “g” references § 17-38-105 public restrooms required, in occupancy types as listed and pursuant to Act 1016 of the 85<sup>th</sup> General Assembly in exception 4. Notation “h” was added to ensure child day care restrooms are fully enclosed for privacy, sanitation and ventilation.

**403.2.1 Family or assisted-use toilet facilities serving as separate facilities:** This segment has been added approving the use of two family or assisted-use facilities to serve as gender separate facilities where only one water closet each is required.

**403.3 Employee and public toilet facilities (Formerly 403.4 Required public toilet facilities):** Wording has been struck out concerning the route to public restrooms but has been addressed in 403.3.1. Three exceptions have been added to define occupancy types that do not require public restrooms.

**403.3(a):** This code was added to define the intent of 403.3 and outline the interpretation of the state administrative authority with regard to public restrooms and security.

**403.3.1 Access.** This code segment addition defines approved routes and routing restrictions to the required facilities in occupancy. This segment also provides that such facilities be available at all times that the occupancy is being utilized.

**403.3.2 Prohibited toilet room location:** This segment prohibits a toilet room from opening into a public food preparation area.

**403.3.4 Location of toilet facilities in malls:** This code segment combines covered and open malls. Changes include that the required number of facilities calculations be based on occupancy load and not square footage.

**403.3.6 Door locking:** This segment addition outlines the use of door locks. Multiple occupant toilet rooms shall not be locked from the inside. An exclusion has been provided for family or assisted use facilities.

**403.4 Signage:** This segment requires signage for male and female restrooms. The wording was rearranged adding the word “provided” and adding a reference to Arkansas Fire Prevention Code.

**403.4.1 Directional signage:** This segment has been added to outline areas that should display directional guidance to the available restroom facilities.

**404.1 Where required:** A note has been added to this segment informing the reader that Americans Disabilities Act requirements are not governed by this code and that other agencies regulate those requirements.

**405.3.1 Water closets, urinals, lavatories and bidets:** Spacing dimension have been added for wall hung water closets with an exception for children’s water closets.

**FIGURE 405.3.3 FIXTURE CLEARANCE:** Deleted.

**405.3.2 Public lavatories:** Day care and elementary school exceptions for child hand washing supervision were added to this segment of code. By approval of a lavatory outside

the restroom, the responsible adult can ensure that proper hand washing procedures are addressed.

**405.3.3 Location of fixtures and piping:** This was moved from 310.2.

**405.3.4 Water closet compartment:** This section was moved from chapter 3 without changes.

**405.3.5 Urinal partitions:** This section was moved from chapter 3 without changes.

**405.4. Floor and wall drainage connections:** This segment approves a waste connector with a gasket to the floor and wall connection types.

**405.5 Plumbing fixtures with pumped waste:** New code added to provide reference standards for these types of fixtures. This code also requires adhesion to the manufacture’s installation instructions.

**405.9 Design and installation of plumbing fixtures:** Reference standards were updated.

**406.1 Water connection:** This segment contains some rewording regarding air gaps in automatic clothes washers altering from “installed integrally” to “that is integral”. New reference standards for these air gaps have been provided.

**406.2 Waste connection:** This section was reworded to clarify that the clothes washer “fixture drain” shall connect to a 3 – inch or larger diameter fixture branch or stack.

**SECTION 407 BATHTUBS /407.1 Approval:** Reference Standards for bathtubs were updated.

**407.2 Bathtub waste outlets:** This segment was reworded and contains the additional requirement of a waste overflow.

**408.1 Approval:** One reference standard was removed from this segment.

**408.3 Bidet water temperature:** Reference standards were updated.

**409.1 DISHWASHING MACHINES/ Approval:** Domestic dishwasher was changed to residential and the ASSE standard was replaced with a NFS standard.

**409.2 Water connection:** Integral air gaps and corresponding reference standards protecting dishwashing machine water supplies have been added to this code segment.

**409.3 Waste connection:** Reference to code 802.1.7 has been stricken.

**409.4 Residential dishwasher connection:** This code language was **802.1.6 Domestic dishwashing machines**. The text has been stricken in Chapter 8 and placed here.

**410.1 Approved:** Reference standards have been updated and water dispensers have been added.

**410.1(a) NOTE:** Notation added to remind reader that Americans with Disabilities Act regulations for drinking fountains are not covered in this code and are regulated by the federal government.

**410.2 Small Occupancies.** This code was added to exclude drinking fountain requirements in occupancies of less than 25 persons.

**410.3 Drinking fountain nozzle attached to fixture:** Deleted and replaced.

**410.3 Substitutions.** This code offers alternatives to drinking fountain installations by water dispensers or restaurants that serve water.

**410.4 Prohibited location:** Water coolers and dispensers were added to fixtures prohibited in restrooms.

**411.1 Approval:** Pervious language was stricken.

**411.3 Water supply:** This code was added to provide a reference standard for the water mixing valve and a temperature standard on emergency eyewash stations connected with hot and cold water.

**411.3 Water supply:** New code requiring temperature actuated mixing valve for eye wash stations where connected to hot water.

**SECTION 413 FLOOR AND TRENCH DRAINS:** Renumbered from 412.

**413.2 Floor drains:** A spelling correction was made with "removable". Ready access was added as a requirement for floor drains. An exception to the ready access requirement was made for floor drains serving refrigerated display cases.

**413.3 Size of floor drains:** In this segment the term "minimum" was replaced with "not less than".

**SECTION 416 FOOD WASTE DISPOSER UNITS:** In this code Section all instances of the word "grinder" were replaced by the word "disposer". The Section was renumbered from 413. Reference standards were update.

**416.3 Commercial food waste grinder waste outlets:** In this code segment the "minimum of 2 inches" was

replaced by "not less than 1 ½ inches" in reference to the outlet connection to the drain.

**416.4 Water supply required:** Requirement for backflow prevention to commercial grinders cold water supply has been added to this segment.

**SECTION 417 GARBAGE CAN WASHERS:** Renumbered from 414.

**SECTION 418 LAUNDRY TRAYS:** Renumbered from 415. The reference standards for laundry trays have been updated.

**418.2 Waste outlet:** The phrase "minimum of 1.5 inches" has been replaced with "not less than 1 ½ inches" with regard to laundry tray waste outlets.

**SECTION 419 LAVATORIES:** Renumbered from 416.

**419.1 Approvals:** The reference standards were updated in this code section.

**419.2 Cultured marble lavatories:** One reference standard was updated in this segment.

**419.3 Surrounding materials:** Deleted

**419.5 Water for public hand-washing facilities:** The reference standards have been updated and a temperature range has been added. Language has been added to address whom the "public" is.

**SECTION 421 SHOWERS:** Renumbered from 417.

**421.1 Approval:** The reference standards for showers have been updated.

**421.2 Water supply riser:** The revision to this code segment is to specify that water pipe risers for showers and tubs shall be properly fastened to the structure with supports that are designed for the piping material used.

**421.4.1 Shower compartments/Floor and Wall area:** This segment has been amended to include floor cover materials in addition to the previously addressed wall coverings.

**421.5.2 Shower lining:** This segment has been amended to include a reference to the shower liner test in Chapter 3. An exception (2) has been added to this segment exempting sheet applied membrane shower liners from being recessed.

**421.5.2.1 PVC sheets:** Minimum thickness requirements have been removed from this code segment.



**421.5.2.2 Chlorinated polyethylene (CPE) sheets:** Minimum thickness requirements have been removed from this code segment.

**421.5.2.5 Sheet-applied, load-bearing, bonded, waterproof membranes:** This code segment has been added to approve the use of sheet applied load bearing, bonded, waterproof membranes meeting the listed reference standard for shower liner application.

**421.5.2.6 Liquid-type, trowel-applied, load-bearing, bonded waterproof materials:** This code segment has been added to approve the use of liquid type, trowel applied load bearing, bonded, waterproof materials meeting the listed reference standard for shower liner application.

**SECTION 422 SINKS:** Renumbered from 418.

**422.1 Approvals:** Reference standards updated.

**422.2 Sink waste outlets:** In this code segment, the phrase “not less than 1 ½” replaces “minimum of 1.5”.

**422.4 Service sinks:** Additions to this code segment approves omission of service sinks in the listed occupancy types if the owner or owner’s agent communicated to the code official that the occupancy load of the occupancy in question, will be fifteen or less.

**SECTION 424 URINALS:** Renumbered from 419.

**424.1 Approval:** The reference standards for this code section have been updated. One of those updates includes American Society of mechanical Engineers (ASME) A112.19.19-2006 Vitreous Nonwater Urinals. This standard represents test of materials, wall hung load tolerance, seals of removable traps, odor test and resistance to clogging test. This section now encompasses the former Waterless urinal sections

**419.4 Waterless urinals/design criteria:** Deleted. Encompassed by 421.1.

**419.4.1 Waterless urinals trap design:** Deleted. Encompassed by 421.1

**419.4.2 Waterless urinals approved standards:** Deleted. Encompassed by 421.1

**425 WATER CLOSETS:** Renumbered from 420

**425.1 Approvals:** The reference standards for this code section have been updated.

**425.3 Water closet seats:** Limited approval for an integrated water closet seat was added to this code segment.

**SECTION 426 WHIRLPOOL BATHTUBS:** Renumbered from 421.

**426.1 Approval / 426.4 Suction fittings:** Reference standards updated.

**421.6 Whirlpool enclosure:** Deleted

**SECTION 427 HEALTH CARE FIXTURES AND EQUIPMENT:** Renumbered from 422. All of this original Section was deleted.

**427.1 Hand-wash sinks in Examination Rooms:** This code segment was added to require hand washing sinks in examination rooms in occupancies types not covered by the Division of Health Care Facilities.

**SECTION 423 SPECIALTY PLUMBING FIXTURES.**

**423.3 Footbaths and pedicure baths:** New code added to address scald prevention with these types of fixtures.

**SECTION 412 FAUCETS AND OTHER FIXTURE FITTINGS:** Renumbered from 424

**412.1 Approval, 412.3 Individual shower valves, 412.4 Multiple (gang) showers, 412.5 Bathtub and whirlpool bathtub valves and 412.6 Hose-connected outlets:** The reference standards for these code segments have been updated.

**412.7 Temperature-actuated, flow reduction valves for individual fixture fittings:**

**412.8 Transfer valves:**

**412.9 Water closet personal hygiene devices:**

New code to provide a reference standard for these types of hygiene devices .

**412.10 Head shampoo sink faucets.** New code to define standards for scald protection on this type of faucet application.

**SECTION 415 FLUSHING DEVICES FOR WATER CLOSETS AND URINALS:** Renumbered from 425

**415.2 Flushometer valves and tanks. / 415.3.1 Fill valves / 415.4 Flush pipes and fittings:** The reference standards for these code segments have been updated.

**SECTION 420 MANUAL FOOD AND BEVERAGE DISPENSING EQUIPMENT:** Deleted

**SECTION 414 FLOOR SINKS:** Renumbered from 427.

## CHAPTER 5 SUMMARY

### WATER HEATERS

**501.2 Water heater as space heater:** In this code segment, the phrase “backflow protection shall be required and” was removed.

**501.3 Drain valves:** This code segment concerns water heater drain valve. Modifications to this segment were made defining the valve size and requiring that this type of valve will receive a female garden hose adapter.

**501.4 Location:** The code segment has been edited, removing some previous restriction for gas water heaters located in bedrooms and bathrooms.

**502.1 General:** An addition to this segment approves the use of some thermal expansion relief devices in lieu of a thermal expansion tank.

**502.1.1 Elevation and protection:** New code that directs reader that ignition source and mechanical damage protection code are found in the Arkansas Fuel Gas and Mechanical Codes. Replaces 502.2.1

**502.2.1 Water heaters installed in garages:** Deleted

**502.3 Water heaters in attics:** This code segment contains some wording and dimensional changes for areas approved to accommodate water heater installations. Changes, “wide” has been replaced by “in width”, “36 inches deep” has been replaced by “30 inches in length” and “26 inches wide” has been replaced by “30 inches in width”. Exceptions have been deleted.

**502.5 Clearances for maintenances and replacement:** This new code segment outlines space requirements for safe service, inspection and replacement of water heaters without structural dismantling.

**503.1 Cold water line valve:** This code segment has been edited to remove the mandatory water heater flex connectors requirement. Also, restrictions have been added regarding approved water distribution plastic piping connections. Plastic threads shall not be use within six inches for a water heater and piping shall not be installed within six inches of a gas water heater flue.

**504.4 Relief valve:** Language has been removed excluding tank less water heater from being installed with a pressure and temperature valve.

**504.4.1 Installation:** The language of this segment has been edited to specify that relief valves are required in both the water heater tanks and hot water storage tanks.

**504.6 Requirements for discharge piping:** This code segment replaces and combines original code segments 504.6 Relief outlet waste, 504.6.1 Discharge and 604.6.2 Materials. This segment outline fourteen do’s and don’ts for safe relief valve discharge piping.

**504.7 Require pan:** Language has been added to this segment to specify material types, gauges and applications for various pan options.

**504.7.1 Pan size and drain:** This code segment has been edited replacing “deep” with “in depth”. Also, added language specifies material types for discharge piping.

**504.7.2 Pan drain termination:** An addition has been made to this code segment approving the omission of a water heater pan in a replacement scenario where no pan was originally installed.

**505.1 Unfired vessel insulation:** The modifications to this segment approve an insulation standard for hot water storage tanks.

## CHAPTER 6 SUMMARY

### WATER SUPPLY AND DISTRIBUTION

**601.5 Rehabilitation of piping systems:** This is a new code provision approving epoxy lining systems meeting the specified standards, for pressure water piping rehabilitation.

**602.3.1 Sources:** Text added from IPC adopting a standard for individual water sources.

**603.1 Size of water service pipe:** The phrase “not less than” replaces “minimum”

**603.2 Separation of water service and building sewer:** This code segment has been revised to allow water service and building sewer to be installed in the same ditch where building sewer is constructed of materials listed in Table 702.2. Where the building sewer is not so constructed, the required separation distance between the building sewer and the water service has been reduced from 10 feet to 5 feet.

**603.2.1 Water service near a source of pollution:** Language has been added to require analysis of the installation area per section 605.1.

**603.2.2 Separate ditch for water.** Deleted

**603.2.3 Individual water:** Deleted.

**604.4 Maximum flow and water consumption:** The phrase “having water consumption not greater than” has been added to exceptions #1 and # 3.

**604.8 Water-pressure reducing valve or regulator:** The maximum water pressure that must be exceeded in a building before a pressure regulator valve is required, has been increased from 75 to 80 pounds per square inch and a reference standard has been added.

**TABLE 604.3:** This table has been updated to include balanced pressure, thermostatic and combination balanced pressure and thermostatic mixing valves. Also, private lavatories, private lavatory mixing valves and corresponding flow rates and flow pressures have been added.

**605.2.1 Lead content of water supply pipe and fittings, 605.2.2 Calculations and 605.2.3 Exemptions:** Codes previously adopted to conform to federal regulation regulating lead content of potable water pipes and fittings have been moved here from Section 615 of Arkansas Plumbing Code 2006 as amended.

**605.3 Water service pipe:** The language was edited in this code section, removing the word “plastic” and clarifying that any piping material not certified for water distribution, shall terminate 30 inches outside of an exterior wall or slab at or before the full open valve location.

**TABLE 605.3 WATER SERVICE PIPE:** Obsolete materials have been removed, some new materials were added, and some existing materials have been combined. Many of the reference standards have been updated.

**605.4 Water distribution pipe:** The word “minimum” was replaced by the phrase “not less than” in this section.

**TABLE 605.4 WATER DISTRIBUTION PIPE:** Obsolete materials have been removed, some new materials were added, and some existing materials have been combined. Many of the reference standards have been updated.

**605.5 Fittings:** Editing of this segment includes exchanging the phrase “conform to” with “comply with” and “respective pipe standards” to “applicable”. Also, a notation has been added to the requirement that Ductile and gray iron pipe fittings are to be cement mortar lined that specifically addresses those utilized in water service piping systems.

**TABLE 605.5 PIPE FITTINGS:** Some old materials have been removed, some new materials were added, and some existing materials have been combined

**605.5.1.1 Full flow assurance:** In this section the phrase “serving as a” was added between dimple and depth stop.

**605.6 Flexible water connectors:** A reference standard was added to this segment.

**605.7 Valves:** This code segment previously contained a list of valve types. This list has been deleted and replaced with language referencing a new table approving valves with reference standards for various material types.

**TABLE 605.7 VALVES:** A new table approving standards for valves use in water applications.

**605.9 Prohibited joints and connections:** In item #5 Joints and connections under slabs, the phrase “in water supply and distribution installations” was added to distinguish between joints made in non-water distribution type systems. Also, notations have been added approving flange connections used in ductile iron pipe installations, to be made under slabs.

**605.10.3 Threaded joints:** Language has been added defining the minimum schedule plastic piping that may be treaded.

**605.11 Asbestos cement / 605.12 Brass / 605.12.1 Brazed joints / 605.12.2 Mechanical joints / 605.12.3 Threaded Joints / 605.12.4 Welded joints:** These sections have been deleted.

**605.11 Gray iron and ductile iron joints:** This section has been renumbered from 605.13. A reference standard has been updated.

**605.12 Copper pipe:** This section and subsections have been renumbered from 605.14.

**605.13 Copper tubing through 605.13:** Renumbered from 605.15.

**605.13.3 Grooved and shouldered mechanical joints:** This code has been added to approve this connection method for copper tubing.

**605.13.5 Press-connect joints:** This code has been added to approve this connection method for copper tubing.

**605.13.7 Push-fit joints:** This code has been added to approve this connection method for copper tubing.

**605.14 CPVC plastic:** This section has been renumbered from 605.16

**605.14.2 Solvent cementing:** This segment has been reworded to consolidate a list of expectations 1-4 into paragraph form and to clarify the approval parameters of one step cementing.

**605.14.3 Threaded joints:** Language has been added defining the minimum schedule plastic piping that may be treaded.

**605.14.4 Push-fit joints:** This code has been added to approve this connection method for CPVC tubing.

**605.15 Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC) pipe and tubing, 605.15.1 Mechanical joints and 605.15.2 Solvent cementing:** New code to approve a piping material and connection methods developed since the last adopted code edition.

**605.16 PEX plastic:** This section was renamed; it was formerly called 605.17 Cross-linked polyethylene plastic.

**605.16.2 Mechanical joints:** This code segment has been edited to include reference to standards listed in Table 605.5 as well as the manufacturer’s instructions on the use of mechanical joint for this material type.

**605.16.3 Push-fit joints:** This code has been added to approve this connection method for PEX tubing.

**605.17 Steel:** Renumbered from 605.18.

**605.17.3 Grooved and shouldered mechanical joints:** This code has been added to approve this connection method for steel piping.

**605.19– 605.19.3 Polybutylene plastic:** This material was removed from the approved materials list and the corresponding codes have been deleted.

**605.18 PE plastic:** Renamed and numbered from 605.20 Polyethylene Plastic.

**605.19 Polypropylene (PP) plastic:** Remembered from 605.21

**605.20 Polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX), and 605.20.1 Mechanical joints:** This code section has been added to approve connection methods for these types of materials.

**605.21 PVC plastic:** Renumbered from 605.22.

**605.21.2 Grooved and shouldered mechanical joints:** This code has been added to approve this connection method for PVC pipe.

**605.21.4 Threaded joints:** Language has been added defining the minimum schedule plastic piping that may be treaded.

**605.22 Stainless steel:** Renumbered from 605.23

**605.22.3 Grooved and shouldered mechanical joints:** This code has been added to approve this connection method for stainless steel pipe.

**605.23 Joints between different materials:** Renumbered from 605.24

**605.23.1 Copper or copper-alloy tubing to galvanized steel pipe:** A dielectric union with a reference standard has been added to this segment.

**605.23.2 Plastic pipe or tubing to other piping material:** Transition fitting approval has been added for connections between plastic tubing and other materials.

**605.23.3 Stainless steel:** A dielectric union with a reference standard has been added to this segment.

**605.24 PE-RT plastic & 605.24.1 Mechanical joints:** This code section has been added to approve the use of this material and connection methods.

**606.1 Location of full-open valves:** A phrase has been added to this segment that excludes the requirement of a full open valve at the curb where a meter is present.

**606.2 Location of shutoff valves:** (1) language add to prevent excluding bathtubs and showers with flexible supply lines from having shutoff valves. (2) Residential occupancies have been excluded from the required shut off valve for sillcocks.

**606.5.7 Tank drain pipes:** the word "valved" was replaced with the phrase "drain pipe with a valve".

**606.7 Labeling of water distribution pipes in bundles:** This code addition addresses the labeling of piping installed in bundles.

**606.8 Dead Ends:** Added to address stagnation concerns.

**SECTION 607 HOT WATER SUPPLY SYSTEM /607.1: Where Required:** The latter portion of this paragraph has been stricken out and moved to 607.1.2

**607.1.1 Temperature Limiting Means.** This code excludes adjustable water heater thermostat controls as reliable means of limiting water temperature for scald prevention.

**607.1.2 Tempered water temperature control:** Code providing reference standards for required temperature limiting devices.

**607.2 Hot or tempered water supply to fixtures.** Reworded to include tempered water and to designate that recirculating and heat trace piping shall be considered to be a source of hot or tempered water.

**607.2.2 piping for recirculation system have master thermostatic valves.** Renamed from 607.2.3 Recirculating pump.

**607.3 Thermal expansion control:** This code segment has been rewritten. It consolidates the original sections 607.3, 607.3.1 & 607.3.2. This section outlines the use and placement of thermal expansion control devices in storage water heater type installations.

**607.4 Flow of water to fixtures:** Reference standards updated.

**607.5 Hot to dishwashing machines:** Deleted. This is regulated by Environmental Health food services.

**SECTION 608 PROTECTION OF POTABLE WATER SUPPLY/608.2 Plumbing fixtures:** A reference standard was added to this code section.

**608.3.1 Special equipment, water supply protection:** The editing of this code segment consists of the word "assembly" be added to follow reduced principle backflow preventer and the word "resistant" replaces the word "proof".

**608.4 Potable water handling and treatment equipment:** Requires that water treatment equipment must be protected from contamination.

**608.7 Cross-connection control:** This segment was redrafted with "backflow assemblies" added where only protection devices were mentioned before. "Protection" was replaced with "backflow prevention". Also, "other means and methods" has been added as approved protection. Lastly, "to protect the potable water supply" was added to clarify the intended object to be protected.

**608.8 Valves and outlets below grade:** This segment was renamed replacing "stop and waste valves" with "valves and outlets below grade". It has been edited to include potable water outlets and "or below grade" now follows "installed underground". Language has been added, identifying freeze proof yard hydrants as stop-and-waste valves. An exception has been added to this draft allowing the use of freeze proof yard hydrants if backflow prevention is utilized in accordance with Section 608 to protect the potable water supply.

**608.9 Identification of potable and nonpotable water:** The language was edited in this segment to require marking of nonpotable water systems in buildings. In the previous code edition, both potable and nonpotable systems were required to be marked.

**608.8.1 Information:** DELETED

**608.9.1 Signage required:** Deleted from this section. This code appears again in Chapter 13

**FIGURE 608.9.1:** Deleted from this section. This code appears again in Chapter 13

**608.9.2 Distribution pipe labeling and marking:** This code segment approves methods of identification marking for nonpotable water piping systems.

**608.9.2.1 Color.** This code segment was renumbered. It also approves purple as a standardized color for identifying reclaimed water piping systems.

**608.9.2.2 Lettering Size.** This segment was renamed adding “lettering” to the title.

**TABLE 608.9.2.2:** Table corresponding to 608.9.2.2.

**608.9.2.3 Identification tape:** This addition to the code draft approves and outlines the usage of identification tape.

**TABLE 608.1 APPLICATION OF BACKFLOW PREVENTERS:** The table from the previous code version has been replaced with an updated version that been arranged in groups of assemblies, devices and methods.

**608.10 Reutilization prohibited:** Renumbered and heating equipment added.

**608.12 Potable water tanks:** renumbered and named, addition language added to ensure that coating inside the tank conform to NSF standards.

**608.14.1 Air gap:** Renumbered and Listed and labeled products” have been added to approvals.

**608.14.2 Reduced pressure principle backflow prevention assemblies:** In this segment, all instances of the word “preventer” have been replaced with “prevention assemblies”. One reference standard has been updated.

**608.14.5 Pressure-type vacuum breakers:** The word “assembles” has been added to this segment and there has been the addition of a reference standard. Also “spill-proof” has been replaced with “spill-resistant”.

**608.14.6 Atmospheric-type vacuum breakers:** Reference standards have been updated in this section.

**608.14.7 Double check-valve backflow prevention assemblies:** “Backflow prevention” has been added to this code segment language. “Fire protection backflow prevention” has been added to replace “check valve”. Also, two new reference standards have been added.

**608.13.8 Spillproof vacuum breakers:** DELETED

**608.14.9 Dual check backflow preventer:** This code segment approves this of type of device.

**608.15.2 Protection of backflow preventers:** This segment outlines approved methods for freeze protect for backflow preventers.

**608.15.2.1 Relief port piping:** This segment outlines approved methods of termination of relief port discharge piping for backflow preventers.

**608.16.2 Protection by a reduced pressure principle backflow prevention assembly:** In this segment the word “preventer” has been replaced with “prevention assembly” or a reduced pressure principle fire protection backflow prevention assembly”. And for clarification the phrase “on potable water supplies” was added.

**608.16.4.1 Deck-mounted and integral vacuum breakers:** The term “spill-resistant” replaces “spill proof”.

**608.17 Connection to potable water system:** Renumbered for 608.16

**608.17.1 Beverage dispensers:** This segment has been revised to include both 608.17.1.1 Carbonatite beverage dispensers and 608.17.1.2 Coffee machines and noncarbonated drink dispensers.

**608.17.1.1 Carbonated beverage dispensers:** Language in this section requires approved backflow preventer devices that are protected from the effects of carbon dioxide gas starting at the second check valve instead of the entire device being so designed and provides a reference standard.

**608.17.1.2 Coffee machines and noncarbonated drink despisers:** Renamed and numbered from 608.16.10.

**608.17.4 Connections to automatic fire sprinkler systems and standpipe systems:** New code that outlines restrictions and exceptions to connections of automatic fire sprinkler systems and domestic water.

**608.17.4.1 Additives or nonpotable source:** Renumbered. Occurrences of the word “preventer” have been replaced with “prevention assembly” or with “prevention assembly or the reduced pressure principle fire protection backflow prevention assembly”.

**608.17.5 Connections to lawn irrigation systems:** Occurrences of the word “preventer” have been replaced with “prevention assembly”.

**608.17.6 Connections subject to backpressure:** Occurrences of the word “preventer” have been replaced with “prevention assembly”.

**TABLE 608.16.1 MINIMUM REQUIRED AIR GAPS:**  
Renumbered and decimals have been replaced with fractions. Was 608.15.1.

**608.17.9 Dental pump equipment:** Code reworded to specify that each pump connection is required to be isolated with backflow protection.

**608.17.10 Humidifiers:** Added code to ensure that all humidifiers connected to the potable water system are isolated.

**608.18 Protection of individual water supplies:**  
Renumbered

**SECTION 611 DRINKING WATER TREATMENT UNITS:**  
Reference standards were added to this section.

**611.1 Design: Point-of-use reverse osmosis and a reference standard were added.**

**613.1 Temperature-actuated mixing valves:** A provision was added requiring installation of mixing valves to be at the source of the hot water.

**SECTION 614 TESTING AND REPAIR:** Language pertaining to plumber's license requirement for repair has been removed from this section.

**SECTION 615 LEAD FREE REQUIREMENTS:** This section was moved to 605.2.1-605.2.3.

DRAFT

# CHAPTER 7 SUMMARY

## SANITARY DRAINAGE

**701.2 Connection to sewer required.** Rename and reworded to include systems designed to reuse gray water for water conservation purposes.

**701.7 Connections:** Deleted. The concerns of this code segment have been addressed in 702.5.

**701.8 Drainage piping in food service areas:** Deleted.

**702.4 Fittings:** This segment has been edited by replacing “conform to” with comply with” and “respective pipe standards or one of the” with “applicable”.

**702.5 Temperature rating:** This is a new code that expresses the intent of the deleted code segments 701.7 and 803.1. Instead of requiring an approved water cooling method prior to discharging into the drain. This segment approves using drain materials rated for the higher temperature wastewater.

**Material tables 702.1, 702.2, 702.3 & 702.4:** Modifications to these tables include the removal of some antiquated materials and terms, the consolidation of “Coextruded composite plastics” (cellular core) to their solid counterpart’s categories and updates to reference standards. New material types have been added as well.

**703.1 Building sewer pipe near the water service:** This code was modified to be a reference only to Section 603.2, where the issue of water service and building sewer proximities have already been addressed.

**703.2 Drainage pipe in filled ground:** Polypropylene pipe was added here due to its addition to Table 702.3.

**703.4 Existing building sewers and drains:** This code section has been reworded to specify the inspection parameters for existing piping’s reuse.

**703.6 Combined sanitary and storm public sewer:** New code mandating building drain and sewer separation from storm water systems prior to the point of utility connection to a combined sewer and storm drain civil systems.

**704.1 Slope of horizontal drainage piping:** This segment has been reworded replacing “minimum” and “in accordance with” with “not less than that indicated in”.

**704.2 reduction in pipe size in direction of flow:** Renamed from Change in size and two exceptions have been added.

**704.5 Dead ends:** Deleted.

**705.3 Asbestos-cement:** Deleted, this is no longer listed as an approved material. The renumbering due to deletions continues through all of Section 705.

**705.4 Brass and subsections 705.4.1-705.4.4:** These sections have been removed. Brass is now covered in the plumbing code under “copper alloy”.

**705.3.3 Mechanical joint coupling:** This segment has been renumbered from 705.5.3. Also language has been added to clarify that these types of couplings require metallic shields.

**705.7 Coextruded composite ABS pipe, joints, 705.7.1 & 705.7.2:** These sections were stricken and the numbering was reused on a different section. Codes pertaining to this material were consolidated with 705.2 ABS plastic.

**705.8 Coextruded composite PVC pipe, 705.8.1 & 705.8.2:** These codes were deleted. Codes pertaining to this material were consolidated with 705.11 PVC plastic. The renumbering due to deletions continues through all of Section 705.

**705.10.2 (PVC) Solvent cementing:** A provision was added to allow the use of clear primer for the trim-out phase of plumbing or in situations where the finished floor is stained concrete.

**705.14 Polyvinylidene fluoride plastic. 705.14.1 & 705.14.2:** These are new code segments approving the use of this material type.

**705.15 Polypropylene plastic:** New code section to incorporate this material into the sanitary drainage system.



**705.16.4 Plastic pipe or tubing to other piping materials:** Code section changed to assign a reference standard for the solvent type between to dissimilar plastics and to restrict where solvent joints between such materials may be located.

**706.2 Obstructions.** Language was added to this segment excluding tubular tailpieces with cross bars to catch unwanted items prior to entering the drain.

**SECTION 708 CLEANOUTS:** This section was completely rewritten and renumbered by the International Code Council in the 2015 Plumbing Code.

**708.1 Cleanouts required:** This code segment encompasses the original segment it replaced.

**708.1.1 Horizontal drains and building drains:** This code segment encompasses the original segment it replaced and includes the incorporation of manholes within the scope of horizontal drains and building drains. An exception has been added to address fixture drains with non-removable traps.

**708.1.2 Building sewers:** This code segment encompasses the original segment it replaced.

**708.1.3 Building drain and building sewer junction:** An addition was made to this section to ensure that a water closet would not be considered a designed substitute for a required cleanout.

**708.1.4 Changes of direction:** This code segment encompasses the original segment it replaced.

**708.1.5 Cleanout size:** This code segment encompasses the original segment it replaced with an added exception of approving cleanouts on stacks to be one size smaller than the stack.

**708.1.6 Cleanout plugs:** This code segment encompasses the original segment it replaced with an added provision requiring that plugs that are to receive a trim cover screw, shall be manufactured to do so and with a blind end threaded hole.

**708.1.7 Manholes:** This code segment encompasses the original segment it replaced with an added provision that manhole covers require the use of tools to access manholes located in buildings.

**708.1.8 Installation arrangement:** This code segment encompasses the original segment it replaced which require cleanouts to enable cleaning in only one direction with the addition of two exceptions. The first exception approves test tees serving as cleanouts and the second

approves two-way cleanout fittings as referenced in 708.1.3.

**708.1.9 Required clearance:** This code segment encompasses the original segment it replaced.

**708.1.10 Cleanout access:** This code segment combines 708.4 Concealed locations and 708.9 Access from the 2006 Plumbing Code.

**708.1.10.1 Cleanout plug trim covers:** The addition of this segment requires that trim covers and access doors be designed for the purpose of this application and that the corresponding hardware be corrosion resistant. It also prohibits cleanouts from being covered in such a way as to become non-accessible.

**708.1.10.2 Floor cleanout assemblies:** This code segment provides approval and reference standards for cleanouts installed in areas exposed to vehicular traffic.

**708.1.11 Prohibited use:** This code segment encompasses the original segment it replaced.

**708.3.4 Base of stack:** Deleted.

**709.3 Conversion of gpm flow rate to dfu values:** This section provides a base flow rate conversion gallons per minute for calculations to where the actual drainage fixture unit value is unknown.

**709.4.1 Clear-water waste receptors:** This code segment has been added to approve drainage fixture unit computations for this type of receptor.

**TABLE 709.1 DRAINAGE FIXTURE UNITS FOR FIXTURES AND GROUPS:** These Drainage Fixture Unit flow rates have been expanded to account for showers with various head and spray types.

**711.2 Horizontal branch connections to horizontal stack offsets:** Deleted

**711.3.1 Omission of vents for horizontal stack offsets:** Language was removed from this section that repeated a deleted portion of 711.2

**712.3.2 Sump pit:** Provisions were added in this segment to ensure that the cover of the sump pit be installed flush with grade or floor level. Also "deep" was replaced with "in depth" and "not less than" was added prior to the depth dimension.

**712.3.3 Discharge pipe and fittings:** This code segment has been expanded to cover fittings as well as piping. Two subparagraphs that provide supporting code requirements

for this application have been added, 712.3.3.1 Materials & 712.3.3.2 Ratings.

**712.3.3.1 Materials:** This code segment approves material types for sump pump discharge piping.

**712.3.3.2 Ratings:** This code segment approves material pressure and temperature ratings for sump discharge.

**712.3.5 Pump connection to the drainage system:** Additions have been made to this code segment that designate where and how pump discharge lines are to connect to the drainage system.

**Section 713 Health Care Plumbing:** Deleted.

**Section 714 backwater valves:** In this section fixture flood rim level is replaced with finished floor elevation, this essentially lowers the plane of elevation for manholes that are too high to protect the building from overflow and thus require backwater valves. Also, leeway is given to administrative authorities to allow or require as need.

**SECTION 715 VACUUM DRAINAGE SYSTEMS:** This is a new code section approving Vacuum drainage systems.

**SECTION 716 REPLACEMENT OF UNDERGROUND SEWERS BY PIPE-BURSTING METHODS:** This is a new code section approving an alternate method of sewer pipe replacement.

DRAFT

# CHAPTER 8 SUMARY

## INDIRECT/SPECIAL WASTE

**801.1 Scope:** Humidifiers were added.

**801.2 Protection:** Remove the word “All”. Added humidification.

**802.1 Where required:** Language was added to exclude residential dwelling units from this regulation.

**802.1.2 Floor drains in food storage areas:** An exception was added to allow the use of air breaks when a backwater valve has been incorporated as backflow protection on the receiving drain.

**802.1.6 Domestic Dishwashing machines:** Deleted

**802.2 Materials, joints and connections:** Was section 804.

**802.3 Installation:** Standpipes have been removed from this section. The horizontal length of “2 feet” has been changed to “30 inches” and the total developed length of “4 feet” has been change to “54 inches”. These are the dimensions used to determine if a trap is to be installed on an indirect waste line. An exception was added to exclude the use of a trap in waste receptors that are not connected to the sanitary system and receives clear water only.

**802.3.2 Air break:** Standpipe was removed from this section.

**802.4 Waste receptors:** Language has been added to this code excluding hub drains and standpipes that receive only clear-water waste from being required to have a removable basket or strainer. The word “ventilated” has been replaced with “concealed”. Also, specific locations have been reworded, removing bathrooms or toilet rooms and adding plenums, crawlspaces, attics, interstitial spaces above ceilings and below floors.

**802.4.2 Hub Drains:** Renamed from Open hub waste receptors. The term “waste receptor” has been replaced with “hub drain” and the word “permitted” was removed. Also “and are not required to have a strainer” was removed.

**802.4.3.1 Connection of laundry tray to standpipe:** This code provides an alternative for adding a laundry tray without requiring an additional fixture drain.

**803.1 Wastewater temperature:** This code was deleted. The issue is addressed in code draft 702.5. The codes 803.2 and 803.3 as numbered in the previous code edition were renumbered to 803.1 and 803.2 respectively.

**Section 804 Materials, Joints and Connections:** Moved to 802.2

# CHAPTER 9 SUMMARY

## VENTS

This chapter was extensively reordered numerically by the ICC

**901.3 Chemical waste vent system:** Language has been added to this draft approving the use of air admittance valves designed for chemical waste systems.

**903.1 Roof extension:** In this segment “not less than” replaces “at least” and “any purpose other than weather protection” was replaced by “assembly or as a promenade, observation deck, sunbathing deck or similar purposes”.

**903.2 Frost closure:** Reworded to change below the roof or inside the wall to inside the thermal envelope. “Not less than” replaces “minimum”.

**903.4 Prohibited use:** This code was simplified. The list of prohibited uses has been removed and replaced by the statement “shall not be used for any purpose other than a vent terminal”.

**903.5 Location of vent terminal:** In this segment, “3” replaces “2” and the words “or more” replaces “at least”.

**Section 904 Outdoor Vent Extensions:** Renamed from Vent Stacks and Stack Vents.

**904.1 Required vent extension:** This code segment requires each vent system to have not less than one vent to the outdoors.

**904.1.2 Size:** This is a new code segment approving a minimum two-inch vent to the outdoors for every plumbing system instead of a three-inch vent for every building.

**904.2 Vent stack required:** This code was renumbered, and an exception has been added to exclude Waste Stack Vent Systems.

**904.3 Vent termination:** This code was reworded to approve the use of stack-type air admittance valves.

**905.3 Vent connection to drainage system:** This segment was edited removing language like “not greater than 67.5 degrees”. This segment approves the connection of a dry vent above the centerline line of a horizontal drain pipe.

**905.4 Vertical rise of vent:** The terms “dry vent” and “highest trap or trapped fixture” have been added to identify what type of vent is the object of this code segment and to address occurrences of multiple fixtures are involved.

**905.5 Height above fixtures:** The term “be located not less than” replaces “be at least”.

**905.7 Venting of fixture drains.** This code was deleted because it is repeated in sections 909.1 & 909.2

**TABLE 906.1 SIZE AND DEVELOPED LENGTH OF STACK VENTS AND VENT STACKS:** Three Maximum developed lengths where modified.

**909.1 Distance of trap from vent:** An exception was added, excluding self-siphoning fixtures.

**909.3 Crown vent:** This segment was added to prevent the inadvertent installation of a crown vented trap which is prohibited in Chapter 10 of this draft and previous code editions.

**912.1 Horizontal wet vent permitted:** The word “horizontal” was added to the title and to one line of text.

**912.1.1 Vertical wet vent permitted:** The word “permitted” was added to the title and “be considered the vent for the fixtures and shall” was added to the text.

**912.2 Dry vent connection:** This is a new segment that refers to the two corresponding subsection 912.1 Horizontal wet vent and 912.2 Vertical wet vent. These subsections define dry vents applications for wet venting systems and were combined in previous code editions.

**912.2.1 Horizontal wet vent:** This segment approves exclusively, horizontal wet venting and how the required vent is to be connected.

**912.2.2 Vertical wet vent:** This segment approves exclusively, vertical wet venting and how the required dry vent is to be connected.

**912.3 Size:** This segment exchanges the word “minimum” with the phrase “not less than”

**SECTION 913 WASTE STACK VENT:** This section was renumbered.

**913.3 Stack vent:** “not less than” replaces “at least”.

**SECTION 914 CIRCUIT VENTING:** This section was renumbered.

**SECTION 915 COMBINATION WASTE AND VENT SYSTEM:** This entire section was revised to change occurrences of the word “drain” to the word “waste”.

**915.2 Installation:** In addition to the replacement of the word “drain” with “waste” the word “maximum” has been replaced with “shall not exceed”.

**915.2.1 Slope:** Wording was changed from “have a maximum slope of” to “not exceed” and “the maximum slope” has been replaced by “not be less than indicated”. An exclusion “or unless approved by the state administrative authority” has been removed.

**915.2.3 Connections:** This code segment has been expanded to allow the use of vented fixtures on the same floor connected to the system via a horizontal drain to be used instead of the required dry vent. Stacks are strictly prohibited from this “dry vent” exception.

**916.4.1 Branch vents exceeding 40 feet in developed length.** Deleted, this is covered in Section 906.

**916.1 Limitation:** Occurrences of the word “grinder” have been replaced with “disposer”.

**916.2 Vent connection:** The phrase “point not less than” replaces “minimum”.

**917.1 General:** A sentence that was repeated in this section has been removed.

**917.3 Where permitted:** Code section references were added to this section.

**917.3.1 Horizontal branches:** This is new code segment that combines “917.3.1 Location of branch” and “917.3.2 Relief vent” from the previous code edition. This segment approves the manner in which air admittance valves are applied to horizontal branch drains.

**917.3.1 Location of branch:** Deleted, replaced by 917.3.1 Horizontal branches.

**917.3.2 Relief vent:** Deleted. Replaced by 917.3.2 Stack

**917.3.2 Stack:** The phrase “shall not serve” has been replaced with “shall be prohibited from serving” and “having more than” replaces “exceeding”.

**917.4 Location:** The term “not less than” replaces “a minimum of” in this section.

**917.5 Access and ventilation:** The phrase “located within a ventilated space” has been replaced by “such shall be installed in locations”

**917.8 Prohibited installations:** Revised to allow air admittance valves that are rated as chemical resistant to serve as vents for a chemical waste system. Also, adds provisions requiring engineered designed air admittance valves be used for sumps or tanks.

## CHAPTER 10 SUMMARY

### TRAPS, INTERCEPTORS AND SEPARATORS

In this chapter, all instances of the word “trap” when referring to a grease trap, have been replaced with the word “interceptor”.

**1002.1 Fixture traps:** A fourth exception has been added addressing Area drain and floor drain trap regulations in multilevel parking structures. No individual traps are required for area drains if connected to a storm sewer. No individual traps are required for floor drains if they are connected to a combination sewer system and trapped at a main trap in accordance with 1103.1

**1002.4 Trap seals:** The latter portion of this code segment has been deleted. It addressed trap seal protection and approved products designed for that purpose. New segments have been added in the following paragraphs that address trap seal protection in greater detail and approve a wider range of these products for this application.

**1002.4.1 Trap seal protection:** This segment outlines types of installations that would be most likely to require protective devices to maintain trap seals.

**1002.4.1.1 Potable water-supplied trap seal primer valve:** This section approves installation methods and reference standards for this type of device.

**1002.4.1.2 Reclaimed or gray water-supplied trap seal primer valve:** This section approves installation methods and reference standards for this type of device.

**1002.4.1.3 Waste water-supplied trap primer device:** New code to address installation requirements and reference standards waste water supplied primers.

**1002.4.1.4 Barrier-type trap seal protection device:** This section approves installation methods and reference standards for trap guard types of devices.

**1002.6 Building traps:** This code segment has been edited by removing the exceptions. These traps are prohibited.

**1003.3.1 Grease interceptors and automatic grease removal devices required:** All references to grease “traps” has been removed and replaced with grease “interceptors”. This section has been expanded and list items that must go through an interceptor, it also provides allowances for multiple interceptors on or above the floor as well as, upstream of existing interceptors.

**1003.3.2 Food waste disposers:** The term “grinders” have been removed from this code and replace with “disposer” and have been prohibited from draining into a grease interceptor unless approved by the state administrative authority.

**1003.3.3 Additives to grease interceptors:** This allow for certain organic performance enhancers to be used in the interceptor but restricts nonorganic and chemicals alternatives.

**TABLE 1003.3.4.1 CAPACITY OF GREASE INTERCEPTORS:** Flow rates and capacities have been added to this table.

**1003.3.5 Hydromechanical grease interceptors, fats, oils and grease disposal systems and automatic grease removal devices:** New code providing reference standards for sizing, designing, testing and installing (where no manufacturer’s instructions are provided) of this type of equipment.

**1003.3.6 Automatic grease removal devices:** New code to approve installation and reference standards for these devices.

**1003.3.7 Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems:** New code to approve installation and reference standards for these devices.

**1003.3.8 Direct connection:** New code. Requires a direct connection to the sanitary sewer for grease interceptors.

**1003.4 Oil separators required:** Some new wording has been added to this segment that would exclude non hydraulic elevator pits from requiring these devices. Also an exception has been added for hydraulic elevator pits with an approved alarm system is installed.

**1003.6 Clothes washer discharge interceptor:** This code has been renamed and exceptions have been added to

approving the exclusion of individual dwelling unit applications.

**1003.9 Venting of interceptors and separators:** This segment has been edited to require that all interceptors are to be vented.

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## CHAPTER 11 SUMMARY

### STORM DRAINAGE

**1101.2 Disposal:** This segment has been renamed from “Where required” to “Disposal” and “All roofs” has been replaced with “Rainwater from roofs and storm water from”.

**1101.7 Roof design:** Language has been added to this segment that requires the roof be designed to accommodate water amounts that would occur if the primary system were blocked and the secondary system was draining at full capacity.

**1101.9 Backwater valves:** This code was reworded but nothing has been altered as to its intent. This segment simply states that backwater valves for storm drainage systems will be subject to the same approvals and restrictions as there are in sanitary drainage systems.

**TABLE 1102.4 BUILDING STORM SEWER PIPE:** Asbestos cement pipe has been removed and Polyethylene plastic pipe has been added to the approved materials list.

**TABLE 1102.5 SUBSOIL DRAIN PIPE:** Asbestos cement pipe has been removed and SDR35 PVC has been added to the approved material list.

**TABLE 1102.7 PIPE FITTINGS:** Polyethylene plastic has been added to the approved material list.

**1103.1 Main trap:** This segment addresses traps for storm water receptors installed in storm drainage systems that terminate at a combination sewer system. These receptors would require traps. This segment approves in line traps for this application rather than individual traps for each receptor.

**1105.1 General:** This code has been renamed and language addressing strainer design has been deleted.

New language approves installation complying with the manufacturer’s instructions.

**1105.2 Roof drain flow rate:** This segment outlines the approved parameters for calculating the flow rates for the roof drain system.

**1105.2 Flat decks:** Deleted

**1106.2 Size of storm drain piping:** This segment approves sizing of storm drain piping as specified in Table 1106.2.

**1106.3 Vertical leader sizing:** This segment approves sizing of storm drain leaders as specified in Table 1106.3

**1106.5 Parapet wall scupper:** This code addresses the minimum requirements for scuppers.

**1106.6 Size of roof gutters:** This segment approves sizing of storm drain gutters as specified in Table 1106.6

**TABLE 1106.2 STORM DRAIN PIPE SIZING:** This table provides approved sizing computations for storm drain pipe sizing.

**TABLE 1106.3 VERTICAL LEADER SIZING:** This table provides approved sizing computations for storm drain leader sizing.

**TABLE 1106.6 HORIZONTAL GUTTER SIZING:** This table provides approved sizing computations for storm drain gutter sizing.

**SECTION 1107 SIPHONIC ROOF DRAINAGE SYSTEMS:** This is a new code section providing approval and reference standards for this type of system.

XXX



**1108.1 Secondary (emergency overflow) drains or scuppers:** This segment approves roof drain assemblies designed with primary and secondary drain outlets if each outlet drains independently.

**Section 1109 Combine Sanitary and Storm Systems:**  
Renumbered from 1108.

**1108.1 Size of combined drains and sewers:** Deleted

**1109.1 General:** This segment requires that storm and sanitary sewers systems remain separate until they connect to an approved combination sewer system.

**SECTION 1109 VALUES FOR CONTINUOUS FLOW:** Deleted.

**1113.1.2 Sump pit:** The word “deep” has been replaced by “in depth”.

**1113.1.3 Electrical:** In this segment “NFPA 70” replaces “the National Electrical Code”

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# SUMMARIES

## CHAPTER 12

### DELETED

**This Chapter was formerly  
REFERENCED STANDARDS**

## CHAPTER 13

### NONPOTABLE WATER SYSTEMS

**This Chapter replaces and updates “Appendix C Gray Water Recycling Systems”**

## CHAPTER 14

### REFERENCED STANDARDS

This chapter contains the Industries reference standards and notations on where they appear in the code. Therefore, a great many changes are contained within.

## APPENDIX A and C

### DELETED

This code section was deleted and replaced by Chapter 13

## APPENDIX E SUMMARY

### SIZING OF WATER PIPING SYSTEM

#### **TABLE E103.3(2) LOAD VALUES ASSIGNED TO FIXTURES<sup>a</sup> :**

A minor word alteration was made to convert the word “flush valve” to “flushometer valve”.

**Section E202 Determination of Pipe Volumes:** This is an added section to this appendix.

**E202.1 Determining volume of piping systems:** New code referencing an added table to Appendix E.

**TABLE E202.1 INTERNAL VOLUME OF VARIOUS WATER DISTRIBUTION TUBING:** New reference table.

**~~APPENDIX H~~ SUMMARY**

**RULES AND REGULATIONS PERTAINING TO PLUMBING AND/OR  
NATURAL GAS INSPECTOR CERTIFICATION**

**DELETED**

**This section has been removed because these rules are not part of  
this code.**

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# CHAPTER 1

## SCOPE AND ADMINISTRATION

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### User note:

*About this chapter:* Chapter 1 establishes the limits of applicability of this code and describes how the code is to be applied and enforced. Chapter 1 is in two parts: Part 1—Scope and Application (Sections 101–102) and Part 2—Administration and Enforcement (Sections 103–110). Section 101 identifies which buildings and structures come under its purview and references other I-Codes as applicable. Standards and codes are scoped to the extent referenced (see Section 102.8).

*This code is intended to be adopted as a legally enforceable document and it cannot be effective without adequate provisions for its administration and enforcement. The provisions of Chapter 1 establish the authority and duties of the code official appointed by the authority having jurisdiction and also establish the rights and privileges of the design professional, contractor and property owner.*

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### SECTION 101 GENERAL

**101.1 Title.** *Arkansas ~~State~~ Plumbing Code* hereinafter referred to “this code.”

**101.2 Scope.** The provisions of this code shall be statewide in application and shall apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction. The installation of natural gas distribution piping and equipment, natural-gas-fired water heaters and water-heating venting systems, gas-fired room heaters and floor furnaces shall be regulated in accordance with the *Arkansas ~~State~~ Fuel Gas Code*.

**101.3 Intent.** The purpose of this code is to ~~establish, provide~~ minimum standards ~~to provide a reasonable level of safety, to safeguard life or limb,~~ health, property ~~protection~~ and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems.

**101.4 Severability.** If any section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

### SECTION 102 APPLICABILITY

**102.1 General.** ~~Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. The provisions of this code shall apply to all matters affecting or relating to structures, as set forth in Section 101.~~ Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

**102.2 Existing installations.** Plumbing systems lawfully in existence at the time of the adoption of this code shall be permitted to have their use and maintenance continued if the use, maintenance or repair is in accordance with the original design and no hazard to life, health or property is created by such plumbing system.

**102.3 Maintenance.** ~~All P~~ plumbing systems, materials and appurtenances, both existing and new, and all parts thereof, shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. All devices or safeguards required by this code shall be maintained in compliance with the code edition under which they were installed.

The owner or the owner's ~~authorized designated~~ agent shall be responsible for maintenance of plumbing systems. To determine compliance with this provision, the code official shall have the authority to require any plumbing system to be re-inspected.

**102.4 Additions, alterations or repairs.** Additions, alterations, renovations or repairs to any plumbing system shall conform to that required for a new plumbing system without requiring the existing plumbing system to comply with all the requirements of this code. Additions, alterations or repairs shall not cause an existing system to become unsafe, insanitary or overloaded.

Minor additions, alterations, renovations and repairs to existing plumbing systems shall ~~meet the provisions for new construction, unless be permitted in the same manner and arrangement as in the existing system, provided that~~ such repairs or replacement are not hazardous and are approved ~~by the state administrative authority~~.

**102.5 Change in occupancy.** It shall be unlawful to make any change in the occupancy of any structure that will subject the structure to any special provision of this code

without approval of the code official. The code official shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

**102.6 Historic buildings.** The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings when such buildings or structures are judged by the code official to be safe and in the public interest of health, safety and welfare regarding any proposed construction, alteration, repair, enlargement, restoration, relocation or moving of buildings.

**102.7 Moved buildings.** Except as determined by Section 102.2, plumbing systems that are a part of buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new installations.

**102.8 Referenced codes and standards.** The codes and standards referenced in this code shall be those that are listed in Chapter ~~14-12~~ and such codes 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 Sections 102.8.1 and 102.8.2. ~~Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall be the minimum requirements.~~

**102.8.1 Conflicts.** Where conflicts occur between provisions of this code and the referenced standards, the provisions of this code shall apply.

**102.8.2 Provisions in referenced codes and standards.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

**102.9 Requirements not covered by code.** Any requirements necessary for the strength, stability or proper operation of an existing or proposed plumbing system, or for the public safety, health and general welfare, not specifically covered by this code shall be determined by the State Administrative Authority.

**102.10 Application of references.** Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

## SECTION 103 DEPARTMENT OF HEALTH, ARKANSAS STATE PLUMBING AND NATURAL GAS SECTION

**103.1 Liability.** The code official, officer (plumbing inspector) or employee charged with the enforcement of this

code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered ~~liable civilly or criminally liable~~ personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission required or permitted in the discharge of official duties. ~~Any suit instituted against any code official, officer (plumbing inspector) or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in any action, suit or proceeding that is instituted in pursuance of the provisions of this code, and any officer of the department of plumbing inspection, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith.~~

**103.2 Variances.** The Arkansas Committee of Plumbing Examiners when so appealed to and after a hearing, may vary the application of any provision of this code to any particular case when, in its opinion, the enforcement thereof would do manifest injustice and would be contrary to the intent and purpose of this code or the public interest, and also finds all of the following:

That special conditions and circumstance exist which are peculiar to the building, structure or service system involved and which are not applicable to others.

That the special conditions and circumstances do not result from action or inaction of the applicant.

That the variance requested will not confer on the applicant any special privilege that is denied by this code to other buildings, structures or service systems.

That the variance granted is the minimum variance that will make possible the reasonable use of the building, structure or service system.

That the granting of the variance will be in harmony with the general intent and purpose of this code and will not be detrimental to the public health, safety and general welfare.

## SECTION 104 DUTIES AND POWERS OF THE CODE OFFICIAL

**104.1 Inspections.** The code official certified by the department shall make all required inspections or shall accept reports of inspection by approved agencies or individuals. All reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual. The code official is authorized to engage such expert opinion as deemed necessary to report on unusual technical issues that arise, subject to the approval of the appointing authority. All new plumbing work, and such

portions of existing systems as may be affected by new work or any changes, shall be subject to inspection to ensure compliance with all requirements of this code.

**104.2 State inspection when required.** When any commercial, industrial, institutional or public building (includes housing projects, shopping centers, hotels, motels or any other building project for use by the public) is not subject to local permit and inspection, the responsible master plumber in charge shall see that such plumbing installation is inspected by the state administrative authority, or by a designated representative of such authority. The state administrative authority may waive the inspection fee when deemed advisable.

**104.3 Advance notice.** It shall be the duty of the master plumber, or his or her representative, to give at least 24-hour advance notice to the proper administrative authority when plumbing work is ready for inspection.

**104.4 Responsibility.** It shall be the duty of the master plumber to make certain that the plumbing work will stand the prescribed test before giving the notification for inspection.

**104.5 Retesting.** If the proper code enforcement officer finds that work will not pass the test, the plumber shall be required to make necessary corrections and the work shall then be resubmitted for test or inspection.

**104.6 Identification.** The code official shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

**104.7 Notices and orders.** The code official shall issue all necessary notices or orders to ensure compliance with this code.

**104.7.1 Submission of plans.** Prior ~~to entering into a contract to permitting, constructing, remodeling or installations to construct or remodel~~ a public building, school building, hospital, nursing home, manufacturing processing plant, shopping center or housing development and all state-owned buildings, the architect, engineer, designer, or other legal agent of the owner shall submit to the department complete plans and specifications. Written approval from the department must be obtained for all plumbing, building water supply, water distribution, wastewater, natural gas systems and sewage disposal facilities, before the construction of the plumbing is started.

**104.7.2 Acceptance of plans.** Plans and specifications accepted under provisions of this code shall be adhered to unless plans, specifications and/or addenda covering any change are submitted to and approved in writing by the department prior to making any proposed changes.

**104.8 Official Construction records.** The code official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and

notices and orders issued. Such records shall be retained by the official as long as the local authority deems appropriate.

## SECTION 105 APPROVAL

**105.1 Modifications.** ~~Where Whenever~~ there are practical difficulties involved in carrying out the provisions of this code, the state administrative authority shall have the authority to grant modifications for individual cases, provided the state administrative authority shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the plumbing inspection department.

**105.2 Alternative materials, methods and equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material or method of construction shall be approved where the state administrative authority finds that the proposed alternative material, method or equipment complies with the intent of the provisions of this code and is not less than the equivalent of that prescribed in this code. ~~Where the alternative material, design or method of construction is not approved, the state administrative authority shall respond in writing, stating the reasons why the alternative was not approved. design is satisfactory and complies with the intent of the provisions of this code, and that the material or method of work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.~~

**105.3 Required testing.** Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the code official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction.

**105.3.1 Test methods.** Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the code official shall approve the testing procedures

**105.3.2 Testing agency.** All tests shall be performed by an approved agency.

**105.3.3 Test reports.** Reports of tests shall be retained by the code official for the period required for retention of public records.

**105.4 Material and equipment reuse.** Materials, equipment and devices shall not be reused unless ele-



ments have been reconditioned, tested, placed in good and proper working condition and approved by the state administrative authority.

## SECTION 106 PERMITS

**106.1 When required.** Any owner, authorized agent or contractor who desires to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the code official and obtain the required permit for the work.

**106.2 Exempt work.** The following work shall be exempt from the requirement for a permit:

The stopping of leaks in drains, water, soil, waste or vent pipe provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.

The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

**106.2.1 Eligible to require permits.** Any state, county, city, town, water district, water association, sewer association, or any water or natural gas utility, shall be eligible for permitting plumbing work.

**106.3 Application for permit.** Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The application shall be signed by the owner or an authorized agent. The permit application shall indicate the proposed occupancy of all parts of the building and of that portion of the site or lot, if any, not covered by the building or structure and shall contain such other information required by the code official.

**106.3.1 Construction documents.** Construction documents, engineering calculations, diagrams and other such data shall be submitted with each application for a permit. The code official shall require construction documents, computations and specifications to be prepared and designed by a registered design professional when required by state law. Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the loca-

tion, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. Construction documents for buildings more than two stories in height shall indicate where penetrations will be made for pipe, fittings and components and shall indicate the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

**Exception:** The code official shall have the authority to waive the submission of construction documents, calculations or other data if the nature of the work applied for is such that reviewing of construction documents is not necessary to determine compliance with this code.

**106.4 By whom application is made.** Application for a permit shall be made by the person or agent to install all or part of any plumbing system. The applicant shall meet all qualifications established by statute, or by rules promulgated by this code, or by ordinance or by resolution. The full name and address of the applicant shall be stated in the application.

**106.5 Permit issuance.** The application, construction documents and other data filed by an applicant for permit shall be reviewed by the code official. If the code official finds that the proposed work conforms to the requirements of this code and all laws and ordinances applicable thereto, and that the fees specified in Section 106.6 have been paid, a permit shall be issued to the applicant.

**106.5.1 Approved construction documents.** When the code official issues the permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "APPROVED." Such approved construction documents shall not be changed, modified or altered without authorization from the code official. All work shall be done in accordance with the approved construction documents. The code official shall have the authority to issue a permit for the construction of a part of a plumbing system before the entire construction documents for the whole system have been submitted or approved, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire plumbing system will be granted.

**106.5.2 Validity.** The issuance of a permit or approval of construction documents shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or any other ordinance of the jurisdiction. No permit presuming to give authority to violate or cancel the provisions of this code shall be valid.

The issuance of a permit based upon construction documents and other data shall not prevent the code official from thereafter requiring the correction of errors in said construction documents and other data or from preventing building operations being carried on thereunder when in violation of this code or of other ordinances of this jurisdiction.



~~**106.5.3 Expiration.** Every permit issued by the code official under the provisions of this code shall expire by limitation and become null and void if the work authorized by such permit is not commenced within 180 days from the date of such permit, or if the work authorized by such permit is suspended or abandoned for a period of 180 days at any time after the work is commenced. Before such work can be recommenced, a new permit shall be first obtained and the fee therefor shall be one-half the amount required for a new permit for such work, provided no changes have been made or will be made in the original construction documents for such work, and provided further that such suspension or abandonment has not exceeded 1 year.~~

~~**106.5.4 Extensions.** Any permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work cannot be commenced within the time required by this section for good and satisfactory reasons. The code official shall extend the time for action by the permittee for a period not exceeding 180 days if there is reasonable cause. No permit shall be extended more than once. The fee for an extension shall be one-half the amount required for a new permit for such work.~~

~~**106.5.5** **3** **Suspension or revocation of permit.** The code official shall have the authority to suspend or revoke a permit or approval issued under the provisions of this code wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulation or any of the provisions of this code, in case of any false statement or misrepresentation of fact in the application or on the construction documents upon which the permit or approval was based.~~

~~**106.5.6** **4** **Retention of construction documents.** The plumbing contractor shall keep any construction documents and records of permits and certificates issued, fees collected, reports of inspections, and notices and orders issued and prints used during the construction of the project. If possible, after the warranty period, the construction documents shall then be forward to the owner of the project.~~

~~**106.5.5 Previous approvals.** This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.~~

**106.6 Fees.** A permit shall not be issued until the fees prescribed in Section 106.6.2 have been paid, and an amendment to a permit shall not be released until the additional fee, if any, due to an increase of the plumbing systems, has been paid.

**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 100 percent of the usual permit fee in addition to the required permit fees.

**106.6.2 Fee schedule.** The fees for all plumbing work shall be determined by the state, county, city, town, water district, water association, sewer association, or any water or natural gas utility having jurisdiction.

## **SECTION 107 INSPECTIONS AND TESTING**

**107.1 Required inspections and testing.** The code official, upon notification from the permit holder or the permit holder's agent, shall make the following inspections and such other inspections as necessary, and shall either release that portion of the construction or shall notify the permit holder or an agent of any violations that must be corrected. The holder of the permit shall be responsible for the scheduling of such inspections.

Underground / Rough-in inspection shall be made after trenches or ditches are excavated and bedded, piping installed, and before any backfill is put in place.

Top-out / Rough-in inspection shall be made after the roof, framing, fireblocking, firestopping, draftstopping and bracing is in place and all sanitary, storm and water distribution piping is roughed-in, and prior to the installation of wall or ceiling membranes.

Final inspection shall be made after the building is complete, all plumbing fixtures are in place and properly connected, and the structure is ready for occupancy.

**107.1.1 Approved agencies.** Test reports submitted to the code official for consideration shall be developed by approved agencies that have satisfied the requirements as to qualifications and reliability.

**107.1.2 Evaluation and follow-up inspection services.** Prior to the approval of a closed, prefabricated plumbing system and the issuance of a plumbing permit, the code official shall require the submittal of an evaluation report on each prefabricated plumbing system indicating the complete details of the plumbing system, including a description of the system and its components, the basis upon which the plumbing system is being evaluated, test results and similar information, and other data as necessary for the code official to determine conformance to this code.

**107.1.2.1 Evaluation service.** The code official shall designate the evaluation service of an approved agency as the evaluation agency, and review such agency's evaluation report for adequacy and conformance to this code.

**107.1.2.2 Follow-up inspection.** Except where ready access is provided to all plumbing systems, service equipment and accessories for complete inspection at the site without disassembly or dismantling, the code official shall conduct the frequency of in-plant inspections necessary to ensure conformance to the approved evaluation report or

shall designate an independent, approved inspection agency to conduct such inspections. The inspection agency shall furnish the code official with the follow-up inspection manual and a report of inspections upon request, and the plumbing system shall have an identifying label permanently affixed to the system indicating that factory inspections have been performed.

**107.1.2.3 Test and inspection records.** All required test and inspection records shall be available to the code official at all times during the fabrication of the plumbing system and the erection of the building, or such records as the code official designates shall be filed.

**107.1.2.4 Signs and Identification.** Any person, firm, company or corporation engaged in installation or repair of a plumbing system as defined in this code shall prominently in legible manner display on both sides of all service and installation vehicles the company name, company master plumbing or gas fitter supervisor license number in letters not less than 2 inches high.

Additionally, the company name, license number and phone number shall be displayed on business cards and at all job sites where new plumbing work is being performed. Job site signs shall be not less than 8 ~~1/2~~ by 11 inches in size. Any person installing plumbing and natural gas shall at all times have available on job site their personal plumbing and or natural gas fitters license.

**107.2 Testing.** Plumbing work and systems shall be tested as required in Section 312 and in accordance with Sections 107.2.3.1 through 107.2.3.3. Tests shall be made by the permit holder and observed by the code official.

**107.2.1 New, altered, extended or repaired systems.** New plumbing systems and parts of existing systems that have been altered, extended or repaired shall be tested as prescribed herein to disclose leaks and defects, except that testing is not required in the following cases:

In any case that does not include addition to, replacement, alteration or relocation of any water supply, drainage or vent piping.

In any case where plumbing equipment is set up temporarily for exhibition purposes.

**107.2.3 Equipment, material and labor for tests.** All equipment, material and labor required for testing a plumbing system or part thereof shall be furnished by the master plumber, ~~or~~ home owner or permit holder.

**107.2.3.1 Reinspection and testing.** Where any work or installation does not pass any initial test or inspection, the necessary corrections shall be made to comply with this code. The work or installation shall then be resubmitted to the code official for inspection and testing.

**107.3.2 Coordination of inspectors.** Whenever, in the enforcement of this code or another code or ordinance, the responsibility of more than one code official of the jurisdiction is involved, it shall be the duty of the code officials

involved to coordinate their inspections and administrative orders as fully as practical so that the owners and occupants of the structure shall not be subjected to visits by numerous inspectors or multiple or conflicting orders. Whenever an inspector from any agency or department observes an apparent or actual violation of some provision of some law, ordinance or code not within the inspector's authority to enforce, the inspector shall report the findings to the code official having jurisdiction.

**107.4 Approval.** After the prescribed tests and inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the code official.

**107.5 Temporary connection.** The code official shall have the authority to authorize the temporary connection of the building or system to the utility source for the purpose of testing plumbing systems or for use under a temporary certificate of occupancy.

## SECTION 108 VIOLATIONS

**108.1 Unlawful acts.** It shall be unlawful for any person, firm or corporation to erect, construct, alter, repair, remove, demolish or utilize any plumbing system, or cause the same to be done, in conflict with or in violation of any of the provisions of this code.

**108.2 Notice of violation.** The code official shall serve a notice of violation or order to the person responsible for the erection, installation, alteration, extension, repair, removal or demolition of plumbing work in violation of the provisions of this code, or in violation of a detailed statement or the approved construction documents thereunder, or in violation of a permit or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

**108.3 Prosecution of violation.** If the notice of violation is not complied with promptly, the code official may request the legal counsel of the jurisdiction to institute the appropriate proceedings at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the structure in violation of the provisions of this code or of the order or direction made pursuant thereto

**108.4 Violation penalties.** Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter or repair plumbing work in violation of the approved construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of violating Arkansas Code § 17-38-102 et. seq.

**108.5 Stop work orders.** Upon notice from the code official, work on any plumbing system that is being done contrary to the provisions of this code or in a dangerous or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's agent, or

to the person ~~doing~~ performing 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 as that person is directed to perform to remove a violation or unsafe condition, shall be in violation of Arkansas Code § 17-38-102 et. seq.

**108.6 Abatement of violation.** The imposition of the penalties herein prescribed shall not preclude the legal officer of the jurisdiction from instituting appropriate action to prevent unlawful construction or to restrain, correct or abate a violation, or to prevent illegal occupancy of a building, structure or premises, or to stop an illegal act, conduct, business or utilization of the plumbing on or about any premises.

**108.7 Unsafe plumbing.** Any plumbing regulated by this code that is unsafe or that constitutes a fire or health hazard, insanitary condition or is otherwise dangerous to human life is hereby declared unsafe. Any use of plumbing regulated by this code constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is hereby declared an unsafe use. Any such unsafe equipment is hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal.

**108.7.1 Authority to condemn equipment.** Whenever the code official determines that any plumbing, or portion thereof, regulated by this code has become hazardous to life, health or property or has become insanitary, the code official shall order in writing that such plumbing either be removed or restored to a safe or sanitary condition. A time limit for compliance with such order shall be specified in the written notice. No person shall use or maintain defective plumbing after receiving such notice.

When such plumbing is to be disconnected, written notice as prescribed in Section 108.2 shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

**108.7.2 Authority to disconnect service utilities.** The code official shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by the technical codes in case of an emergency, where necessary, to eliminate an immediate danger to life or property. Where possible, the owner or the owner's authorized agent and occupant of the building, structure or service system shall be notified of the decision to disconnect utility service prior to taking such action. If not notified prior to disconnecting, the owner, the owner's authorized agent or occupant of the building, structure or service systems shall be notified in writing, as soon as practical thereafter.

**108.7.3 Connection after order to disconnect.** A person shall not ~~No person shall~~ make connections from any energy,

fuel, power supply or water distribution system or supply energy, fuel or water to any equipment regulated by this code that has been disconnected or ordered to be disconnected by the code official or the use of which has been ordered to be discontinued by the code official until the code official authorizes the reconnection and use of such equipment.

Where ~~When~~ any plumbing is maintained in violation of this code, and in violation of any notice issued pursuant to the provisions of this section, the code official shall institute any appropriate action to prevent, restrain, correct or abate the violation.

## **SECTION 109 MEANS OF APPEAL**

**109.1 Suspensions or revocation.** Suspensions, revocations, registrations, permitting, certification, apprenticeship and all appeals to the Arkansas State Board of Health taken from such actions shall be conducted in accordance with the Arkansas Administrative Procedure Act.

## **SECTION 110 CODE BOOK FEES**

**110.1 Code book fees.** ~~The price of this code book shall be as follows: (\$50.00), which includes the binder. All other regulations governing the costs of the Arkansas Plumbing Code are hereby repealed.~~

DRAFT

## CHAPTER 2 DEFINITIONS

### User note:

About this chapter: Codes, by their very nature, are technical documents. Every word, term and punctuation mark can add to or change the meaning of a technical requirement. It is necessary to maintain a consensus on the specific meaning of each term contained in the code. Chapter 2 performs this function by stating clearly what specific terms mean for the purpose of the code.

### SECTION 201 GENERAL

**201.1 Scope.** Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

**201.2 Interchangeability.** Words stated in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural the singular.

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in the *Arkansas Fire Prevention Code*, *National Electrical Code*, *Arkansas State-Gas Code* or the *Arkansas State-Mechanical Code*, such terms shall have the meanings ascribed to them as in those codes

**201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

### SECTION 202 GENERAL DEFINITIONS

**ACCEPTED ENGINEERING PRACTICE.** That which conforms to accepted principles, tests or standards of nationally recognized technical or scientific authorities.

**ACCESS (TO).** That which enables a fixture, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door or similar obstruction (see "Ready access").

**ACCESS COVER.** A removable plate, usually secured by bolts or screws, to permit access to a pipe or pipe fitting for the purposes of inspection, repair or cleaning.

**ACCESSIBLE.** A site, building, facility or portion thereof that complies with the *Arkansas Fire Prevention Code*.

**ADAPTER FITTING.** An approved connecting device that suitably and properly joins or adjusts pipes and fittings which do not otherwise fit together.

**ADMINISTRATIVE AUTHORITY.** The administrative authority (code official) board, department or agency established and authorized by the state, city or other political subdivision to administer and enforce the provisions of the State

Plumbing Code as adopted or amended. State Administrative means the State Health Officer or his or her designee. The Administrative Authority (code official) is hereby authorized to enforce the provisions of this code. The State Administrative Authority is to render interpretations of this code, which are consistent with its intent and purpose.

**AIR ADMITTANCE VALVE.** One-way valve designed to allow air to enter the plumbing drainage system when negative pressures develop in the piping system. The device shall close by gravity and seal the vent terminal at zero differential pressure (no flow conditions) and under positive internal pressures. The purpose of an air admittance valve is to provide a method of allowing air to enter the plumbing drainage system without the use of a vent extended to open air and to prevent sewer gases from escaping into a building.

**AIR BREAK (Drainage System).** A piping arrangement in which a drain from a fixture, appliance or device discharges indirectly into another fixture, receptacle or interceptor at a point below the flood level rim and above the trap seal.

**AIR GAP (Drainage System).** The unobstructed vertical distance through the free atmosphere between the outlet of the waste pipe and the flood level rim of the receptacle into which the waste pipe is discharging.

**AIR GAP (Water Distribution System).** The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the flood level rim of the receptacle.

**ALTERNATE ON-SITE NONPOTABLE WATER.** Non-potable water from other than public utilities, on-site surface sources and subsurface natural freshwater sources. Examples of such water are gray water, on-site reclaimed water, collected rainwater, captured condensate and rejected water from reverse osmosis systems.

**ANCHORS.** See "Supports."

~~**ANTI-SCALD VALVE.** A pressure-balancing valve which senses incoming hot water pressures and compensates for fluctuations of incoming hot and cold water temperatures and pressures to stabilize outlet and cold water temperatures and pressures to stabilize outlet temperature; or a combination thermostatic/pressure balancing valve which senses outlet temperature and incoming hot and cold water~~



~~pressure and compensates for fluctuations in incoming hot and cold water temperatures and pressure to stabilize outlet temperature.~~

**ANTISIPHON.** A term applied to valves or mechanical devices that eliminate siphonage.

**APPROVED.** Approved by the code official or other authority having jurisdiction.

**APPROVED AGENCY.** An established and recognized agency that is regularly engaged in conducting tests or furnishing inspection services, where such agency has been approved by the code official, and that is regularly engaged in conducting tests or furnishing inspection services.

**AREA DRAIN.** A receptacle designed to collect surface or storm water from an open area.

**ASPIRATOR.** ~~A fitting or device supplied with water or other fluid under positive pressure that passes through an integral orifice or constriction, causing a vacuum. Aspirators are also referred to as suction apparatus, and are similar in operation to an ejector.~~

**BACKFLOW.** Pressure created by any means in the water distribution system, which by being in excess of the pressure in the water supply mains causes a potential backflow condition.

**Backpressure, low head.** A pressure less than or equal to 4.33 psi (29.88 kPa) or the pressure exerted by a 10-foot (3048 mm) column of water.

**Backsiphonage.** The backflow of potentially contaminated water into the potable water system as a result of the pressure in the potable water system falling below atmospheric by direct application of steam or boiling water.

**Water supply system.** The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply from any source except the intended source.

**BACKFLOW CONNECTION.** Any arrangement whereby backflow is possible.

**BACKFLOW, DRAINAGE, Drainage.** A reversal of flow in the drainage system.

**BACKFLOW PREVENTER.** A backflow prevention assembly, a backflow prevention device or other means or method to prevent backflow into the potable water supply. A device or means to prevent backflow.

**BACKWATER VALVE.** A device or valve installed in the building drain or sewer pipe where a sewer is subject to backflow, and that prevents drainage or waste from backing up into a lower level or fixtures and causing a flooding condition

**BALL COCK.** See "Fill Valve."

**BASE FLOOD ELEVATION.** A reference point, determined in accordance with the building code, based on

the depth or peak elevation of flooding, including wave height, which has a 1 percent (100-year flood) or greater chance of occurring in any given year.

**BATHROOM GROUP.** A group of fixtures consisting of a water closet, lavatory, bathtub or shower, including or excluding a bidet, an emergency floor drain or both. Such fixtures are located together on the same floor level.

**BEDPAN STEAMER OR BOILER.** ~~A fixture utilized for scalding bedpans or urinal system except a riser, main or stack.~~

**BEDPAN WASHER AND STERILIZER.** ~~A fixture designed to wash bedpans and to flush the contents into the sanitary drainage system. Included are fixtures of this type that provide for disinfecting utensils by scalding with steam or hot water.~~

**BEDPAN WASHER HOSE.** ~~A device supplied with hot and cold water and located adjacent to a water closet or clinical sink to be utilized for cleansing bedpans.~~

**BRANCH.** Any part of the piping system except a riser, main or stack. Any part of the piping pressure of the plumbing fixtures, pools, tanks or vats connected to the potable water distribution piping.

**BRANCH INTERVAL.** A vertical measurement of distance, 8 feet (2438 mm) or more in developed length, between the connections of horizontal branches to a drainage stack. Measurements are taken down the stack from the highest horizontal branch connection.

**BRANCH VENT.** A vent connecting one or more individual vents with a vent stack or stack vent

**BUILDING.** Any structure occupied or intended for supporting or sheltering any occupancy.

**BUILDING DRAIN.** That part of the lowest piping of a drainage system that receives the discharge from soil, waste and other drainage pipes inside that extends 30 inches (762 mm) in developed length of pipe beyond the exterior walls of the building and conveys the drainage to the building sewer.

**Combined.** A building drain that conveys both sewage and storm water or other drainage.

**Sanitary.** A building drain that conveys sewage only.

**Storm.** A building drain that conveys storm water or other drainage, but not sewage.

**BUILDING SEWER.** That part of the drainage system that extends from the end of the building drain and conveys the discharge to a public sewer, private sewer, individual sewage disposal system or other point of disposal.

**Combined.** A building sewer that conveys both sewage and storm water or other drainage.

**Sanitary.** A building sewer that conveys sewage only.

**Storm.** A building sewer that conveys storm water or other drainage, but not sewage.

**BUILDING SUBDRAIN.** That portion of a drainage system that does not drain by gravity into the building sewer.

**BUILDING TRAP.** A device, fitting or assembly of fittings installed in the building drain to prevent circulation of air between the drainage system of the building and the building sewer.

**CIRCUIT VENT.** A vent that connects to a horizontal drainage branch and vents two traps to a maximum of eight traps or trapped fixtures connected into a battery.

**CIRCULATING HOT WATER SYSTEM.** A specifically designed water distribution system where one or more pumps are operated in the service hot water piping to circulate heated water from the water-heating equipment to fixture supply and back to the water-heating equipment.

**CISTERN.** A small covered tank for storing water for a home or farm. Generally, this tank stores rainwater to be utilized for purposes other than in the potable water supply, and such tank is placed underground in most cases.

**CLEANOUT.** An access opening in the drainage system utilized for the removal of obstructions. Types of cleanouts include a removable plug or cap and a removable fixture or fixture trap.

**CODE.** These regulations, subsequent amendments thereto, or any emergency rule or regulation that the administrative authority having jurisdiction has lawfully adopted.

**CODE OFFICIAL.** The officer (local plumbing inspector) or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative.

**COLLECTION PIPE.** Unpressurized pipe used within the collection system that drains on-site nonpotable water or rainwater to a storage tank by gravity.

**COMBINATION FIXTURE.** A fixture combining one sink and laundry tray or a two- or three-compartment sink or laundry tray in one unit.

**COMBINATION WASTE AND VENT SYSTEM.** A specially designed system of waste piping embodying the horizontal wet venting of one or more sinks, lavatories, drinking fountains or floor drains by means of a common waste and vent pipe adequately sized to provide free movement of air above the flow line of the drain.

**COMBINED BUILDING DRAIN.** See "Building drain, combined."

**COMBINED BUILDING SEWER.** See "Building sewer, combined."

**COMMON VENT.** A vent connecting at the junction of two fixture drains or to a fixture branch and serving as a vent for both fixtures.

**CONCEALED FOULING SURFACE.** Any surface of a plumbing fixture which is not readily visible and is not scoured or cleansed with each fixture operation.

**CONDUCTOR.** A pipe inside the building that conveys storm water from the roof to a storm or combined building drain.

**CONSTRUCTION DOCUMENTS.** All of the written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of the project necessary for obtaining a building permit. The construction drawings shall be drawn to an appropriate scale.

**CONTAMINATION.** An impairment of the quality of the potable water that creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids or waste.

**CRITICAL LEVEL (C-L).** An elevation (height) reference point that determines the minimum height at which a backflow preventer or vacuum breaker is installed above the flood level rim of the fixture or receptor served by the device. The critical level is the elevation level below which there is a potential for backflow to occur. If the critical level marking is not indicated on the device, the bottom of the device shall constitute the critical level.

**CROSS CONNECTION.** Any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other either water of unknown or questionable safety or steam, gas or chemical, whereby there exists the possibility for flow from one system to the other, with the direction of flow depending on the pressure differential between the two systems (see "Backflow").

**DEMAND RECIRCULATION WATER SYSTEM.** A water distribution system where one or more pumps prime the service hot water piping with heated water upon a demand for hot water.

**DEAD END.** A branch leading from a soil, waste or vent pipe; a building drain; ~~or~~ a building sewer; water service; or water distribution system and terminating at a developed length of 2 feet (610 mm) or more by means of a plug, cap or other closed fitting.

**DEPARTMENT.** Means the Arkansas Plumbing and Natural Gas Section.

**DEPTH OF ~~WATER-TRAP~~ SEAL.** The depth of liquid ~~water~~ that would have to be removed from a full trap before air could pass through the trap.

**DESIGN FLOOD ELEVATION.** The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the

building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

**DEVELOPED LENGTH.** The length of a pipeline measured along the centerline of the pipe and fittings.

**DISCHARGE PIPE.** A pipe that conveys the discharges from plumbing fixtures or appliances.

**DRAIN.** Any pipe that carries wastewater or water-borne wastes in a building drainage system.

**DRAINAGE FITTINGS.** Type of fitting or fittings utilized in the drainage system. Drainage fittings are similar to cast-iron fittings, except that instead of having a bell and spigot, drainage fittings are recessed and tapped to eliminate ridges on the inside of the installed pipe.

#### **DRAINAGE FIXTURE UNIT**

**Drainage (dfu).** A measure of the probable discharge into the drainage system by various types of plumbing fixtures. The drainage fixture-unit value for a particular fixture depends on its volume rate of drainage discharge, on the time duration of a single drainage operation and on the average time between successive operations.

**DRAINAGE SYSTEM.** Piping within a public or private premise that conveys sewage, rainwater or other liquid wastes to a point of disposal. A drainage system does not include the mains of a public sewer system or a private or public sewage treatment or disposal plant.

**Building gravity.** A drainage system that drains by gravity into the building sewer.

**Sanitary.** A drainage system that carries sewage and excludes storm, surface and ground water.

**Storm.** A drainage system that carries rainwater, surface water, subsurface water and similar liquid wastes.

**DRINKING FOUNTAIN.** A plumbing fixture that is connected to the potable water distribution system and the drainage system. The fixture allows the user to obtain a drink directly from a stream of flowing water without the use of any accessories.

**EFFECTIVE OPENING.** The minimum cross-sectional area at the point of water supply discharge, measured or expressed in terms of the diameter of a circle or, if the opening is not circular, the diameter of a circle of equivalent cross-sectional area. For faucets and similar fittings, the effective opening shall be measured at the smallest orifice in the fitting body or in the supply piping to the fitting.

**EMERGENCY FLOOR DRAIN.** A floor drain that does not receive the discharge of any drain or indirect waste pipe, and that protects against damage from accidental spills, fixture overflows and leakage.

~~**ENVIRONMENTAL HEALTH ADMINISTRATIVE AUTHORITY.** The Administrator of the Environmental~~

~~Health Branch of the Arkansas Department of Health and Human Services Division of health, or his or her designee.~~

#### **ESSENTIALLY NONTOXIC TRANSFER FLUIDS.**

Fluids having a Gosselin rating of 1, including propylene glycol; mineral oil; polydimethylsiloxane; hydro chlorofluorocarbon, chlorofluorocarbon and carbon refrigerants; and FDA-approved boiler water additives for steam boilers.

**ESSENTIALLY TOXIC TRANSFER FLUIDS.** Soil, waste or gray water and fluids having a Gosselin rating of 2 or more including ethylene glycol, hydrocarbon oils, ammonia refrigerants and hydrazine.

**EXISTING INSTALLATIONS.** Any plumbing system regulated by this code that was legally installed prior to the effective date of this code, or for which a permit to install has been issued.

**FAUCET.** A valve end of a water pipe through which water is drawn from or held within the pipe.

**FILL VALVE.** A water supply valve, opened or closed by means of a float or similar device, utilized to supply water to a tank. An antisiphon fill valve contains an antisiphon device in the form of an approved air gap or vacuum breaker that is an integral part of the fill valve unit and that is positioned on the discharge side of the water supply control valve.

**FIXTURE.** See "Plumbing fixture."

**FIXTURE BRANCH.** A drain serving two or more fixtures that discharges to another drain or to a stack.

**FIXTURE DRAIN.** The drain from the trap of a fixture to a junction with any other drain pipe.

#### **FIXTURE FITTING**

**Supply fitting.** A fitting that controls the volume, ~~and/or~~ directional direction of flow or both of water and is either attached to or accessible from a fixture, or is used with an open or atmospheric discharge.

**Waste fitting.** A combination of components that conveys the sanitary waste from the outlet of a fixture to the connection to the sanitary drainage system.

**FIXTURE SUPPLY.** The water supply pipe connecting a fixture to a branch water supply pipe or directly to a main water supply pipe.

**FLOOD HAZARD AREA.** The greater of the following two areas:

The area within a flood plain subject to a 1-percent or greater chance of flooding in any given year.

The area designated as a flood hazard area on a community's flood hazard map or as otherwise legally designated.

**FLOOD LEVEL RIM.** The edge of the receptacle from which water overflows.



**FLOW CONTROL (Vented).** A device installed upstream from the interceptor having an orifice that controls the rate of flow through the interceptor and an air intake (vent) downstream from the orifice that allows air to be drawn into the flow stream.

**FLOW PRESSURE.** The pressure in the water supply pipe near the faucet or water outlet while the faucet or water outlet is wide open and flowing.

**FLUSH TANK.** A tank designed with a fill valve and flush valve to flush the contents of the bowl or usable portion of the fixture.

**FLUSHOMETER TANK.** A device integrated within an air accumulator vessel that is designed to discharge a predetermined quantity of water to fixtures for flushing purposes.

**FLUSHOMETER VALVE.** A valve attached to a pressurized water supply pipe and so designed that when activated it opens the line for direct flow into the fixture at a rate and quantity to operate the fixture properly, and then gradually closes to reseal fixture traps and avoid water hammer.

**FULL-OPEN VALVE.** A water control or shutoff component in the water supply system piping that, where adjusted for maximum flow, the flow path through the component's closure member is not a restriction in the component's through-flow area.

**GRAY WATER.** Waste discharged from lavatories, bathtubs, showers, clothes washers and laundry trays.

~~**GREASE INTERCEPTOR.** A plumbing appurtenance that is installed in a sanitary drainage system to intercept oily and greasy wastes from a wastewater discharge. Such device has the ability to intercept free-floating fats and oils.~~

**Fats, oils and greases (FOG) disposal system.** A plumbing appurtenance that reduces nonpetroleum fats, oils and greases in effluent by separation or mass and volume reduction.

**Gravity.** Plumbing appurtenances of not less than 500 gallons (1893 L) capacity that are installed in the sanitary drainage system to intercept free-floating fats, oils and grease from wastewater discharge. Separation is accomplished by gravity during a retention time of not less than 30 minutes.

**Hydromechanical.** Plumbing appurtenances that are installed in the sanitary drainage system to intercept free-floating fats, oils and grease from wastewater discharge. Continuous separation is accomplished by air entrainment, buoyancy and interior baffling.

**GREASE-LADEN WASTE.** Effluent discharge that is produced from food processing, food preparation or other sources where grease, fats and oils enter automatic dishwasher pre-rinse stations, sinks or other appurtenances.

**GREASE REMOVAL DEVICE, AUTOMATIC (GRD).** A plumbing appurtenance that is installed in the sanitary drainage system to intercept free-floating fats, oils and grease from wastewater discharge. Such a device operates on a time- or event-controlled basis and has the ability to remove free-floating fats, oils and grease automatically without intervention from the user except for maintenance.

~~**GREASE TRAP.** A passive interceptor whose rated flow is 50 gpm (189 L/m) or less.~~

**GRIDDED WATER DISTRIBUTION SYSTEM.** A water distribution system where every water distribution pipe is interconnected so as to provide two or more paths to each fixture supply pipe.

**HANGERS.** See "Supports."

**HEALTH AND SAFETY.** Wherever compliance with all the provisions of this code fails to eliminate or alleviate a nuisance, which may involve health and safety hazards, the owner, or his agent, shall install such additional plumbing, drainage equipment, natural gas or natural gas equipment as may be found necessary by the State Administrative Authority.

**HOUSING DEVELOPMENT.** A housing development is any building or buildings having five or more residential living units whether under a single roof or separate building and sharing common property boundaries.

**HORIZONTAL BRANCH DRAIN.** A drainage branch pipe extending laterally from a soil or waste stack or building drain, with or without vertical sections or branches, that receives the discharge from two or more fixture drains or branches and conducts the discharge to the soil or waste stack or to the building drain.

**HORIZONTAL PIPE.** Any pipe or fitting that makes an angle of less than 45 degrees (0.79 rad) with the horizontal.

**HOT WATER.** Water at a temperature greater than or equal to 110°F (43°C).

**HOUSE TRAP.** See "Building trap."

**INDIRECT WASTE PIPE.** A waste pipe that does not connect directly with the drainage system, but that discharges into the drainage system through an air break or air gap into a trap, fixture, receptor or interceptor.

**INDIVIDUAL SEWAGE DISPOSAL SYSTEM.** A system for disposal of domestic sewage by means of a septic tank, cesspool or mechanical treatment, designed for utilization apart from a public sewer to serve a single establishment or building.

**INDIVIDUAL VENT.** A pipe installed to vent a fixture trap and connects with the vent system above the fixture served or terminates in the open air.

**INDIVIDUAL WATER SUPPLY.** A water supply that serves one or more families, and that is not an approved public water supply.

**INTERCEPTOR.** A device designed and installed to separate and retain for removal, by automatic or manual means deleterious, hazardous or undesirable matter from normal wastes, while permitting normal sewage or wastes to discharge into the drainage system by gravity.

## **JOINT**

**Expansion.** A loop, return bend or return offset that provides for the expansion and contraction in a piping system and is utilized in tall buildings or where there is a rapid change of temperature, as in power plants, steam rooms and similar occupancies.

**Flexible.** Any joint between two pipes that permits one pipe to be deflected or moved without movement or deflection of the other pipe.

**Mechanical.** See "Mechanical joint."

**Slip.** A type of joint made by means of a washer or a special type of packing compound in which one pipe is slipped into the end of an adjacent pipe.

**LEAD-FREE PIPE AND FITTINGS.** Containing not more than 0.25-percent lead.

**LEAD-FREE SOLDER AND FLUX.** Containing not more than 0.2-percent lead.

**LEADER.** An exterior drainage pipe for conveying storm water from roof or gutter drains to an approved means of disposal.

~~**LOCAL VENT STACK.** A vertical pipe to which connections are made from the fixture side of traps and through which vapor or foul air is removed from the fixture or device utilized on bedpan washers.~~

**MACERATING TOILET SYSTEMS.** An assembly consisting of a water closet and sump with a macerating pump that is designed to collect, grind and pump wastes from the water closet and up to two other fixtures connected to the sump.

**MAIN.** The principal pipe artery to which branches are connected.

**MANIFOLD.** See "Plumbing appurtenance."

**MECHANICAL JOINT.** A connection between pipes, fittings, or pipes and fittings that is not screwed, caulked, threaded, soldered, solvent cemented, brazed, heat fused or welded. A joint in which compression is applied along the centerline of the pieces being joined. In some applications, the joint is part of a coupling, fitting or adapter.

~~**MEDICAL GAS SYSTEM.** The complete system to convey medical gases for direct patient application from central supply systems (bulk tanks, manifolds and medical air compressors), with pressure and operating controls, alarm warning systems, related components and piping networks extending to station outlet valves at patient use points.~~

~~**MEDICAL VACUUM SYSTEMS.** A system consisting of central vacuum producing equipment with pressure and operating controls, shutoff valves, alarm warning systems, gauges and a network of piping extending to and terminating with suitable station inlets at locations where patient suction may be required.~~

**METER.** A measuring device used to collect data and indicate water usage.

**MINOR REPAIRS, repairs exempt from licensing.** Minor repairs are defined to consist of fixing leaks and the clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures. The repair or replacement of fill valves, residential lavatory faucets, residential sink faucets and similar fixture trim and fittings that does not involve the alteration of a plumbing fixture. Minor repairs shall not include water heater replacement or repair, in soil, waste, and supply lines; and restore defective valves, faucets and similar appliances to an efficient operating condition by any method other than connecting or disconnecting from the water source of existing water/sewer or natural gas system provided such repairs do not involve or require the replacement of new valves, pipes and fixtures. Such work shall be considered new work and shall require plumbing licenses and inspections other than the reinstallation of existing water closets.

**NONPOTABLE WATER.** Water not safe for drinking, personal or culinary utilization.

**NUISANCE.** Public nuisance as known in common law or in equity jurisprudence; whatever is dangerous to human life or detrimental to health; whatever structure or premises is not sufficiently ventilated, sewered, drained, cleaned or lighted, with respect to its intended occupancy; and whatever renders the air, or human food, drink or water supply unwholesome.

**OCCUPANCY.** The purpose for which a building or portion thereof is utilized or occupied.

**OFFSET.** A combination of approved bends that makes two changes in direction bringing one section of the pipe out of line but into a line parallel with the other section.

**ON-SITE NONPOTABLE WATER REUSE SYSTEM.** A water system for the collection, treatment, storage, distribution and reuse of nonpotable water generated on site, including but not limited to a gray water system. This definition does not include a rainwater harvesting system.

**OPEN AIR.** Outside the structure.

**PLUMBING.** The practice, materials and fixtures utilized in the installation, maintenance, extension and alteration of all piping, fixtures, plumbing appliances and plumbing appurtenances, within or adjacent to any structure, in connection with sanitary drainage or storm drainage

facilities; venting systems; and public or private water supply systems.

**PLUMBING APPLIANCE.** Water or drain-connected devices. Any one of a special class of plumbing fixtures intended to perform a special function. These devices have their Included are fixtures having the operation or control dependent on one or more energized components, such as motors, controls, or heating elements, or pressure or temperature sensing elements. Such fixtures are manually adjusted or controlled by the owner or operator, or are operated automatically through one or more of the following actions: a time cycle, a temperature range, a pressure range, a measured volume or weight.

**PLUMBING APPURTENANCE.** A manufactured device, prefabricated assembly or an on-the-job assembly of component parts that is an adjunct to the basic piping system and plumbing fixtures. An appurtenance demands no additional water supply and does not add any discharge load to a fixture or to the drainage system.

**PLUMBING FIXTURE.** A receptacle or device that is either permanently or temporarily connected to the water distribution system of the premises and demands a supply of water therefrom; discharges wastewater, liquid-borne waste materials or sewage either directly or indirectly to the drainage system of the premises; or requires both a water supply connection and a discharge to the drainage system of the premises.

**PLUMBING INSPECTOR.** Refer to Appendix H of this code.

**PLUMBING SYSTEM.** A system that includes the water supply and distribution pipes; plumbing fixtures and traps; water-treating or water-using equipment; soil, waste and vent pipes; and sanitary and storm sewers and building drains; natural gas piping and venting of natural gas equipment; in addition to their respective connections, devices and appurtenances within a structure or premises.

**POLLUTION.** An impairment of the quality of the potable water to a degree that does not create a hazard to the public health but that does adversely and unreasonably affect the aesthetic qualities of such potable water for domestic use.

**POTABLE WATER.** Water free from impurities present in amounts sufficient to cause disease or harmful physiological effects and conforming to the bacteriological and chemical quality requirements of the Public Health Service Drinking Water Standards or the regulations of the public health authority having jurisdiction.

**PRESS-CONNECT JOINT.** A permanent mechanical joint incorporating an elastomeric seal or an elastomeric seal and corrosion-resistant grip ring. The joint is made with a pressing tool and jaw or ring approved by the fitting manufacturer.

**PRIVATE.** In the classification of plumbing fixtures, “private” applies to fixtures in residences and apartments, and to fixtures in nonpublic toilet rooms of hotels and motels and similar installations in buildings where the plumbing fixtures are intended for utilization by a family or an individual.

**PUBLIC OR PUBLIC UTILIZATION.** In the classification of plumbing fixtures, “public” applies to fixtures in general toilet rooms of schools, gymnasiums, hotels, airports, bus and railroad stations, public buildings, bars, public comfort stations, office buildings, stadiums, stores, restaurants and other installations where a number of fixtures are installed so that their utilization is similarly unrestricted.

**PUBLIC SWIMMING POOL.** A pool, other than a residential pool that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use.

**PUBLIC WATER MAIN.** A water supply pipe for public utilization controlled by public authority.

**QUICK-CLOSING VALVE.** A valve or faucet that closes automatically when released manually or that is controlled by a mechanical means for fast-action closing.

**RAINWATER.** Water from natural precipitation.

**READY ACCESS.** That which enables a fixture, appliance or equipment to be directly reached without requiring the removal or movement of any panel, door or similar obstruction and without the use of a portable ladder, step stool or similar device.

**RECLAIMED WATER.** Nonpotable water that has been derived from the treatment of waste water by a facility or system licensed or permitted to produce water meeting the jurisdiction’s water requirements for its intended uses. Also known as “recycled water.”

**REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER.** A backflow prevention device consisting of two independently acting check valves, internally force-loaded to a normally closed position and separated by an intermediate chamber (or zone) in which there is an automatic relief means of venting to the atmosphere, internally loaded to a normally open position between two tightly closing shutoff valves and with a means for testing for tightness of the checks and opening of the relief means.

**REGISTERED DESIGN PROFESSIONAL.** An individual who is registered or licensed to practice their respective design profession, professional architecture or engineering as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

## RELIEF VALVE

**Pressure relief valve.** A pressure-actuated valve held closed by a spring or other means and designed to relieve pressure automatically at the pressure at which such valve is set.

**Temperature and pressure relief (T&P) valve.** A combination relief valve designed to function as both a temperature relief and a pressure relief valve.

**Temperature relief valve.** A temperature-actuated valve designed to discharge automatically at the temperature at which such valve is set.

**RELIEF VENT.** A vent whose primary function is to provide circulation of air between drainage and vent systems.

**RIM.** An unobstructed open edge of a fixture.

**RISER.** See "Water pipe, riser."

**ROOF DRAIN.** A drain installed to receive water collecting on the surface of a roof and to discharge such water into a leader or a conductor.

**ROUGH-IN.** Parts of the plumbing system that are installed prior to the installation of fixtures. This includes drainage, water supply, vent piping and the necessary fixture supports and any fixtures that are built into the structure.

**SELF-CLOSING FAUCET.** A faucet containing a valve that automatically closes upon deactivation of the opening means.

**SEPARATOR.** See "Interceptor."

**SEWAGE.** Any liquid waste containing animal or vegetable matter in suspension or solution, including liquids containing chemicals in solution.

**SEWAGE EJECTORS.** A device for lifting sewage by entraining the sewage in a high-velocity jet of steam, air or water.

## SEWER

**Building sewer.** See "Building sewer."

**Public sewer.** A common sewer directly controlled by public authority. That part of the drainage system of pipes, installed and maintained by a city, township, county, public utility company or other public entity, and located on public property, in the street or in an approved dedicated easement of public or community use.

**Sanitary sewer.** A sewer that carries sewage and excludes storm, surface and ground water.

**Storm sewer.** A sewer that conveys rainwater, surface water, subsurface water and similar liquid wastes.

**SHALL.** The word "shall" is a mandatory term.

**SLOPE.** The fall (pitch) of a line of pipe in reference to a horizontal plane. In drainage, the slope is expressed as the

fall in units vertical per units horizontal (percent) for a length of pipe.

**SOIL PIPE.** A pipe that conveys sewage containing fecal matter to the building drain or building sewer.

**SPILLPROOF VACUUM BREAKER.** An assembly consisting of one check valve force-loaded closed and an air-inlet vent valve force-loaded open to atmosphere, positioned downstream of the check valve, and located between and including two tightly closing shutoff valves and a test cock.

**STACK.** A general term for any vertical line of soil, waste, vent or inside conductor piping that extends through at least one story with or without offsets.

**STACK VENT.** The extension of a soil or waste stack above the highest horizontal drain connected to the stack.

**STACK VENTING.** A method of venting a fixture or fixtures through the soil or waste stack.

## STERILIZER

~~**Boiling type.** A boiling type sterilizer is a fixture of a non-pressure type utilized for boiling instruments, utensils or other equipment for disinfection. These devices are portable or are connected to the plumbing system.~~

~~**Instrument.** A device for the sterilization of various instruments.~~

~~**Pressure (autoclave).** A pressure vessel fixture designed to utilize steam under pressure for sterilizing.~~

~~**Pressure instrument washer sterilizer.** A pressure instrument washer sterilizer is a pressure vessel fixture designed to both wash and sterilize instruments during the operating cycle of the fixture.~~

~~**Utensil.** A device for the sterilization of utensils as utilized in health care services.~~

~~**Water.** A water sterilizer is a device for sterilizing water and storing sterile water.~~

~~**STERILIZER VENT.** A separate pipe or stack, indirectly connected to the building drainage system at the lower terminal, that receives the vapors from non-pressure sterilizers, or the exhaust vapors from pressure sterilizers, and conducts the vapors directly to the open air. Also called vapor, steam, atmospheric or exhaust vent.~~

**STORM DRAIN.** See "Drainage system, storm."

**STORM WATER.** Natural precipitation, including snow-melt, that has contacted a surface at or below grade. [A1]

**STRUCTURE.** That which is built or constructed, ~~or a portion thereof.~~

**SUBSOIL DRAIN.** A drain that collects subsurface water or seepage water and conveys such water to a place of disposal.



**SUMP.** A tank or pit that receives sewage or liquid waste, located below the normal grade of the gravity system and that must be emptied by mechanical means.

**SUMP PUMP.** An automatic water pump powered by an electric motor for the removal of drainage, except raw sewage, from a sump, pit or low point.

**SUMP VENT.** A vent from pneumatic sewage ejectors, or similar equipment, that terminates separately to the open air.

**SUPPORTS.** Devices for supporting and securing pipe, fixtures and equipment.

**SWIMMING POOL.** A permanent or temporary structure that is intended to be used for swimming, bathing or wading and that is designed and manufactured or built to be connected to a circulation system. A swimming pool can be open to the public regardless of whether a fee is charged for its use or can be accessory to a residential setting where the pool is available only to the household and guests of the household. Any structure, basin, chamber or tank containing an artificial body of water for swimming, diving or recreational bathing having a depth of 2 feet (610 mm) or more at any point.

**TEMPERED WATER.** Water having a temperature range between 85°F (29°C) and 110°F (43°C).

**TEPID WATER.** Water having a temperature range between 60°F (16°C) and 100°F (38°C).

**THIRD-PARTY CERTIFICATION AGENCY, FOR FACTORY-BUILT STRUCTURES.** A manufacturer of modular or factory-built structures, other than manufactured housing that is governed by the United States Department of Housing and Urban Development, located in the State of Arkansas must contract with an independent third-party compliance assurance and/or inspection agency that is listed with the International

Accreditation Service, for the inspection of modular or factory-built buildings destined for delivery within the state for compliance with the Arkansas Fire Protection Code and applicable state and municipal electrical, plumbing and mechanical codes. If a manufacturer of modular or factory-built buildings contracts with a third-party inspector to monitor compliance with the Arkansas Fire Protection Code and applicable state and municipal electrical, plumbing and mechanical codes relating to construction of new buildings, no further inspection by state or local building officials may be required for that part of the structure built in the factory. A copy of the third-party inspection report shall accompany the building to the construction site for review. The cost of the independent third-party inspection shall be borne by the modular building manufacturer.

**THIRD-PARTY CERTIFICATION AGENCY.** An approved agency operating a product or material certification system that incorporates initial product testing,

assessment and surveillance of a manufacturer's quality control system.

**THIRD-PARTY CERTIFIED.** Certification obtained by the manufacturer indicating that the function and performance characteristics of a product or material have been determined by testing and ongoing surveillance by an approved third-party certification agency. Assertion of certification is in the form of identification in accordance with the requirements of the third-party certification agency.

**THIRD-PARTY TESTED.** Procedure by which an approved testing laboratory provides documentation that a product, material or system conforms to specified requirements.

**TOILET FACILITY.** A room or space that contains not less than one water closet and one lavatory.

**TRAP.** A fitting or device that provides a liquid seal to prevent the emission of sewer gases without materially affecting the flow of sewage or wastewater through the trap.

**TRAP SEAL.** The vertical distance between the weir and the top of the dip of the trap.

**UNSTABLE GROUND.** Earth that does not provide a uniform bearing for the barrel of the sewer pipe between the joints at the bottom of the pipe trench.

**VACUUM.** Any pressure less than that exerted by the atmosphere.

**VACUUM BREAKER.** A type of backflow preventer installed on openings subject to normal atmospheric pressure that prevents backflow by admitting atmospheric pressure through ports to the discharge side of the device.

**VENT PIPE.** See "Vent system."

**VENT STACK.** A vertical vent pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system.

**VENT SYSTEM.** A pipe or pipes installed to provide a flow of air to or from a drainage system, or to provide a circulation of air within such system to protect trap seals from siphonage and backpressure.

**VERTICAL PIPE.** Any pipe or fitting that makes an angle of 45 degrees (0.79 rad) or more with the horizontal.

**WALL-HUNG WATER CLOSET.** A wall-mounted water closet installed in such a way that the fixture does not touch the floor.

**WASTE.** The discharge from any fixture, appliance, area or appurtenance that does not contain fecal matter.

**WASTE PIPE.** A pipe that conveys only waste.

**WASTE RECEPTOR.** A floor sink, standpipe, hub drain or floor drain that receives the discharge of one or more indirect waste pipes.

**WATER COOLER.** A drinking fountain that incorporates a means of reducing the temperature of the water supplied to it from the potable water distribution system.

**WATER DISPENSER.** A plumbing fixture that is manually controlled by the user for the purpose of dispensing potable drinking water into a receptacle such as a cup, glass or bottle. Such fixture is connected to the potable water distribution system of the premises. This definition also includes a free-standing apparatus for the same purpose that is not connected to the potable water distribution system and that is supplied with potable water from a container, bottle or reservoir.

**WATER-HAMMER ARRESTOR.** A device utilized to absorb the pressure surge (water hammer) that occurs when water flow is suddenly stopped in a water supply system.

**WATER HEATER.** Any heating appliance or equipment that heats potable water and supplies such water to the potable hot water distribution system. A boiler is a heating system having the capacity of greater than 200,000 Btu per hour (58.6 kW) or greater input or having temperature higher than 210° F (99° C), or pressure greater than 150 psig (1034 kPa).

**WATER MAIN.** A water supply pipe or system of pipes installed and maintained by a city, township, county, public utility company or other public entity, on public property, in the street or in an approved dedicated easement of public or community use.

**WATER OUTLET.** A discharge opening through which water is supplied to a fixture, into the atmosphere (except into an open tank that is part of the water supply system), to a boiler or heating system, or to any devices or equipment requiring water to operate but which are not part of the plumbing system.

## WATER PIPE

**Riser.** A water supply pipe that extends one full story or more to convey water to branches or to a group of fixtures.

**Water distribution pipe.** A pipe entering and installed within the structure or on the premises that conveys water from the water service pipe, or from the meter when the meter is at the structure, to the points of utilization.

**Water service pipe.** The pipe from the water main or other source of potable water supply, or from the meter when the meter is at the public right of way, to the water distribution system of the building served.

**WATER SUPPLY SYSTEM.** The water service pipe, water distribution pipes, and the necessary connecting pipes, fittings, control valves and all appurtenances in or adjacent to the structure or premises.

## ~~WELL~~

~~**Bored.** A well constructed by boring a hole in the ground with an auger and installing a casing.~~

~~**Drilled.** A well constructed by making a hole in the ground with a drilling machine of any type and installing casing and screen.~~

~~**Driven.** A well constructed by driving a pipe in the ground. The drive pipe is usually fitted with a well point and screen.~~

~~**Dug.** A well constructed by excavating a large diameter shaft and installing a casing.~~

**WHIRLPOOL BATHTUB.** A plumbing appliance consisting of a bathtub fixture that is equipped and fitted with a circulating piping system designed to accept, circulate and discharge bathtub water upon each use.

**YOKE VENT.** A pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stacks.

## CHAPTER 3 GENERAL REGULATIONS

### User note:

About this chapter: Chapter 3 covers general regulations for plumbing installations. As many of these requirements would need to be repeated in Chapters 3 through 14, placing such requirements in only one location eliminates code development coordination issues associated with the same requirement in multiple locations. These general requirements can be superseded by more specific requirements for certain applications in Chapters 3 through 14.

### SECTION 301 GENERAL

**301.1 Scope.** The provisions of this chapter shall govern the general regulations regarding the installation of plumbing not specific to other chapters.

**301.2 System installation.** Plumbing shall be installed with due regard to preservation of the strength of structural members and prevention of damage to walls and other surfaces through fixture usage.

**301.3 Connections to the sanitary drainage system.** ~~All~~ plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code or a Health-Department-approved disposal system. This section shall not be construed to prevent the indirect waste systems required by Chapter 8.

Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved system in accordance with Chapters 13.

**301.4 Connections to water supply.** ~~All premises intended for human habitation, occupancy, or use shall be provided with a supply of potable water, neither connected with unsafe water supplies not subject to the hazards of backflow or back-siphonage.~~ Every plumbing fixture, device or appliance requiring or using water for its proper operation shall be directly or indirectly connected to the water supply system in accordance with the provisions of this code.

**301.5 Pipe, tube and fitting sizes.** Unless otherwise specified, the pipe, tube and fitting sizes specified in this code are expressed in nominal or standard sizes as designated in the referenced material standards.

**301.6 Prohibited locations.** Plumbing systems shall not be located in an elevator shaft or in an elevator equipment room.

**Exception:** Floor drains, sumps and sump pumps shall be permitted at the base of the shaft provided they are indirectly connected to the plumbing system and comply with Section 1003.4.

**301.7 Conflicts.** In instances wWhere conflicts between this code and ~~the conditions of the listing or the~~

manufacturer's installation instructions occur, the more restrictive provisions shall ~~provisions of this code~~ apply.

**Exception:** ~~Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and manufacturer's installation instructions shall apply.~~

### SECTION 302 EXCLUSION OF MATERIALS DETRIMENTAL TO THE SEWER SYSTEM

**302.1 Detrimental or dangerous materials.** Ashes, cinders or rags; flammable, poisonous or explosive liquids or gases; oil, grease or any other insoluble material capable of obstructing, damaging or overloading the building drainage or sewer system, or capable of interfering with the normal operation of the sewage treatment processes, shall not be deposited, by any means, into such systems.

**302.2 Industrial wastes.** Waste products from manufacturing or industrial operations shall not be introduced into the public sewer until it has been determined by the code official or other authority having jurisdiction that the introduction thereof will not damage the public sewer system or interfere with the functioning of the sewage treatment plant.

### SECTION 303 MATERIALS

**303.1 Identification.** Each length of pipe and each pipe fitting, trap, fixture, material and device utilized in a plumbing system shall bear the identification of the manufacturer and any markings required by the applicable referenced standards.

**303.2 Installation of materials.** All materials used shall be installed in strict accordance with the standards under which the materials are accepted and approved. In the absence of such installation procedures, the manufacturer's ~~installation~~ instructions shall be followed. Where the requirements of referenced standards or manufacturer's installation instructions do not conform to minimum provisions of this code, the provisions of this code shall apply.

**303.3 Plastic pipe, fittings and components.** All plastic pipe, fittings and components shall be third-party certified as conforming to NSF 14.

**303.4 Third-party testing and certification.** All plumbing products and materials required by code to be in compliance shall comply with the referenced standards, specifications and performance criteria of this code and shall be listed by a third-party certification agency as complying with the referenced standards. Products and materials shall be identified in accordance with Section 303.1. When required by Table 303.4, plumbing products and materials shall either be tested by an approved third-party testing agency or certified by an approved third-party certification agency.

**303.5 Cast-iron soil pipe, fittings and components.** Castiron soil pipes and fittings, and the couplings used to join these products together, shall be third-party listed and labeled. Third-party certifiers or inspectors shall comply with the minimum inspection requirements of Annex A or Annex A1 of the ASTM and CISPI product standards indicated in the code for such products.

## SECTION 304 RODENTPROOFING

**304.1 General.** Plumbing systems shall be designed and installed in accordance with Sections 304.2 through 304.4 to prevent rodents from entering structures.

**304.2 Strainer plates.** All strainer plates on drain inlets shall be designed and installed so that all openings are not greater than 0.5 inch (12.7 mm) in least dimension.

**304.3 Meter boxes.** Meter boxes shall be constructed in such a manner that rodents are prevented from entering a structure by way of the water service pipes connecting the meter box and the structure.

**304.4 Openings for pipes.** In or on structures where openings have been made in walls, floors or ceilings for the passage of pipes, the annular space between the pipe and the sides of the opening shall be sealed with caulking materials or closed with gasketing systems compatible with the piping materials and locations such openings shall be closed and protected by the installation of approved metal collars that are securely fastened to the adjoining structure.

## SECTION 305 PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS

**305.1 Protection against contact.** Metallic piping, except for cast iron, ductile iron and galvanized steel, 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 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. **305.1 Corrosion.** Pipes passing under and/or through concrete or cinder walls and floors or other corrosive material shall be protected against external corrosion by a protective sheathing or wrapping or other means that will withstand any reaction from the lime and acid of concrete, cinder or other corrosive material. Sheathing or wrapping shall allow for movement including expansion and contraction of piping to prevent any rubbing action. Minimum The wall thickness of material shall not be less than 0.025 inch (0.64 mm).

**305.2 Breakage.** Pipes passing through or under walls shall be protected from breakage.

**305.23 Stress and strain.** Piping in a plumbing system shall be installed so as to prevent strains and stresses that exceed the structural strength of the pipe. Where necessary, provisions shall be made to protect piping from damage resulting from expansion, contraction and structural settlement. Water distribution piping shall be sleeved when penetrating walls, floors or other barriers constructed of concrete or similar materials.

**305.4 Sleeves.** Annular spaces between sleeves and pipes shall be filled or tightly caulked in an approved manner. Annular spaces between sleeves and pipes in fire-resistance-rated assemblies shall be filled or tightly caulked in accordance with this code and the Arkansas Fire Prevention Code.

**305.35 Pipes through or under footings or foundation walls.** Any pipe that passes under a footing or [RM2]through a foundation wall shall be provided with a relieving arch, or a pipe sleeve pipe shall be built into the foundation wall. The sleeve shall be two pipe sizes greater than the pipe passing through the wall. Pipes passing through or under walls shall be protected from breakage.

**305.53.1 PEX and or CPVC.** PEX or CPVC installed for the purpose of water distribution piping shall not be required to be sleeved under slab unless otherwise required by the manufacturer's instructions.

**305.46 Freezing.** Water, soil and waste pipes shall not be installed outside of a building, in attics or crawl spaces, concealed in outside walls, or in any other place subjected to freezing temperature unless adequate provision is made to protect such pipes from freezing by insulation or heat or both. Tub valves, tub and shower valves or shower valves shall not be installed in outside walls unless approved by the authority having jurisdiction. Exterior water supply system piping shall be installed not less than 6 inches (152 mm) below the frost line and not less than 12 inches (305 mm) below grade. Frost resistant automatic draining type wall hydrants with high or low hazard vacuum breakers ~~is~~ are required for all outside walls or in other places subject to freezing. [RM3]



**305.57 Waterproofing of openings.** Joints at the roof and around vent pipes, shall be made water tight by the use of lead, copper, galvanized steel, aluminum, plastic or other approved flashings or flashing material. Exterior wall openings shall be made water tight.

**305.68 Protection against physical damage.** In concealed locations where piping, other than cast-iron or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than ~~4-5 1/4~~ inches (~~38-32~~ mm) from the nearest edge of the member, the pipe shall be protected by shield plates. Such shield plates shall have a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage). Such plates shall cover the area of the pipe where the member is notched or bored, and shall extend not less than 2 inches (51 mm) above sole plates and below top plates. ~~Protective shield plates shall be a minimum of 0.062-inch thick (1.6 mm) steel, shall cover the area of the pipe where the member is notched or bored, and shall extend a minimum of 2 inches (51 mm) above sole plates and below top plates.~~

**305.79 Protection of components of plumbing system.** Components of a plumbing system installed along alleyways, driveways, parking garages or other locations exposed to damage shall be recessed into the wall or otherwise protected in an approved manner.

**305.8 Sleeves.** Annular spaces between sleeves and pipes shall be filled or tightly caulked in an approved manner. Annular spaces between sleeves and pipes in fire-resistance-rated assemblies shall be filled or tightly caulked in accordance with this code and the Arkansas Fire Prevention Code.

**TABLE 303.4  
PRODUCTS AND MATERIALS REQUIRING THIRD-PARTY TESTING AND THIRD-PARTY CERTIFICATION**

PRODUCT OR MATERIAL	THIRD-PARTY CERTIFIED	THIRD-PARTY TESTED
Portable water supply system components and potable water fixture fittings	Required	—
Sanitary drainage and vent system components	Plastic pipe, fittings and pipe-related components	All others
Waste fixture fittings	Plastic pipe, fittings and pipe-related components	All others
Storm drainage system components	Plastic pipe, fittings and pipe-related components	All others
Plumbing fixtures	—	Required
Plumbing appliances	Required	—
Backflow prevention devices	Required	—
Water distribution system safety devices	Required	—
Special waste system components	—	Required
Subsoil drainage system components	—	Required

## SECTION 306 TRENCHING, EXCAVATION AND BACKFILL

**306.1 Support of piping.** Buried piping shall be supported throughout its entire length.

**306.2 Trenching and bedding.** Where trenches are excavated such that the bottom of the trench forms the bed for the pipe, solid and continuous load-bearing support shall be provided between joints. Bell holes, hub holes and coupling holes shall be provided at points where the pipe is joined. Such pipe shall not be supported on blocks to grade. In instances where the materials manufacturer's installation instructions are more restrictive than those prescribed by the code, the material shall be installed in accordance with the more restrictive requirement.

**306.2.1 Overexcavation.** Where trenches are excavated below the installation level of the pipe such that the bottom of the trench does not form the bed for the pipe, the trench shall be backfilled to the installation level of the bottom of the pipe with sand or fine gravel placed in layers of 6 inches (152 mm) maximum depth and such backfill shall be compacted after each placement.

**306.2.2 Rock removal.** Where rock is encountered in trenching, the rock shall be removed to a minimum of 3 inches (76 mm) below the installation level of the bottom of the pipe, and the trench shall be backfilled to the installation level of the bottom of the pipe with sand tamped in place so as to provide uniform load-bearing support for the pipe between joints. The pipe, including the joints, shall not rest on rock at any point.

**306.2.3 Soft load-bearing materials.** If soft materials of poor load-bearing quality are found at the bottom of the trench, stabilization shall be achieved by over excavating a minimum of two pipe diameters and backfilling to the installation level of the bottom of the pipe with fine gravel, crushed stone or a concrete foundation. The concrete foundation shall be bedded with sand tamped into place so as to

provide uniform load-bearing support for the pipe between joints.

**306.3 Backfilling.** Backfill shall be free from discarded construction material and debris. Loose earth free from rocks, broken concrete and frozen chunks shall be placed in the trench in 6-inch (152 mm) layers and tamped in place until the crown of the pipe is covered by 12 inches (305 mm) of tamped earth. The backfill under and beside the pipe shall be compacted for pipe support. Backfill shall be brought up evenly on both sides of the pipe so that the pipe remains aligned. In instances where the manufacturer's installation instructions for materials are more restrictive than those prescribed by the code, the material shall be installed in accordance with the more restrictive requirement.

**306.4 Tunneling.** Where pipe is to be installed by tunneling, jacking or a combination of both, the pipe shall be protected from damage during installation and from subsequent uneven loading. Where earth tunnels are used, adequate supporting structures shall be provided to prevent future settling or caving.

## SECTION 307 STRUCTURAL SAFETY

**307.1 General.** In the process of installing or repairing any part of a plumbing and drainage installation, the finished floors, walls, ceilings, tile work or any other part of the building or premises that must be changed or replaced shall be left in a safe structural condition in accordance with the requirements of the *Arkansas Fire Prevention Code*.

**307.2 Cutting, notching or bored holes.** A framing member, if possible, shall not be cut, notched or bored in excess of limitations specified in ~~this code and the~~ *Arkansas Fire Prevention Code*. ~~The plumbing contractor shall comply with this section only if the building contractor has provided framing members of sufficient size to allow for the compliance of this section. Inspections concerning structural safety shall be performed by the building inspector in cities, towns, communities or areas where building inspections are performed. In all cases only the minimum amount of~~

~~framing member should be removed for plumbing components to be installed.~~

**307.3 Penetrations of floor/ceiling assemblies and fire-resistance-rated assemblies.** Penetrations of floor/ceiling assemblies and assemblies required to have a fire-resistance rating shall be protected in accordance with ~~the~~ this code and the *Arkansas Fire Prevention Code*.

**307.4 Alterations to trusses.** Truss members and components shall not be cut, drilled, notched, spliced or otherwise altered in any way without written concurrence and approval of a registered design professional. Alterations resulting in the addition of loads to any member (e.g., HVAC equipment, water heater) shall not be permitted without verification that the truss is capable of supporting such additional loading.

**307.5 Protection of footings.** ~~Trenching installed parallel to footings and walls shall not extend into the bearing plane of a footing or wall. The upper boundary of the bearing plane is a line that extends downward, at an angle of 45 degrees (0.79 rad) from horizontal, from the outside bottom edge of the footing or wall.~~

**307.6 Trench location.** ~~Trenches installed parallel to footings shall not extend below the 45-degree (0.79 rad) bearing plane of the footing or wall.~~

**307.7 Piping materials exposed within plenums.** All piping materials exposed within plenums shall comply with the provisions of the *Arkansas Mechanical Code*.

## SECTION 308 PIPING SUPPORT

**308.1 General.** ~~All~~ Plumbing piping shall be supported in accordance with this section.

**308.2 Piping seismic supports.** Where earthquake loads are applicable in accordance with the building code, plumbing piping supports shall be designed and installed for the seismic forces in accordance with this code and the *Arkansas Fire Prevention Code*.

**308.3 Materials.** Hangers, anchors and supports shall support the piping and the contents of the piping. Hangers and strapping material shall be of *approved* material that will not promote galvanic action

**308.4 Structural attachment.** Hangers and anchors shall be attached to the building construction in an *approved* manner.

**308.5 Interval of support.** Pipe shall be supported in accordance with Table 308.5.

**308.6 Sway bracing.** ~~Where horizontal pipes 4 inches (102 mm) and larger convey drainage or waste, and where a pipe fitting in that piping changes the flow direction greater than 45 degrees (0.79 rad), rigid bracing or other rigid support arrangements shall be installed to resist movement of the upstream pipe in the direction of pipe flow. A change of flow direction into a vertical pipe shall not require the upstream pipe to be braced. Rigid support sway bracing shall~~

~~be provided at changes in direction greater than 45 degrees (0.79 rad) for pipe sizes 4 inches (102 mm) and larger.~~

**308.7 Anchorage.** Anchorage shall be provided to restrain drainage piping from axial movement.

**308.7.1 Location.** For pipe sizes greater than 4 inches (102 mm), restraints shall be provided for drain pipes at all changes in direction and at all changes in diameter greater

**TABLE 308.5  
HANGER SPACING**

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
ABS pipe	4	10 <sup>b</sup>
Aluminum tubing	10	15
Brass pipe	10	10
Cast iron pipe	5 <sup>a</sup>	15
Copper or copper alloy pipe	12	10
Copper or copper alloy tubing, 1/2-inch diameter and smaller	6	10
Copper or copper alloy tubing, 1/2-inch diameter and larger	10	10
Cross-linked polyethylene (PEX) pipe	2-67 (32 inches)	10 <sup>b</sup>
Cross-linked polyethylene/ Aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	2-67 (32 inches)	4 <sup>b</sup>
CPVC pipe or tubing, 1-inch or smaller	3	10 <sup>b</sup>
CPVC pipe or tubing, 1 1/4 inches or larger	4	10 <sup>b</sup>
Steel pipe	12	15
Lead pipe	Continuous	4
PB pipe or tubing	2-67 (32 inches)	4
Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	2-67 (32 inches)	4 <sup>b</sup>
PVC pipe	4	10 <sup>b</sup>
Stainless steel drainage systems	10	10 <sup>b</sup>

than two pipe sizes. Braces, blocks, rodding and other suitable methods as specified by the coupling manufacturer shall be utilized.

**308.8 Expansion joint fittings.** Expansion joint fittings shall be used only where necessary to provide for expansion and contraction of the pipes. Expansion joint fittings shall be of the typical material suitable for use with the type of piping in which such fittings are installed.

## GENERAL REGULATIONS

~~308.9 Stacks.~~ Bases of stacks shall be supported by concrete, brick laid in cement mortar or metal brackets attached to the building or by other approved methods.

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**TABLE 308.5  
HANGER SPACING**

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Acrylonitrile butadiene styrene (ABS) pipe	<u>4</u>	<u>10<sup>b</sup></u>
Aluminum tubing	<u>10</u>	<u>15</u>
Brass pipe	<u>10</u>	<u>10</u>
Cast-iron pipe	<u>5<sup>a</sup></u>	<u>15</u>
Chlorinated polyvinyl chloride (CPVC) pipe and tubing, 1 inch and smaller	<u>3</u>	<u>10<sup>b</sup></u>
Chlorinated polyvinyl chloride (CPVC) pipe and tubing, 1¼ inches and larger	<u>4</u>	<u>10<sup>b</sup></u>
Copper or copper-alloy pipe	<u>12</u>	<u>10</u>
Copper or copper-alloy tubing, 1¼- inch diameter and smaller	<u>6</u>	<u>10</u>
Copper or copper-alloy tubing, 1½- inch diameter and larger	<u>10</u>	<u>10</u>
Cross-linked polyethylene (PEX) pipe 1 inch and smaller	<u>2.67</u> (32 inches)	<u>10<sup>b</sup></u>
Cross-linked polyethylene (PEX) pipe 1¼ inch and larger	<u>4</u>	<u>10<sup>b</sup></u>
Cross-linked polyethylene/ aluminum/cross-linked polyethylene (PEX-AL- PEX) pipe	<u>2.67</u> (32 inches)	<u>4</u>
Lead pipe	<u>Continuous</u>	<u>4</u>
Polyethylene/aluminum/ polyethylene (PE-AL-PE) pipe	<u>2.67</u> (32 inches)	<u>4</u>
Polyethylene of raised temperature (PE-RT) pipe 1 inch and smaller	<u>2.67</u> (32 inches)	<u>10<sup>b</sup></u>
Polyethylene of raised temperature (PE-RT) pipe 1¼ inch and larger	<u>4</u>	<u>10<sup>b</sup></u>
Polypropylene (PP) pipe or tubing 1 inch and smaller	<u>2.67</u> (32 inches)	<u>10<sup>b</sup></u>
Polypropylene (PP) pipe or tubing, 1¼ inches and larger	<u>4</u>	<u>10<sup>b</sup></u>
Polyvinyl chloride (PVC) pipe	<u>4</u>	<u>10<sup>b</sup></u>
Stainless steel drainage systems	<u>10</u>	<u>10<sup>b</sup></u>
Steel pipe	<u>12</u>	<u>15</u>

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

Midstory guide for sizes 2 inches and smaller.

For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe.

**308.210 Parallel water distribution systems.** Piping bundles for manifold systems shall be supported in accordance with Table 308.5. Support at changes in direction shall be in accordance with the manufacturer's installation instructions. ~~Hot and cold water piping shall not be grouped in the same bundle. Where hot water piping is bundled with cold or hot water piping, each hot water pipe shall be insulated with approved material.~~

**308.10 Thermal expansion tanks.** A thermal expansion tank shall be supported in accordance with the manufacturer's instructions. Thermal expansion tanks shall not be supported by the piping that connects to such tanks.

## SECTION 309 FLOOD HAZARD RESISTANCE

**309.1 General.** Plumbing systems and equipment in structures erected in flood hazard areas shall be constructed in accordance with the requirements of this section and the *Arkansas Fire Prevention Code*.

**309.2 Flood hazard.** For structures located in flood hazard areas, the following systems and equipment shall be located and installed as required by the *Arkansas Fire Prevention Code* at or above the design flood elevation:

**Exception:** The following systems listed in this section are permitted to be located below the design flood elevation required by the *Arkansas Fire Prevention Code* for utilities and attendant equipment, provided 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.

**AH-w** Water service pipes.

Pump seals in individual water supply systems where the pump is located below the design flood elevation.

Covers on potable water wells shall be sealed, except where the top of the casing well or pipe sleeve is elevated to at least 1 foot (305304.8 mm) above the design flood elevation.

**AH-s** Sanitary drainage piping.

**AH-s** Storm drainage piping.

Manhole covers shall be sealed, except where elevated to or above the design flood elevation.

**AH-o** Other plumbing fixtures, faucets, fixture fittings, piping systems and equipment.

Water heaters.

Vents and vent systems.

**{B} 309.3 Flood hazard areas subject to high-velocity wave action.** Structures located in flood hazard areas subject to high-velocity wave action shall meet the requirements of Section 309.2. The plumbing systems, pipes and fixtures shall not be mounted on or penetrate through walls intended to break away under flood loads.



## SECTION 310 WASHROOM AND TOILET ROOM REQUIREMENTS

**310.1 Light and ventilation.** Washrooms and toilet rooms shall be illuminated and ventilated in accordance with this code, the *Arkansas Fire Prevention Code* and the *Arkansas Mechanical Code*.

**310.2 Location of fixtures and pipng compartments.** ~~Piping, fixtures or equipment shall not be located in such a manner as to interfere with the normal operation of windows, doors or other means of egress openings. The location of plumbing fixtures and the requirements for compartments and partitions shall be in accordance with Section 405.3.~~

**310.3 Interior finish.** Interior finish surfaces of toilet rooms shall comply with the *Arkansas Fire Prevention Code*.

~~**310.4 Water closet compartment.** Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.~~

**Exceptions:**

~~Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.~~

~~Toilet rooms located in day care and child care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.~~

~~**310.4.1 Urinal partitions.** Each urinal used by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The construction of such walls or partitions shall incorporate waterproof, smooth, readily cleanable and nonabsorbent finish surfaces. The walls or partitions shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished backwall surface, wherever is greater.~~

**Exceptions:**

~~Urinal partitions shall not be required in a single-occupant or unisex toilet room with a lockable door.~~

~~Toilet rooms located in day care child care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.~~

## SECTION 311

### ~~DELETED~~

### ~~TOILET FACILITIES FOR WORKERS~~

~~**311.1 General.** One per 25 toilet facilities shall be provided for construction workers and such facilities shall be maintained in a sanitary condition. Construction worker toilet facilities of the nonsewer type shall conform to ANSI Z4.3.~~

## SECTION 312 TESTS AND INSPECTIONS

**312.1 Required tests.** The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.9<sup>10</sup> to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder

and the permit holder shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

**312.1.1 Test gauges.** Gauges used for testing shall be as follows:

Tests requiring a pressure of 10 psi (69 kPa) or less shall use a testing gauge having increments of 0.10 psi (690 Pa) or less.

Tests requiring a pressure of greater than 10 psi (69 kPa) but less than or equal to 100 psi (690 kPa) shall use a testing gauge having increments of 1 psi (6895 Pa) or less.

Tests requiring a pressure of greater than 100 psi (690 kPa) shall use a testing gauge having increments of 2 psi (13.8 kPa) or less.

**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 10-foot (3048 mm) head of water. In testing successive sections, at least the upper 10 feet (3048 mm) of the next preceding section shall be tested so that no joint or pipe in the building, except the uppermost 10 feet (3048 mm) of the system, shall have been submitted to a test of less than a 10-foot (3048mm) head of water. This pressure shall be held for at least 15 minutes. The system shall then be tight at all points.

**312.3 Drainage and vent air test.** Plastic piping shall be tested in accordance with the manufacturer's instructions. An air test shall be made by forcing air into the system until there is a uniform gauge pressure of 5 pounds per square inch (psi) (34.5 kPa) or sufficient to balance a 10-inch (254 mm) column of mercury. This pressure shall be held for a test period of at least 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperature or the seating of gaskets shall be made prior to the beginning of the test period.

**312.4 Drainage and vent final test.** The final test of the completed drainage and vent system shall be visual and in sufficient detail to determine compliance with the provisions of this code ~~except that the plumbing shall be subjected to a smoke test where necessary for cause.~~ Where the smoke test is utilized, it shall be made by filling all traps with water and then introducing into the entire system a pungent, thick smoke produced by one or more smoke machines. When the smoke appears at stack openings on the roof, the stack openings shall be closed and a pressure equivalent to a 1-inch water column (249 Pa) shall be held for a test period of not less than 15 minutes.

**312.5 Water supply system test.** Upon completion of a section of or the entire water supply system, the system, or portion completed, shall be tested and proved tight under a water pressure not less than the working pressure of the system; or by an air test of not less than ~~75~~ 80 psi (~~552~~ 344 kPa). The water utilized for tests shall be obtained from a potable source of supply. The required tests shall be performed in accordance with this section and Section 107.

**312.6 Gravity sewer test.** Gravity sewer tests shall consist of plugging the end of the building sewer at the point of connection with the public sewer, filling the building sewer with water, and maintaining the test pressure for 15 minutes.

**312.7 Forced sewer test.** Forced sewer tests shall consist of plugging the end of the building sewer at the point of connection with the public sewer and applying a pressure of 5 psi (34.5 kPa) greater than the pump rating, and maintaining such pressure for 15 minutes.

**312.8 Storm drainage system test.** Storm drain systems within a building shall be tested by water or air in accordance with Section 312.2 or 312.3.

**312.9 Shower liner test.** Where shower floors and receptors are made water tight by the application of materials required by Section 417.5.2, the completed liner installation shall be tested. The pipe from the shower drain shall be plugged water tight for the test. The floor and receptor area shall be filled with potable water to a depth of not less than 2 inches (51 mm) measured at the threshold. Where a threshold of at least 2 inches (51 mm) 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 (51 mm) 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.

**312.910 Inspection and testing of backflow prevention assemblies.** Inspection and testing shall comply with Sections 312.910.1 and 312.910.2.

**312.910.1 Inspections.** ~~Annual~~ ~~i~~ Inspections shall be made of all backflow prevention assemblies and air gaps shall be performed in accordance with the manufacturer's instructions to determine whether they are operable.

**312.910.2 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; and immediately after repairs or relocation ~~and at least annually~~. The testing procedure shall be performed in accordance with one of the following standards: ASSE 5013, ASSE 5015, ASSE 5020, ASSE 5047, ASSE 5048, ASSE 5052, ASSE 5056, CAN/CSA B64.10 ~~or CSA B64.10.1~~.

## SECTION 313 EQUIPMENT EFFICIENCIES

**313.1 General.** Equipment efficiencies shall be in accordance with the *Arkansas Energy Conservation Code*.

## ~~[M]~~SECTION 314 CONDENSATE DISPOSAL

**314.1 Fuel-burning appliances.** Liquid combustion byproducts of condensing appliances shall be collected and discharged to an approved plumbing fixture or disposal area in accordance with the manufacturer's installation instructions. Condensate piping shall be of approved corrosion-resistant material and shall not be smaller than the drain connection on the appliance. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope).

**314.2 Evaporators and cooling coils.** Condensate drain systems shall be provided for equipment and appliances containing evaporators or cooling coils. Condensate drain systems shall be designed, constructed and installed in accordance with Sections 314.2.1 through 314.2.5 ~~3~~.

**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. Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.

**314.2.2 Drain pipe materials and sizes.** Components of the condensate disposal system shall be cast iron, galvanized steel, copper ~~and copper alloy~~, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC, ~~or~~ ~~PVC~~ ~~or~~ polypropylene pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 relative to the material type. Condensate waste and drain line size shall not be less than 3/4-inch (19.1 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an approved method ~~Table 314.2.2~~. All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope

**TABLE 314.2.2  
CONDENSATE DRAIN SIZING**

EQUIPMENT CAPACITY	MINIMUM CONDENSATE PIPE DIAMETER (inch)
Up to 20 tons of refrigeration	3/4 inch
Over 20 tons to 40 tons of refrigeration	1 inch
Over 40 tons to 90 tons of refrigeration	1 1/4 inch
Over 90 tons to 125 tons of refrigeration	1 1/2 inch
Over 125 tons to 250 tons of refrigeration	2 inch

For SI: 1 inch = 25.4 mm, 1 ton of capacity = 3.517 kW.

**314.2.3 Auxiliary and secondary drain systems.** In addition to the requirements of Section 314.2.1, ~~a secondary drain or auxiliary drain pan shall be required for each cooling or evaporator coil~~ where damage to any building compo-

## GENERAL REGULATIONS

nents ~~could will~~ occur as a result of overflow from the equipment primary condensate removal system. one of the following auxiliary protection methods shall be provided for each cooling coil or fuel-fired appliance that produces condensate: equipment drain pan or stoppage in the condensate drain piping. One of the following methods shall be used:

An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of  $1\frac{1}{2}$  inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Galvanized sheet metal pans shall have a thickness of not less than 0.0236-inch (0.6010 mm) (No. 24 gage) galvanized sheet metal. ~~Metallic pans shall have a minimum thickness of not less than 0.0276 inch (0.7 mm) galvanized sheet metal.~~ Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).

A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.

An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. ~~that will shut off the equipment served prior to overflow of the pan.~~ The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.

A water-level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

**Exception:** Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.

**314.2.3.1 Water-level monitoring devices.** On down-flow units and all other coils that do not have a secondary drain or provisions to install a secondary or auxiliary drain pan, a water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment served in the event that the primary drain becomes restricted. Devices installed in the drain line shall not be permitted.

**314.2.3.2 Appliance, equipment and insulation in pans.** Where appliances, equipment or insulation are subject to water damage when auxiliary drain pans fill such portions of the appliances, equipment and insulation shall be installed above the flood level rim of the pan. Supports located inside

of the pan to support the appliance or equipment shall be water resistant and approved.

**314.2.4 Traps.** Condensate drains shall be trapped as required by the equipment or appliance manufacturer.

**314.2.4.1 Plenums.** Floor drains, cleanouts, air admittance valves, water heaters using solid, liquid or gas fuel and all plumbing fixtures except electric water heaters shall not be installed in rooms containing air handling machinery when such room is used as a plenum

**314.2.4.1 Ductless mini-split system traps.** Ductless mini-split equipment that produces condensation shall be provided with a trap.

**314.2.5 Cleanouts.** Condensate drain lines shall be configured to permit the clearing of blockages and performance of maintenance without requiring the drain line to be cut.

## SECTION 315 PENETRATIONS

**315.1 Sealing of annular spaces.** The annular space between the outside of a pipe and the inside of a pipe sleeve or between the outside of a pipe and an opening in a building envelope wall, floor or ceiling assembly penetrated by a pipe shall be sealed in an approved manner with caulking material, foam sealant or closed with a gasketing system. The caulking material, foam sealant or gasketing system shall be designed for the conditions at the penetration location and shall be compatible with the pipe, sleeve and building materials in contact with the sealing materials. Annular spaces created by pipes penetrating fire-resistance-rated assemblies or membranes of such assemblies shall be sealed or closed in accordance with Section 714 of the *Arkansas Fire Prevention Code*.



DRAFT

## CHAPTER 4

# FIXTURES, FAUCETS AND FIXTURE FITTINGS

### User note:

*About this chapter: Plumbing fixtures are required to be installed for nearly every building as toilet facilities (water closets and lavatories) are needed by the occupants of a building. Additional fixtures for washing, bathing and culinary purposes are also necessary where occupants dwell in buildings. Chapter 4 specifies the minimum number and type of plumbing fixtures for buildings based on the description of use of the building. Because fixture design and quality are paramount to ensure that plumbing fixtures operate properly, this chapter also specifies numerous product and material standards for plumbing fixtures.*

### SECTION 401 GENERAL

**401.1 Scope.** This chapter shall govern the materials, design and installation of plumbing fixtures, faucets and fixture fittings in accordance with the type of occupancy, and shall provide for the minimum number of fixtures for various types of occupancies.

**401.2 Prohibited fixtures and connections.** Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2M CSA B45.1 shall be prohibited. Any water closet that permits siphonage of the contents of the bowl back into the tank shall be prohibited. Trough urinals shall be prohibited.

**401.3 Water conservation.** The maximum water flow rates and flush volume for plumbing fixtures and fixture fittings shall comply with Section 604.4.

### SECTION 402 FIXTURE MATERIALS

**402.1 Quality of fixtures.** Plumbing fixtures shall be constructed of approved materials, with smooth, impervious surfaces, free from defects and concealed fouling surfaces, and shall conform to standards cited in this code. All porcelain enameled surfaces on plumbing fixtures shall be acid resistant.

**402.2 Materials for specialty fixtures.** Materials for specialty fixtures not otherwise covered in this code shall be of stainless steel, soapstone, chemical stoneware or plastic, or shall be lined with lead, copper-base alloy, nickel-copper alloy, corrosion-resistant steel or other material especially suited to the application for which the fixture is intended.

**402.3 Sheet copper.** Sheet copper for general applications shall conform to ASTM B 152 and shall not weigh less than 12 ounces per square foot (3.7 kg/m<sup>2</sup>).

**402.4 Sheet lead.** Sheet lead for pans shall not weigh less than 4 pounds per square foot (19.5 kg/m<sup>2</sup>) coated with an asphalt paint or other approved coating.

### SECTION 403 MINIMUM PLUMBING FACILITIES

**403.1 Minimum number of fixtures.** Plumbing fixtures shall be provided for the type of occupancy and in the minimum number shown in Table 403.1, based on the actual use of the building or space. Types of occupancies not shown in Table 403.1 shall be considered individually by the State Administrative Authority. The number of occupants shall be determined by the *Arkansas Fire Prevention Code*. The occupancy classification shall be determined by the *Arkansas Fire Prevention Code*.

Exception: Where approved by the state administrative authority, the actual number of occupants for whom each occupied space, floor, or building is designed, although less than those determined by calculations shall be permitted to be used in the determination of the design occupant load.

**403.1.1 Fixture calculations.** To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

Exception: The total occupant load shall not be required to be divided in half where approved statistical data indicates a distribution of the sexes of other than 50 percent of each sex.

~~[B]~~ **403.1.2<sup>1</sup> Unisex Single-user toilet and bath fixtures.** The plumbing fixtures located within unisex, single-user toilet and bathing rooms that are required by complying with Section 404 shall contribute toward the total number of are permitted to be included in determining the minimum required number of required fixtures for a building or tenant space assembly and mercantile occupancies. Single-user toilet facilities and bathroom,

and family or assisted toilet rooms and bath rooms shall be identified for use by either sex.

**403.1.3 Lavatory distribution.** Where two or more toilet rooms are provided for each sex, the required number of lavatories shall be distributed proportionately to the required number of water closets.

**403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

**Exceptions:**

Separate facilities shall not be required for dwelling units and sleeping units.

Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of ~~2515~~ or fewer less.

3 Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is ~~50~~ 100 or less fewer.

~~403.3 Number of occupants of each sex. The required water closets, lavatories, and showers or bathtubs shall be distributed equally between the sexes based on the~~

**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**  
(See Sections 403.1.1.2 and 403.2.3)

(continued)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATH TUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly (see Sections 403.2, 403.4 and 403.4.1)	<del>A-1d</del>	Theaters and other buildings for the performing arts and motion pictures <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		<del>A-2d</del>	Nightclubs, bars, taverns, dance halls and buildings for similar purposes <sup>d</sup>	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts <sup>d</sup>	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
			Gaming areas <sup>d</sup>	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink
		<del>A-3d</del>	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
			Passenger terminals and transportation facilities <sup>d</sup>	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
			Places of worship and other religious services <sup>d</sup>	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

**TABLE 403.1—continued**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**  
**(See Sections 403.2 and 403.3)**

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATH TUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1		A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first <del>1,500</del> 1,520 and 1 per 60 for the remainder exceeding <del>1,500</del> 1,520	1 per 200	1 per 150	—	1 per 1000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities <sup>f</sup>	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first <del>1,500</del> 1,520 and 1 per 60 for the remainder exceeding <del>1,500</del> 1,520	1 per 200	1 per 150	—	1 per 1000	1 service sink
2	Business (see Sections 403.2, 403.4 and 403.4.1)	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses. <sup>g</sup>	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	—	—	—	1 per 100	1 service Sink <sup>c</sup>
			Medical examination/ treatment rooms	—	—	—	—	—	—	1 hand-wash sink
3	Educational	E	Educational facilities	1 per 50	—	1 per 50	—	—	1 per 100	1 service sink
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials.	1 per 100	—	1 per 100	(see Section 411) =	—	1 per 400	1 service sink <sup>c</sup>
5	Institutional	I-1	<del>Residential</del> Custodial care facilities	1 per 10	—	1 per 10	—	1 per 8	1 per 100	1 service sink
		I-2	Medical care recipients in hospitals, Ambulatory nursing homes <sup>h</sup> patients <sup>h</sup>	1 per room c	—	1 per room c	—	1 per 15	1 per 100	1 service sink per floor
			Employees, in hospitals and nursing homes <sup>b</sup> other than residential care <sup>b</sup>	1 per 25	—	1 per 35	—	—	1 per 100	—
			Visitors in hospitals and nursing homes; other than residential care	1 per 75	—	1 per 100	—	—	1 per 500	—

(continued)

**TABLE 403.1—continued**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**  
**(See Sections 403.2 and 403.3)**

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
5	Institutional	I-3	Prisons <sup>b</sup>	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		I-3	Reformatories <sup>b</sup> detention centers and correctional centers <sup>b</sup>	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
			Employees in reformatories, detention centers and correctional centers <sup>b</sup>	1 per 25		1 per 35		=	1 per 100	=
		I-4	Adult day care and child care	1 per 15		1 per 15			1 per 100	1 service sink
6	Mercantile (see Sections 403.2, 403.4, 403.4.1 and 403.4.2)	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service Sink <sup>c</sup>
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-2	Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; + automatic clothes washer connection per 20 dwelling units
		R-3	One- and two-family dwellings	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; + automatic clothes washer connection per dwelling unit

(continued)

TABLE 403.1—continued  
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>  
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATH TUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
7	Residential	R-4	Congregate living facilities with 16 or fewer persons Residential care/assisted living facilities	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage (see Sections 403.2, 403.4 and 403.4.1)	S-1 S-2	Structures for the storage of goods, warehouses, storehouse and freight depots. Low and Moderate Hazard.	1 per 100		1 per 100		— See Section 411	1 per 1,000	1 service sink <sup>c</sup>

The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated.

The number of occupants shall be determined by the Arkansas Fire Prevention International Building Code.

Toilet facilities for employees shall be separate from facilities for inmates or patients/care recipients.

A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has where such room is provided with direct access to the toilet from each patient room and with provisions for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required. (State Food Service regulations may supersede this service sink provision.) For business and mercantile occupancies with an occupant load of 25 or fewer, drinking fountains are not required.

f. The required number and type of plumbing fixtures for outdoor public swimming pools shall be in accordance with the Arkansas Department of Health's Rules and Regulations Pertaining to Swimming Pools and Other Related Facilities.

g. Buildings, offices, or facilities maintained by banks, savings and loan associations, or credit unions for the conduct of their business shall not be required to provide public restrooms and are exempted from the section.

h. Child day care restrooms shall fully enclose for privacy, sanitation and ventilation.

percentage of each sex anticipated in the occupant load. The occupant load shall be composed of 50 percent of each sex, unless statistical data approved by the code official indicate a different distribution of the sexes.

**403.2.1 Family or assisted-use toilet facilities serving as separate facilities.** Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.

**403.3 4—Employee and Required—public toilet facilities.** Customers, patrons and visitors shall be provided with public toilet facilities in For structures and tenant spaces intended for public utilization, customers, patrons and visitors shall be provided with public toilet facilities. The accessible route to public facilities shall not pass through kitchens, storage rooms, closets or similar spaces. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

**Exception:** Public toilet facilities shall not be required for:

Parking garages operated without parking attendants

2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off having a public access area less than or equal to 300 square feet (28 m<sup>2</sup>).

3. Buildings, offices or facilities maintained by banks, savings and loan associations or credit unions for conducting their business.[RM4]

**403.3.(a)** It is the intent of this code that the public have access to restrooms in new or existing buildings serving the public in general toilet rooms of schools, gymnasiums, hotels, airports, bus and railroad stations, public buildings, bars, public comfort stations, office buildings, stadiums, stores, restaurants and other buildings where a number of fixtures are installed so that their utilization is similarly unrestricted. Restrooms that are located in restricted areas used for storage, supplies, inventory, employee drug testing, or private office restrooms are not considered public restrooms.

**403.3.1 Access.** The route to the public toilet facilities required by Section 403.3 shall not pass through kitchens, storage rooms closets, or similar spaces. Access to the required facilities shall be from within the building or from the exterior of the building. Routes shall comply with the accessibility requirements of the Arkansas Fire Prevention

Code. The public shall have access to the required toilet facilities at all times that the building is occupied.

**403.3.2 Prohibited toilet room location.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

**403.3.4.1 Location of toilet facilities in occupancies other than ~~covered~~-malls.** In occupancies other than covered malls, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

**Exception:** The location and maximum travel distances to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum travel distance are approved.

**403.3.4.2 Location of toilet facilities in ~~covered~~-malls.** In covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91 440 mm). In ~~covered~~-mall buildings, the required facilities shall be based on occupancy load total square footage, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum travel distance to central toilet facilities in covered-mall buildings shall be measured from the main entrance of any store or tenant space. In covered mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum travel distance shall be measured from the employee's work area of the store or tenant space.

**403.3.5.3 Pay facilities.** Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities. Required facilities shall be free of charge.

**403.3.6 Door locking.** Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

**403.4.5 Signage.** Required public facilities shall be provided with signs designated by a legible sign that designate the for each sex, as required by Section 403.2 . Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with the Arkansas Fire Prevention Code.

**403.4.1 Directional signage.** Directional signage indicating the route to the required public toilet facilities shall be posted in a lobby, corridor, aisle or similar space,

such that the sign can be readily seen from the main entrance to the building or tenant space.

## SECTION 404 ACCESSIBLE PLUMBING FACILITIES

**404.1 Where required.** Accessible plumbing facilities and fixtures shall be provided in accordance with the *Arkansas Fire Prevention Code*.

NOTE: Restroom requirements for individuals with disabilities are covered under the Federal American with Disabilities Act (ADA) and not this code. Reference to the ADA should be made for clearance and spacing requirements for new or remodeled public facilities.

## SECTION 405 INSTALLATION OF FIXTURES

**405.1 Water supply protection.** The supply lines and fittings for every plumbing fixture shall be installed so as to prevent backflow.

**405.2 Access for cleaning.** Plumbing fixtures shall be installed so as to afford easy access for cleaning both the fixture and the area around the fixture.

**405.3 Setting.** Fixtures shall be set level and in proper alignment with reference to adjacent walls.

**405.3.1 Water closets, urinals, lavatories and bidets.** A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction. Where partitions or other obstructions do not separate adjacent fixtures, fixtures shall not be set ~~or~~ closer than 30 inches (762 mm) center-to-center between adjacent fixtures. There shall ~~not~~ be ~~at least~~ less than a 21-inch (533 mm) clearance in front of the water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall not be less than 30 inches (762 mm) in width wide and 60 inches (1524 mm) in depth deep (see Figure 405.3.1) for floor-mounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wall-hung water closets.

**Exception:** An accessible children's water closet shall be set not closer than 12 inches (305 mm) from its center to the required partition or to the wall on one side

**405.3.2 Public lavatories.** In employee and public toilet rooms, the required lavatory shall be located in the same room as the required water closet. Day care and K through 4 educational facilities are allowed to have the lavatory on a nearby wall outside the restroom.[RM5]

**405.3.3 Location of fixtures and piping.** Piping, fixtures or equipment shall not be located in such a manner as to interfere with the normal operation of windows, doors or other means of egress openings.

**405.3.4 Water closet compartment.** Each water closet utilized by the public or employees shall occupy a separate



## FIXTURES FAUCETS AND FIXTURE FITTINGS

compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.

### Exceptions:

Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.

Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.

This provision is not applicable to toilet areas located within Group I-3 housing areas. (Prisons, reformatories, detention centers and correctional centers.)

**405.3.5 Urinal partitions.** Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). The walls or partitions shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

### Exceptions:

Urinal partitions shall not be required in a single-occupant or family/assisted-use toilet room with a lockable door.

Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

**405.4 Floor and wall drainage connections.** Connections between the drain and floor outlet plumbing fixtures shall be made with a floor flange ~~or a waste connector and sealing gasket.~~ The waste connector and sealing gasket joint shall comply with the joint tightness test of ASME A112.4.3 and shall be installed in accordance with the manufacturer's instructions. The flange shall be attached to the drain and anchored to the structure. Connections between the drain and wall-hung water closets shall be made with an approved extension nipple or horn adaptor. The water closet shall be bolted to the hanger with corrosion-resistant bolts or screws. Joints shall be sealed with an approved elastomeric gasket, flange-to-fixture connection complying with ASME A112.4.3 or an approved setting compound.

**405.4.1 Floor flanges.** Floor flanges for water closets or similar fixtures shall not be less than 0.125 inch (3.2 mm) thick for ~~brass~~ copper alloy, 0.25 inch (6.4mm) thick for plastic, and 0.25 inch (6.4 mm) thick and not less than a 2-inch (51 mm) caulking depth for cast-iron or galvanized malleable iron. Floor flanges of hard lead shall weigh not less than 1 pound, 9 ounces (0.7 kg) and shall be composed of lead alloy with not less than 7.75-percent antimony by

weight. Closet screws and bolts shall be of copper alloy ~~brass~~. Flanges shall be secured to the building structure with corrosion-resistant screws or bolts.

**405.4.2 Securing floor outlet fixtures.** Floor outlet fixtures shall be secured to the floor or floor flanges by screws or bolts of corrosion-resistant material.

**405.4.3 Securing wall-hung water closet bowls.** Wall-hung water closet bowls shall be supported by a concealed metal carrier that is attached to the building structural members so that strain is not transmitted to the closet connector or any other part of the plumbing system. The carrier shall conform to ASME A112.6.1M or ASME A112.6.2.

**405.5 Plumbing fixtures with a pumped waste.** Plumbing fixtures with a pumped waste shall comply with ASME A112.3.4/CSA B45.3. The plumbing fixture with a pumped waste shall be installed in accordance with the manufacturer's instructions.

~~**405.5 Water-tight joints.** Joints formed where fixtures come in contact with walls or floors shall be sealed.~~

**405.6 Plumbing in mental health centers.** In mental health centers, pipes or traps shall not be exposed, and fixtures shall be bolted through walls.

**405.7 Design of overflows.** Where any fixture is provided with an overflow, the waste shall be designed and installed so that standing water in the fixture will not rise in the overflow when the stopper is closed, and no water will remain in the overflow when the fixture is empty.

**405.7.1 Connection of overflows.** The overflow from any fixture shall discharge into the drainage system on the inlet or fixture side of the trap.

**Exception:** The overflow from a flush tank serving a water closet or urinal shall discharge into the fixture served.

**405.8 Slip joint connections.** Slip joints shall be made with an approved elastomeric gasket and shall only be installed on the trap outlet, trap inlet and within the trap seal. Fixtures with concealed slip-joint connections shall be provided with an access panel or utility space at least 12 inches (305 mm) in its smallest dimension or other approved arrangement so as to provide access to the slip joint connections for inspection and repair.

**405.9 Design and installation of plumbing fixtures.** Integral fixture fitting mounting surfaces on manufactured plumbing fixtures or plumbing fixtures constructed on site, shall meet the design requirements of ASME A112.19.2 ~~/CSA B45.1M~~ or ASME A112.19.3 ~~/CSA B45.4M~~.

## SECTION 406 AUTOMATIC CLOTHES WASHERS



~~406.1 Approval. Domestic automatic clothes washers shall conform to ASSE 1007.~~

**406.1.2 Water connection.** The water supply to an automatic clothes washer shall be protected against backflow by an air gap that is integral with the machine installed integrally within the machine conforming to ASSE 1007 or with the installation of a backflow preventer in accordance with Section 608. Air gaps shall comply with ASME A112.1.2 or A112.1.3.

**406.2.3 Waste connection.** The waste from an automatic clothes washer shall discharge through an air break into a standpipe in accordance with Section 802.4.3 or into a laundry sink. The trap and fixture drain for an automatic clothes washer standpipe shall be a minimum of 2 inches (51 mm) in diameter. The fixture drain for the standpipe serving an automatic clothes washer shall connect to a 3-inch (76 mm) or larger diameter fixture branch or stack. The automatic clothes washer fixture drain shall connect to a branch drain or drainage stack a minimum of 3 inches (76 mm) in diameter. Automatic clothes washers that discharge by gravity shall be permitted to drain to a waste receptor or an approved trench drain.

## SECTION 407 BATHTUBS

**407.1 Approval.** Bathtubs shall conform to ~~ANSI Z124.1, ASME A112.19.1M, ASME A112.19.4M, ASME A112.19.9M, CSA B45.2, CSA B45.3 or CSA B45.5; ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5/ANSI Z124.~~

**407.2 Bathtub waste outlets.** Bathtubs shall ~~have be~~ equipped with a waste outlets and an overflow outlet, a minimum of 1.5 inches (38 mm) in diameter. The outlets shall be connected to waste tubing or piping not less than 1½ inches (38 mm) in diameter The waste outlet shall be equipped with an approved stopper.

**407.3 Glazing.** Windows and doors within a bathtub enclosure shall conform to the safety glazing requirements of the *Arkansas Fire Prevention Code*.

**407.4 Bathtub enclosure.** Doors within a bathtub enclosure shall conform to ASME A112.19.15.

## SECTION 408 BIDETS

**408.1 Approval.** Bidets shall conform to ASME A112.19.2M; ~~ASME A112.19.9M or~~ CSA B45.1.

**408.2 Water connection.** The water supply to a bidet shall be protected against backflow by an air gap or backflow preventer in accordance with Section 608.13.1, 608.13.2, 608.13.3, 608.13.5, 608.13.6 or 608.13.8.

**408.3 Bidet water temperature.** The discharge water temperature from a bidet fitting shall be limited to a maximum temperature of 110°F (43°C) by a water temperature limiting

device conforming to ASSE 1070/ASME A112.1070/CSA B125.70 or CSA B125.3.

## SECTION 409 DISHWASHING MACHINES

**409.1 Approval.** ~~Domestic dishwashing machines shall conform to ASSE 1006.~~ Commercial dishwashing machines shall conform to ASSE 1004 and NSF 3. Residential dishwashers shall conform to NSF 184.

**409.2 Water connection.** The water supply to a dishwashing machine shall be protected against backflow by an air gap that is integral with the machine or backflow preventer in accordance with Section 608. Air gaps shall comply with ASME A112.1.2 or A112.1.3.

**409.3 Waste connection.** The waste connection of a dishwashing machine shall comply with Section 802.1.6 ~~or 802.1.7, as applicable.~~

**409.4 Residential dishwasher waste connection.** The waste connection of a residential dishwasher shall connect directly to a wye branch fitting on the tailpiece of the kitchen sink, directly to the dishwasher connection of a food waste disposer, or through an air break to a standpipe. The waste line of a residential dishwasher shall rise and be securely fastened to the underside of the sink rim or counter top.

## SECTION 410 DRINKING FOUNTAINS

**410.1 Approval.** Drinking fountains shall conform to ~~ASME A112.19.1M, ASME A112.19.2M or ASME A112.19.9M~~ ASME A112.19.1/CSA B45.2 or ASME A112.19.2/CSA B45.1 and water coolers shall conform to ~~ASHRAE 184-1010~~ ASHRAE 184-1010. Drinking fountains ~~and~~ water coolers ~~and water dispensers~~ shall conform to NSF 61, Section 9. Electrically operated, refrigerated drinking water coolers and water dispensers shall be listed and labeled in accordance with UL 399. ~~Where water is served in restaurants, drinking fountains shall not be required. In other occupancies, where drinking fountains are required, bottled water dispensers shall be permitted to be substituted for the first 50 percent of the required drinking fountains.~~

**410.1(a) NOTE:** Drinking fountain requirements for individuals with disabilities are covered under the Federal American with Disabilities Act (ADA) and not this code. Reference for compliance to the ADA should be made for new or remodeled public facilities.

**410.2 Small occupancies.** Drinking fountains shall not be required for an occupant load of 25 or fewer [A6]. [RM7]

**410.3 Substitution.** Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other occupancies where drinking fountains are required, water dispensers shall be permitted.

**410.4.2 Prohibited location.** Drinking fountains water coolers and water dispensers shall not be installed in public restrooms.

~~410.3 Drinking fountain nozzle attached to fixture. No drinking fountain nozzle shall be attached to any lavatory, sink or other dual purpose fixture.~~

## SECTION 411 EMERGENCY SHOWERS AND EYEWASH STATIONS

**411.1 Approval.** Emergency showers and eyewash stations shall conform to ISEA Z358.1. ~~(Shall be installed with tempered water).~~

**411.2 Waste connection.** Waste connections shall not be required for emergency showers and eyewash stations.

**411.3 Water supply.** Where hot and cold water is supplied to an emergency shower or eyewash station, the temperature of the water supply shall be tepid, between 60° (16°C) to 100° (38°C), and controlled by a temperature actuated mixing valve complying with ASSE 1071.

## SECTION 412424 FAUCETS AND OTHER FIXTURE FITTINGS

**424412.1 Approval.** Faucets and fixture fittings shall conform to ASME A112.18.1 ~~or~~ CSA B125.1. Faucets and fixture fittings that supply drinking water for human ingestion shall conform to the requirements of NSF 61, Section 9. Flexible water connectors exposed to continuous pressure shall conform to the requirements of Section 605.6.

**424412.1.1 Faucets and supply fittings.** Faucets and supply fittings shall conform to the water consumption requirements of Section 604.4.

**424412.1.2 Waste fittings.** Waste fittings shall conform to ASME A112.18.2 CSA B125.2, ASTM F 409, ~~CSA B125~~ or to one of the standards listed in Tables 702.1 and 702.4 for above-ground drainage and vent pipe and fittings.

**424412.2 Hand showers.** Hand-held showers shall conform to ASME A112.18.1 ~~or~~ CSA B125.1. Hand-held showers shall provide backflow protection in accordance with ASME A112.18.1 ~~or~~ CSA B125.1 or shall be protected against backflow by a device complying with ASME A112.18.3.

**424412.3 Individual shower valves.** Individual shower and tub-shower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 ~~ASSE 1016 or CSA B125~~ and shall be installed at the point of use. Shower and tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in

accordance with the manufacturer's instructions. In-line thermostatic valves shall not be utilized for compliance with this section.

**424412.4 Multiple (gang) showers.** Multiple (gang) showers supplied with a single-tempered water supply pipe shall have the water supply for such showers controlled by an approved automatic temperature control mixing valve that conforms to ASSE 1069 or CSA B125.3, or each shower head shall be individually controlled by a balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valve that conforms to ASSE 1016/ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 ~~ASSE 1016 or CSA B125~~ and is installed at the point of use. Such valves shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturer's instructions.

**424412.5 Bathtub and whirlpool bathtub valves.** The hot water supplied to bathtubs and whirlpool bathtubs shall be limited to a maximum temperature of 120°F (49°C) by a water temperature limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70 or CSA B125.3, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section 424412.3.

**424412.6 Hose-connected outlets.** Faucets and fixture fittings with hose-connected outlets shall conform to ASME A112.18.3 ~~or~~ ASME A112.18.1/CSA B125.1

**424412.7 Temperature-actuated, flow reduction valves for individual fixture fittings.** Temperature-actuated, flow reduction devices, where installed for individual fixture fittings, shall conform to ASSE 1062. A temperature-actuated, flow-reduction device shall be an approved method for limiting the water temperature to not greater than 120° F (49° C) at the outlet of a faucet or fixture fitting. Such ~~valves-devices~~ shall not be used alone as a substitute for the balanced pressure, thermostatic or combination shower valves required in Section 424412.3; ~~or as a substitute for bathtub or whirlpool tub water temperature-limiting valves required in Section 412.5.~~

**412424.8 Transfer valves.** Deck-mounted bath/shower transfer valves containing an integral atmospheric vacuum breaker shall conform to the requirements of ASME A112.18.7/CSA B125.1.

**412.9 Water closet personal hygiene devices.** Personal hygiene devices integral to water closets or water closet seats shall conform to the requirements of ASME A112.4.2.

**412.10 Head shampoo sink faucets.** Head shampoo sink faucets shall be supplied with hot water that is limited to not more than 120°F (49°C) by a water-temperature-limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70. Each faucet shall have integral check valves to prevent crossover flow between the hot and cold water supply connections.

## SECTION 4132 FLOOR AND TRENCH DRAINS

**412413.1 Approval.** Floor drains shall conform to ASME A112.6.3, ASME A112.3.1 or CSA B79. Trench drains shall comply with ASME A112.6.3.

**412413.2 Floor drains.** Floor drains shall have removable ~~removeable~~ strainers. The floor drain shall be constructed so that the drain is capable of being cleaned. Access shall be provided to the drain inlet. Ready access shall be provided to floor drains.

**Exception:** Floor drains serving refrigerated display cases shall be provided with access.

**412413.3 Size of floor drains.** Floor drains shall have a minimum drain outlet not less than 2-inches diameter (51 mm) in diameter, drain outlet.

**412413.4 Public laundries and central washing facilities.** In public coin-operated 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.

## SECTION 427414 FLOOR SINKS

**427414.1 Approval.** Sanitary floor sinks shall conform to the requirements of ASME A112.6.7.

## SECTION 425415 FLUSHING DEVICES FOR WATER CLOSETS AND URINALS

**425415.1 Flushing devices required.** Each water closet, urinal, clinical sink and any plumbing fixture that depends on trap siphonage to discharge the fixture contents to the drainage system shall be provided with a flushometer valve, flushometer tank or a flush tank designed and installed to supply water in quantity and rate of flow to flush the contents of the fixture, cleanse the fixture and refill the fixture trap.

**425415.1.1 Separate for each fixture.** A flushing device shall not serve more than one fixture.

**425415.2 Flushometer valves and tanks.** Flushometer valves and tanks shall comply with ASSE 1037/ ASME A112.1037/CSA B125.37 or CSA B125.3. Vacuum breakers on flushometer valves shall conform to the performance requirements of ASSE 1001 or CSA B64.1.1. Access shall be provided to vacuum breakers. Flushometer valves shall be of the water-conservation type and shall not be utilized where the water pressure is lower than the minimum required for normal operation. When operated, the valve shall automatically complete the cycle of operation, opening fully and closing positively under the water supply pressure. Each flushometer valve shall be provided with a

means for regulating the flow through the valve. The trap seal to the fixture shall be automatically refilled after each valve flushing cycle.

**425415.3 Flush tanks.** Flush tanks equipped for manual flushing shall be controlled by a device designed to refill the tank after each discharge and to shut off completely the water flow to the tank when the tank is filled to operational capacity. The trap seal to the fixture shall be automatically refilled after each flushing. The water supply to flush tanks equipped for automatic flushing shall be controlled with a timing device or sensor control devices.

**425415.3.1 Fill valves.** All flush tanks shall be equipped with an antisiphon fill valve conforming to ASSE 1002 /ASME A112.1002/CSA B125.12 or CSA B125.3. The fill valve backflow preventer shall be located at least 1 inch (25 mm) above the full opening of the overflow pipe.

**425415.3.2 Overflows in flush tanks.** Flush tanks shall be provided with overflows discharging to the water closet or urinal connected thereto and shall be sized to prevent flooding the tank at the maximum rate at which the tanks are supplied with water according to the manufacturer's design conditions. The opening of the overflow pipe shall be located above the flood level rim of the water closet or urinal or above a secondary overflow in the flush tank.

**425415.3.3 Sheet copper.** Sheet copper utilized for flush tank linings shall conform to ASTM B 152 and shall not weigh less than 10 ounces per square foot (0.03 kg/m<sup>2</sup>).

**425415.3.4 Access required.** All parts in a flush tank shall be accessible-provided with access for repair and replacement.

**425415.4 Flush pipes and fittings.** Flush pipes and fittings shall be of nonferrous material and shall conform to ASME A112.19.5/CSA B45.15, or CSA B125.

## SECTION 413416 FOOD WASTE DISPOSER GRINDER UNITS

**413416.1 Approval.** Domestic food waste disposers ~~grinders~~ shall conform to ASSE 1008 and shall be listed and labeled in accordance with UL 430. ~~Commercial food waste grinders shall conform to ASSE 1009.~~ Food waste disposers ~~grinders~~ shall not increase the drainage fixture unit load on the sanitary drainage system.

**413416.2 Domestic food waste disposer grinder-waste outlets.** Domestic food waste disposers ~~grinders~~ shall be connected to a drain of not less than 1 1/2-inches (38 mm) in diameter.

**413416.3 Commercial food waste disposer grinder-waste outlets.** Commercial food waste grinders shall be connected to a drain not less than 1 1/2 inches (38 mm) a minimum of 2 inches (51 mm) in diameter. Commercial food waste disposers ~~grinders~~ shall be connected and trapped separately from any other fixtures or sink compartments.



**413416.4 Water supply required.** Food waste disposers ~~All food waste grinders~~ shall be provided with a supply of cold water. The water supply shall be protected against backflow by an air gap or backflow preventer in accordance with Section 608.

#### SECTION 414417 GARBAGE CAN WASHERS

**414417.1 Water connection.** The water supply to a garbage can washer shall be protected against backflow by an air gap or a backflow preventer in accordance with Section 608.13.1, 608.13.2, 608.13.3, 608.13.5, 608.13.6 or 608.13.8.

**414417.2 Waste connection.** Garbage can washers shall be trapped separately. The receptacle receiving the waste from the washer shall have a removable basket or strainer to prevent the discharge of large particles into the drainage system.

#### SECTION 415 418 LAUNDRY TRAYS

**415418.1 Approval.** Laundry trays shall conform to ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5/IAPMO Z124, ANSI Z124.6, ASME A112.19.1M, ASME A112.19.3M, ASME A112.19.9M, CSA B45.2 or CSA B45.4.

**415418.2 Waste outlet.** Each compartment of a laundry tray shall be provided with a waste outlet not less than 1 1/2 inches (38 mm) in diameter and a strainer or crossbar to restrict the clear opening of the waste outlet.

#### SECTION 416419 LAVATORIES

**416419.1 Approval.** Lavatories shall conform to ANSI Z124.3, ASME A112.19.1M, ASME A112.19.2M, ASME A112.19.3M, ASME A112.19.4M, ASME A112.19.9M, CSA B45.1, CSA B45.2, CSA B45.3 or CSA B45.4, ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5/IAPMO Z124. Group wash-up equipment shall conform to the requirements of Section 402. Every 20 inches (508 mm) of rim space shall be considered as one lavatory.

**416419.2 Cultured marble lavatories.** Cultured marble vanity tops with an integral lavatory shall conform to ANSI Z124.3 or CSA B45.5/IAPMO Z124.

**416419.3 Lavatory waste outlets.** Lavatories shall have waste outlets not less than 1 1/4 inches (32 mm) in diameter. A strainer, pop-up stopper, crossbar or other device shall be provided to restrict the clear opening of the waste outlet.

**416419.4 Moveable lavatory systems.** Moveable lavatory systems shall comply with ASME A112.19.12.

**416419.5 Tempered water for public hand-washing facilities.** Tempered water shall be delivered from lavatories and group wash fixtures located in public hand-washing

facilities provided for customers, patrons and visitors. Tempered water between 85°(29°C) and 110°(43°C) shall be delivered through an approved water temperature limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70 or CSA B125.3.

#### SECTION 426420 MANUAL FOOD AND BEVERAGE DISPENSING EQUIPMENT

**426.1 Approval.** Manual food and beverage dispensing equipment shall conform to the requirements of NSF 18.

#### SECTION 417421 SHOWERS

**417421.1 Approval.** Prefabricated showers and shower compartments shall conform to ANSI Z124.2, ASME A112.19.9M or CSA B45.5 ASME A112.19.2/CSA B45.1 or CSA B45.5/IAPMO Z124. Shower valves for individual showers shall conform to the requirements of Section 424412.3.

**417421.2 Water supply riser.** Every water supply riser from the shower valve to the shower head outlet, whether exposed or not, shall be attached to the structure. The attachment to the structure shall be made by the use of support devices designed for use with the specific piping material or by fittings anchored with screws, in an approved manner.

**417421.3 Shower waste outlet.** Waste outlets serving showers shall be at least 1 1/2 inches (38 mm) in diameter and, for other than waste outlets in bathtubs, shall have removable strainers not less than 3 inches (76 mm) in diameter with strainer openings not less than 1/4 inch (6.4 mm) in least minimum dimension. Where each shower space is not provided with an individual waste outlet, the waste outlet shall be located and the floor pitched so that waste from one shower does not flow over the floor area serving another shower. Waste outlets shall be fastened to the waste pipe in an approved manner.

**417421.4 Shower compartments.** All ~~Shower~~ compartments shall be not less than have a minimum of 900 square inches (0.58 m<sup>2</sup>) of interior cross-sectional area. Shower compartments shall not be less than 30 inches (762 mm) in least minimum dimension as measured from the finished interior dimension of the compartment, exclusive of fixture valves, showerheads, soap dishes, and safety grab bars or rails. Except as required in Section 404, the minimum required area and dimension shall be measured from the finished interior dimension at a height equal to the top of the threshold and at a point tangent to its centerline and shall be continued to a height not less than 70 inches (1778 mm) above the shower drain outlet.

**Exception:** Shower compartments having not less than 25 inches (635 mm) in minimum dimension measured from the

finished interior dimension of the compartment, provided that the shower compartment has a minimum of 1,300 square inches (.838 m<sup>2</sup>) of cross-sectional area.

**417421.4.1 Floor and Wall area.** ~~The wall area above built-in tubs with installed shower heads and in shower compartments. Bathtub floors, shower floors, wall areas above built-in tubs that have installed shower heads and walls in shower compartments shall be constructed of smooth, noncorrosive and nonabsorbent waterproof material.~~ Wall materials shall extend to a height not less than 6 feet (1829 mm) above the room floor level, and not less than 70 inches (1778 mm) ~~where measured from the compartment floor at above the drain of the tub or shower.~~ Such walls shall form a water-tight joint with each other and with either the tub, ~~receptor~~ or shower floor.

**417421.4.2 Access.** The shower compartment access and egress opening shall have a minimum clear and unobstructed finished width of 22 inches (559 mm). Shower compartments required to be designed in conformance to accessibility provisions shall comply with Section 404.1.

**417421.5 Shower floors or receptors.** Floor surfaces shall be constructed of impervious, noncorrosive, nonabsorbent and waterproof materials.

**417421.5.1 Support.** Floors or receptors under shower compartments shall be laid on, and supported by, a smooth and structurally sound base.

**417421.5.2 Shower lining.** Floors under shower compartments, except where prefabricated receptors have been provided, shall be lined and made water tight utilizing material complying with Sections ~~421417.5.2.1 through 421417.5.2.6~~ 4. Such liners shall turn up on all sides at least 2 inches (51 mm) above the finished threshold level. Liners shall be recessed and fastened to an approved backing so as not to occupy the space required for wall covering, and shall not be nailed or perforated at any point less than 1 inch (25 mm) above the finished threshold. Liners shall be pitched one-fourth unit vertical in 12 units horizontal (2-percent slope) and shall be sloped toward the fixture drains and be securely fastened to the waste outlet at the seepage entrance, making a water-tight joint between the liner and the outlet. The completed liner shall be tested in accordance with Section 312.9.

**Exceptions:**

Floor surfaces under shower heads provided for rinsing laid directly on the ground are not required to comply with this section.

2. Where a sheet-applied, load-bearing, bonded, waterproof membrane is installed as the shower lining, the membrane shall not be required to be recessed.

**417421.5.2.1 PVC sheets.** Plasticized polyvinyl chloride (PVC) sheets ~~shall be a minimum of 0.040 inch (1.02 mm) thick, and~~ shall meet the requirements of ASTM D 4551.

Sheets shall be joined by solvent welding in accordance with the manufacturer's installation instructions.

**417421.5.2.2 Chlorinated polyethylene (CPE) sheets.** Nonplasticized chlorinated polyethylene sheet ~~shall be a minimum 0.040 inch (1.02 mm) thick, and~~ shall meet the requirements of ASTM D 4068. The liner shall be joined in accordance with the manufacturer's installation instructions.

**417421.5.2.3 Sheet lead.** Sheet lead shall not weigh less than 4 pounds per square foot (19.5 kg/m<sup>2</sup>) coated with an asphalt paint or other approved coating. The lead sheet shall be insulated from conducting substances other than the connecting drain by 15-pound (6.80 kg) asphalt felt or its equivalent. Sheet lead shall be joined by burning.

**417421.5.2.4 Sheet copper.** Sheet copper shall conform to ASTM B 152 and shall not weigh less than 12 ounces per square foot (3.7 kg/m<sup>2</sup>). The copper sheet shall be insulated from conducting substances other than the connecting drain by 15-pound (6.80 kg) asphalt felt or its equivalent. Sheet copper shall be joined by brazing or soldering.

~~417421.5.2.5 Sheet-applied, load-bearing, bonded, waterproof membranes.~~ Sheet-applied, load-bearing, bonded waterproof membranes shall meet requirements of TCNA A118.10 and shall be applied in accordance with the manufacturer's installation instructions.

~~417421.5.2.6 Liquid-type, trowel-applied, load-bearing, bonded waterproof materials.~~ Liquid-type, trowel-applied, load-bearing, bonded waterproof materials shall meet the requirements of TCNA A118.10 and shall be applied in accordance with the manufacturer's instructions.

**417421.6 Glazing.** Windows and doors within a shower enclosure shall conform to the safety glazing requirements of the *Arkansas Fire Prevention Code*.

## SECTION 418422 SINKS

**418422.1 Approval.** Sinks shall conform to ~~ANSI Z124.6, ASME A112.19.1M, ASME A112.19.2M, ASME A112.19.3M, ASME A112.19.4M, ASME A112.19.9M, CSA B45.1, CSA B45.2, CSA B45.3 or CSA B45.4. ASME A112.19.1/ CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5/IAPMO Z124~~

**418422.2 Sink waste outlets.** Sinks shall be provided with waste outlets a not less than 1 1/2 ~~minimum of 1.5~~ inches (38 mm) in diameter. A strainer or crossbar shall be provided to restrict the clear opening of the waste outlet.

**418422.3 Moveable sink systems.** Moveable sink systems shall comply with ASME A112.19.12.

**418422.4 Service sinks.** Service sinks are not required in spaces with an occupant load of 15 or less.

Note: The building occupancy classification as noted in Table 403.1, that is used for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses shall not be required to include a plumbing service sink, either at construction or as part of a renovation or remodeling, if the building owner or an agent of the building owner communicates to the plumbing code official at the time of construction or renovation that the actual or proposed number of persons that will occupy the building is fifteen (15) or less. For the purposes of determining the minimum number of plumbing service sink fixtures required in the building occupancy classification, the number shall not be determined by using building occupancy loads as calculated in the Arkansas Fire Prevention Code. [RM8]

## SECTION 423 SPECIALTY PLUMBING FIXTURES

**423.1 Water connections.** Baptisteries, ornamental and lily pools, aquariums, ornamental fountain basins, swimming pools, and similar constructions, where provided with water supplies, shall be protected against backflow in accordance with Section 608.

**423.2 Approval.** Specialties requiring water and waste connections shall be submitted for approval.

**423.3 Footbaths and pedicure baths.** The water supplied to specialty plumbing fixtures, such as pedicure chairs having an integral foot bathtub and footbaths, shall be limited to not greater than 120°F (49°C) by a water-temperature-limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70 or CSA B125.3.

## SECTION 419424 URINALS

**419424.1 Approval.** Urinals shall conform to ~~ANSI Z124.9, ASME A112.19.2M, CSA B45.1, ASME A112.19.2/CSA B45.1, ASME A112.19.19 or CSA B45.5/IAPMO Z124.~~ Urinals shall conform to the water consumption requirements of Section 604.4. Water supplied urinals shall conform to the hydraulic performance requirements of ~~ASME A112.19.6, CSA B45.1 or CSA B45.5. ASME A112.19.2/CSA B45.1 or CSA B45.5/IAPMO Z124.~~

**419424.2 Substitution for water closets.** In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets in assembly and educational occupancies. Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies.

**419.3 Surrounding material.** Wall and floor space to a point 2 feet (610 mm) in front of a urinal lip and 4 feet (1219

mm) above the floor and at least 2 feet (610 mm) to each side of the urinal shall be waterproofed with a smooth, readily cleanable, nonabsorbent material. [A9]

**419.4 Waterless urinals/design criteria.** Waterless urinals shall conform to the intent of the provisions of this code and provide an equivalent level of quality, strengths, effectiveness, fire resistance durability and safety. Materials equipment or components shall be designed and installed in accordance with the manufacturer's installation instructions.

**419.4.1 Waterless urinals trap design.** Shall be a fitting or device, which provides a seal to prevent the emission of gases without materially affecting the flow of waste water through the trap.

**419.4.2 Waterless urinals approved standards.** Urinals shall conform to ANSI Z124.9 D2D 4x2x1, ASME A112.19.2, CSA B45.1 OR CSA B45.5.

## SECTION 420 420 WATER CLOSETS

**420425.1 Approval.** Water closets shall conform to the water consumption requirements of Section 604.4 and shall conform to ~~ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5/IAPMO Z124.~~ ANSI Z124.4, ASME A112.19.2M, CSA B45.1, CSA B45.4 or CSA B45.5. Water closets shall conform to the hydraulic performance requirements of ~~ASME A112.19.2/CSA B45.1.~~ ASME A112.19.6. Water closet tanks shall conform to ~~ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4 or CSA B45.5/IAPMO Z124.~~ ANSI Z124.4, ASME A112.19.2, ASME A112.19.9M, CSA B45.1, CSA B45.4 or CSA B45.5. Electro-hydraulic water closets shall comply with ~~ASME A112.19.2/CSA B45.1. ASME A112.19.13.~~ Water closets equipped with a dual flushing device shall comply with ASME A112.19.14.

**420425.2 Water closets for public or employee toilet facilities.** Water closet bowls for public or employee toilet facilities shall be of the elongated type.

**420425.3 Water closet seats.** Water closets shall be equipped with seats of smooth, nonabsorbent material. All seats of water closets provided for public or employee toilet facilities shall be of the hinged open-front type. Integral water closet seats shall be of the same material as the fixture. Water closet seats shall be sized for the water closet bowl type. Integrated water closet seats may be used under certain conditions if approved by the State Administrative Authority. [RM10]

**420425.4 Water closet connections.** A 4-inch by 3-inch (102 mm by 76 mm) closet bend shall be acceptable. Where a 3-inch (76 mm) bend is utilized on water closets, a 4-inch by 3-inch (102 mm by 76 mm) flange shall be installed to receive the fixture horn.



## SECTION 421426 WHIRLPOOL BATHTUBS

**421426.1 Approval.** Whirlpool bathtubs shall comply with ASME A112.19.7/CSA B45.10 and shall be listed and labeled in accordance with UL 1795.M or with CSA B45.5 and CSA B45 (Supplement 1).

**421426.2 Installation.** Whirlpool bathtubs shall be installed and tested in accordance with the manufacturer's installation instructions. The pump shall be located above the weir of the fixture trap.

**421426.3 Drain.** The pump drain and circulation piping shall be sloped to drain the water in the volute and the circulation piping when the whirlpool bathtub is empty.

**421426.4 Suction fittings.** Suction fittings for whirlpool bathtubs shall comply with ASME A112.19.7/CSA B45.10.8M.

**421426.5 Access to pump.** Access shall be provided to circulation pumps in accordance with the fixture or pump manufacturer's installation instructions. Where the manufacturer's instructions do not specify the location and minimum size of field-fabricated access openings, a 12-inch by 12-inch (305 mm by 305 mm) minimum sized opening shall be installed to provide access to the circulation pump. Where pumps are located more than 2 feet (609 mm) from the access opening, an 18-inch by 18-inch (457 mm by 457 mm) minimum sized opening shall be installed. A door or panel shall be permitted to close the opening. In all cases, the access opening shall be unobstructed and of the size necessary to permit the removal and replacement of the circulation pump.

**421.6 Whirlpool enclosure.** Doors within a whirlpool enclosure shall conform to ASME A112.19.15.[A11]

## SECTION 422427 HEALTH CARE FIXTURES AND EQUIPMENT

**427.1 Hand-wash sinks in Examination Rooms.** A sink/lavatory shall be provided for hand washing and sanitation purposes in each clinical examination/treatment room. Water between 85° and 120° shall be provided and delivered through an approved water temperature limiting device that conforms to ASSE 1070 or CSA B125.3.

**NOTE:** Facilities licensed and regulated under the provision of Act 414, 1961 administered by the Arkansas Department of Health, Division of Health Care Facilities shall adhere to Health Care Facility's regulations.

**422.1 Scope.** This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to this Code, the *Arkansas Mechanical Code* and Rules and Regulations to health care facilities licensed under Act 414, 1961, as amended, and administered by the *Arkansas Department of Health and Human Services, Division of Health Care Facilities*.

**422.2 Approval.** All special plumbing fixtures, equipment, devices and apparatus shall be of an approved type.

**422.3 Protection.** All devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, distillation, processing, cooling, or storage of ice or foods, and that connect to either the water supply or drainage system, shall be provided with protection against backflow, flooding, fouling, contamination of the water supply system and stoppage of the drain.

**422.4 Materials.** Fixtures designed for therapy, special cleansing or disposal of waste materials, combinations of such purposes, or any other special purpose, shall be of smooth, impervious, corrosion-resistant materials and, where subjected to temperatures in excess of 180°F (82°C), shall be capable of withstanding, without damage, higher temperatures.

**422.5 Access.** Access shall be provided to concealed piping in connection with special fixtures where such piping contains steam traps, valves, relief valves, check valves, vacuum breakers or other similarities that require periodic inspection, servicing, maintenance or repair. Access shall be provided to concealed piping that requires periodic inspection, maintenance or repair.

**422.6 Clinical sink.** A clinical sink shall have an integral trap in which the upper portion of a visible trap seal provides a water surface. The fixture shall be designed so as to permit complete removal of the contents by siphonic or blowout action and to reseal the trap. A flushing rim shall provide water to cleanse the interior surface. The fixture shall have the flushing and cleansing characteristics of a water closet.

**422.7 Prohibited usage of clinical sinks and service sinks.** A clinical sink serving a soiled utility room shall not be considered as a substitute for, or be utilized as, a service sink. A service sink shall not be utilized for the disposal of urine, fecal matter or other human waste.

**422.8 Ice prohibited in soiled utility room.** Machines for manufacturing ice, or any device for the handling or storage of ice, shall not be located in a soiled utility room.

**422.9 Sterilizer equipment requirements.** The approval and installation of all sterilizers shall conform to the requirements of the *Arkansas Mechanical Code*.

**422.9.1 Sterilizer piping.** Access for the purposes of inspection and maintenance shall be provided to all sterilizer piping and devices necessary for the operation of sterilizers.

**422.9.2 Steam supply.** Steam supplies to sterilizers, including those connected by pipes from overhead mains or branches shall be drained to prevent any moisture from reaching the sterilizer. The condensate drainage from the steam supply shall be discharged by gravity.

**422.9.3 Steam condensate return.** Steam condensate returns from sterilizers shall be a gravity return system.

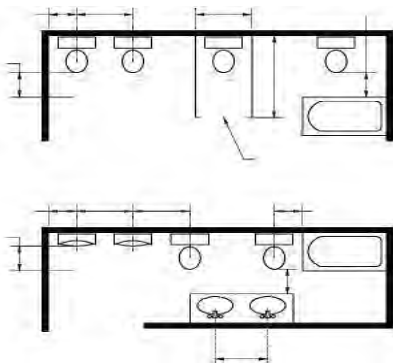


## FIXTURES FAUCETS AND FIXTURE FITTINGS

~~422.9.4 Condensers.~~ Pressure sterilizers shall be equipped with a means of condensing and cooling the exhaust steam vapors. Nonpressure sterilizers shall be equipped with a device that will automatically control the vapor, confining the vapors within the vessel.

~~422.10 Special elevations.~~ Control valves, vacuum outlets and devices protruding from a wall of an operating, emergency, recovery, examining or delivery room, or in a corridor or other location where patients are transported on a wheeled stretcher, shall be located at an elevation that prevents bumping the patient or stretcher against the device.

DELETE FIGURE



**FIGURE 4053.1**  
**FIXTURE CLEARANCE**

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