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	CHAPTER 1 ADMINISTRATION	**CHAPTER 1 ADMINISTRATION**
	~~**101.7**~~ **102.3 Maintenance.** The plumbing and drainage system of a premises under the Authority Having Jurisdiction shall be maintained in a sanitary and safe operating condition ~~by the owner or owner's agent~~. Devices or safeguards required by this code shall be maintained in accordance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for maintenance of the plumbing system. To determine compliance with this subsection, the Authority Having Jurisdiction shall be permitted to cause a plumbing system to be reinspected.	
	~~**101.9**~~ **102.4 Additions, Alterations, or Repairs.** Additions, alterations, renovations, or repairs shall conform to that required for a new system without requiring the existing plumbing system to be in accordance to be in accordance with the requirements of this code. Additions, alterations, renovations, or repairs shall not cause an existing system to become unsafe, insanitary, or overloaded. Additions, alterations, renovations, or repairs to existing ~~replacement of~~ plumbing systems shall comply with the provisions for new construction, unless such deviations are found to be necessary and are first approved by the Authority Having Jurisdiction. ~~systems except as otherwise provided in Section 101.11.~~	
	~~**101.11.5**~~ **102.7 Moved ~~Buildings~~ Structures.** Revised and renumbered.	
	104.3.1 Construction Documents. New section.	
	104.4.1 Approved Plans or Construction Documents. New section.	
	104.4.4 Extensions. New section.	

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	~~**103.5.2 New Plumbing Work**~~ **105.2 Required Inspections.** Add- The Authority Having Jurisdiction shall make the following inspections and other such inspections as necessary. The permittee of the permittee's authorized agent shall be responsible for the scheduling of such inspections as follows: (1) Underground inspection shall be made after trenches or ditches are excavated and bedded, pipe installed, and before backfill is put in place. (2) Rough-in inspection shall be made prior to installation of wall or ceiling membranes. (3) Final inspection shall be made upon completion of the installation.	
	105.4 Connection to Service Utility. New section.	
CHAPTER 2 DEFINITIONS	**CHAPTER 2 DEFINITIONS**	**CHAPTER 2 DEFINITIONS**
	203.0 Accepted Engineering Practice. New definition.	
	203.0 Anesthetizing Location. New definition.	
	203.0 Appliance. New definition.	
	203.0 Appliance, Low-Heat. New definition.	
	203.0 Appliance, Medium-Heat. New definition.	
	204.0 Bottle Filling Station. New definition.	
	205.0 Category 1. New definition.	
	205.0 Category 2. New definition.	
	205.0 Category 3. New definition.	
	205.0 Category 3 Medical Vacuum System. New definition.	
	205.0 Chimney, High-Heat Appliance-Type. New definition.	
	205.0 Chimney, Low-Heat Appliance-Type. New definition.	
	205.0 Chimney, Medium-Heat Appliance-Type. New definition.	

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	205.0 Chimney, Residential Appliance-Type. New definition.	
205.0 Definitions. Combustible Material. ~~As pertaining to materials adjacent to or in contact with heat-producing appliances, vent connectors, gas vents, chimneys, steam and hot water pipes, and warm air ducts, shall be materials made of or surfaces with wood, compressed paper, plant fibers, or other materials that are capable of being ignited and burned. Such material shall be considered combustible even though flame-proofed, fire retardant treated, or plastered. [NFPA 54:3.3.6.3]~~ Any material not defined as noncombustible material.		
	205.0 Condensate. New definition.	
	205.0 Construction Documents. New definition.	
	205.0 Copper Alloy. New definition.	
	205.0 Critical Care Area. New definition.	
	206.0 Drinking Fountain. New definition.	
	206.0 Dry Vent. New definition.	
	207.0 Exam Room. New definition.	
	207.0 Expansion Joint. New definition.	
	208.0 Fixture Fitting. New definition.	
	212.0 Joint, Compression. New definition.	
	212.0 Joint, Flanged. New definition.	
	212.0 Joint, Flared. New definition.	
	212.0 Joint, Mechanical. New definition.	
	214.0 Levels of Sedation. New definition.	
	215.0 Medical Air. Revised.	
	215.0 Medical Gas. Revised.	
	215.0 Medical Gas System. Revised.	

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	215.0 Medical Support Gas. New definition.	
	215.0 Medical-Surgical Vacuum. New definition.	
	215.0 Medical-Surgical Vacuum System. New definition.	
216.0 Definitions. Non Combustible Materials. Materials that, when tested in accordance with ASTM E 136, have at least three of four specimens tested meeting all of the following criteria: 1. The recorded temperature of the surface and interior thermocouples shall not at any time during the test rise more than 54ºF (30ºC) above the furnace temperature at the beginning of the test. 2. There shall not be flaming from the specimen after the first 30 seconds. 3. If the weight loss of the specimen during testing exceeds 50 percent, the recorded temperature of the surface and interior thermocouples shall not at any time during the test rise above the furnace air temperature at the beginning of the test, and there shall not be flaming of the specimen.		
~~**218.0 Definitions.** Penetration Firestop System. A specific assemblage of field-assembled materials, or a factory made device, which has been tested to a standard test method and, where installed properly on penetrating piping materials, is capable of maintaining the fire-resistance~~	**218.0 Patient Care Room.** New definition.	**218.0 Patient Care Space.** Revised.

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~~rating of assemblies penetrated.~~		
	218.0 Patient Medical Gas. New definition.	
	218.0 Proportioning System for Medical Air USP. New definition.	
	220.0 Registered Design Professional. New definition.	
	221.0 Scavenging. New section.	
	221.0 Sterilizer. New definition.	
~~222.0 Definitions.~~ ~~T Rating. The time period that the penetration firestop system, including the penetrating item, limits the maximum temperature rise of 325° (163°C) above its initial temperature through~~		
	224.0 Valve, Pressure-Relief. New definition.	
	224.0 Vent Offset. New definition.	
	225.0 Wet Procedure Locations. New definition.	
CHAPTER 3 GENERAL REGULATIONS	**CHAPTER 3 GENERAL REGULATIONS**	**CHAPTER 3 GENERAL REGULATIONS**
	301.0 ~~MATERIALS- STANDARDS AND ALTERNATES~~ GENERAL	
	301.1 Applicability. New section.	
	~~301.1.1~~ 301.2.1 Marking. Add- **Exception:** Marking shall not be required on nipples created from cutting and threading of approved pipe.	**301.2.1 Marking.** Each length of pipe and each pipe fitting, trap, fixture, material, and device used in a plumbing system shall have cast, stamped, or indelibly marked on it any markings required by the applicable referenced standards and listing agency, and the manufacturer's mark or name, which shall readily identify the manufacturer to the end user of the product. Where required by the approved standard that applies, the product shall be marked with the weight and quality of the product. Materials and devices used or entering into the construction of plumbing and drainage systems, or parts

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		thereof, shall be marked and identified in a manner satisfactory to the Authority Having Jurisdiction. Such markings shall be done by the manufacturer. Field markings shall not be acceptable. **Exception:** Marking shall not be required on nipples created from cutting and threading of approved pipe.
	301.2.3 Plastic Pipe, Plastic Pipe Fittings, and Components. New section.	
	301.2.4 Cast-Iron Soil Pipe and Fittings. New section.	
	301.4.1 Costal High Hazard Zones. New section.	
	312.6 Freezing Protection. No water, soil, or waste pipe shall be installed or permitted outside of a building, in attics or crawl spaces, or in an exterior wall unless, where necessary, adequate provision is made to protect such pipe from freezing.	
312.7 Fire-Resistant Construction. Piping penetrations of fire-resistance-rated walls, partitions, floors, floor/ceiling assemblies, roof/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the building code. ~~and Chapter 15, "Firestop Protection."~~		
	312.13 Exposed ABS Piping. New section.	
	312.14 Exposed PVC Piping. New section.	
	314.1 Trenches. Trenches deeper than the footing of a building or structure and paralleling the same shall not be less than 45 degrees (0.79 rad) from the bottom exterior edge of the footing ~~therefrom~~, or as approved in accordance with Section ~~301.0~~ 301.2 of this code.	

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	314.4 Excavations. Add- Underground thermoplastic pipe and fittings shall be installed in accordance with this code and Section 314.4.1.	
	314.4.1 Installation of Thermoplastic Pipe and Fittings. New section.	
	316.1 General. Exchange copper alloy for brass.	
	320.0 Rehabilitation of Piping Systems. New section.	
CHAPTER 4 PLUMBING FIXTURES AND FIXTURE FITTINGS	**CHAPTER 4 PLUMBING FIXTURES AND FIXTURE FITTINGS**	
	401.1 Applicability. New section.	
		402.4 Wall-Hung Fixtures. Wall-hung fixtures shall be rigidly supported by metal supporting members so that no strain is transmitted to the connections. Floor-affixed supports for off the-floor plumbing fixtures for public use shall comply with ASME A112.6.1M. Framing-affixed supports for off-the-floor water closets with concealed tanks shall comply with ASME A112.6.2. Flush tanks and similar appurtenances shall be secured by approved non-corrosive screws or bolts.
	403.0 ~~Water-Conserving Fixtures and Fittings~~ Accessible Plumbing Fixtures. New section.	
	403.1 General. New section.	
	403.2 Fixtures and Fixture Fittings for Persons with Disabilities.	
	403.3 Exposed Pipes and Surfaces. New section.	**403.3 Exposed Pipes and Surfaces.** Add- ASTM C1822.
		404.0 Waste Fittings and Overflows
		404.1 Waste Fittings. New section.
	407.1 Application. New section.	**~~404.1~~ 404.2 General Overflows.** Renumbered.
	407.2 Water Consumption. New section.	
	407.2.1 Maximum Flow Rate. New section.	
	407.2.2 Metering Faucets. New section.	

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	407.4 Transient Public Lavatories. New section.	
	407.5 Waste Outlet. New section.	
	407.6 Overflow. New section.	**407.6 Overflow.** Where overflows are provided, they shall be installed in accordance with Section ~~404.1~~ 404.2.
	408.1. Application. Revised.	
	408.5 Finished Curb or Threshold. Add- Thesholds shall be of sufficient width to accommodate a minimum 22 inch (559 mm) door. Shower doors shall open so as to maintain not less than a 22 inch (559 mm) unobstructed opening for egress. The immediate adjoining space to showers without thresholds shall be considered a wet location and shall comply with the requirements of the building, residential, and electrical codes.	
	408.7.1 PVC Sheets. New section.	
	408.7.2 Chlorinated Polyethylene (CPE) Sheets. New section.	
	408.7.3 Sheet Lead. New section.	
	408.7.4 Sheet Copper. New section.	
	409.1. Application. Revised.	
		409.3 Overflow. Where overflows are provided, they shall be installed in accordance with Section ~~404.1~~ 404.2.
	409.6.1 Flexible PVC Hoses and Tubes. New section.	
	410.0 Bidets. Revised.	
	411.1 Application. New section.	
	411.2 Water Consumption. New section.	
	411.2.1 Dual Flush Closets. New section.	
	411.2.2 Flsuhometer Valve Activated Water Closets. New section.	
	411.3 Water Closet Seats. New section.	
	412.1 Application. New section.	
	~~**403.3.1**~~ **412.1 Nonwater urinals.** Nonwater urinals shall be listed and comply with the applicable	

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	standards referenced in Table 1401.1. Nowater urinals shall have a barrier liquid sealant to maintain a trip seal, Nonwater urinals shall permit the uninhibited flow of water through the urinal to a sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwatery urinals are installed, not less than 1 water supply fixture unit (WSFU) shall be installed upstream on the same drain line to facilitate drain line flow and rising. Where nonwatery urinals are installed they shall have a water distribution line rough-in to the urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit.	
	413.1 Flushometer Valves. Add- Flushometer valves and tanks shall comply with ASSE 1037 or CSA B125.3 and shall be installed in accordance with Section 603.5.1.	
	413.3 Flush Tanks. New section.	
	414.1 Application. Revised.	
	413.1 Backflow Prevention. Add- ASSE 1004.	
	415.2 ~~Where Required~~ Drinking Fountain Alternatives. Where food is consumed indoors, water stations shall be permitted to be substituted for drinking fountains. Bottle filling stations shall be permitted to be substituted for drinking fountains up to 50 percent of the requirements for drinking fountains. Drinking fountains shall not be required for an occupant load of 30 or less.	
	418.1 Application. Revised.	
	418.3 Location of Floor Drains. Add- (4) Boiler rooms.	
	419.1 Application. Revised.	
	421.0 Floor Sinks. New section and subsections.	

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~~Section 422.0, Minimum Number of Required Fixtures. Delete Section 422.0 in its entirety.~~		
Delete Table 422.1 in its entirety.		
	422.2.1 Family or Assisted-Use Toilet Facilities. New section.	
	CHAPTER 5 WATER HEATERS	**CHAPTER 5 WATER HEATERS**
	501.1 Applicability. The regulations of this chapter shall govern the construction, location and installation for fuel-burning and other water heaters heating potable water, together with chimneys, vents, and their connections. The minimum capacity for storage water heaters shall be in accordance with the first hour rating listed in Table 501.1. ~~Design, construction and workmanship shall be in accordance with accepted engineering practices, manufacturer's instructions, and applicable standards and shall be of such character as to secure the results sought to be obtained by this code.~~ No water heater shall be hereinafter installed that does not comply with the type and model of each size thereof approved by the Authority Having Jurisdiction. A list of accepted gas appliance standards are referenced in Table 1401.1. Listed appliances shall be installed in accordance with the manufacturer's installation instructions. Unlisted water heaters shall be permitted in accordance with Section 504.3.2.	
	504.3 Clearance. The clearance requirements for water heaters shall comply with Section 504.3.1 or Section 504.3.2.	
	505.1 Water Heaters. Water heaters deriving heat from fuels or types of energy other than gas shall be constructed and installed in accordance with	

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	approved standards referenced in Table 501.1(2), Section 505.3, or Section 505.4.	
	505.4 Indirect-Fired Water Heaters. Replace reference to Table 1401.1 with reference to Table 501.1(2).	
	TABLE 501.1(2) WATER HEATERS. New Table.	
	505.4.1 Single-Wall Heat Exchanger. An indirect-fired water heater that incorporate a single-wall heat exchanger shall meet the following requirements: ~~(1) Connected to a low-pressure hot water boiler limited to a maximum of 30 pounds-force per square inch gauge (psig) (207 kPa) by an approved safety or relief valve.~~ ~~(2)~~ (1) Heat transfer medium is either potable water or contains fluids recognized as safe by the Food and Drug Administration (FDA) as food grade. ~~having a toxicity rating or Class of 1.~~ ~~(3)~~ (2) Bear a label with the word "Caution," followed by the following statements: (a) The heat-transfer medium shall be water or other nontoxic fluid recognized as safe by the FDA ~~having the toxic rating or Class of 1 as listed in Clinical Toxicology or Commercial Products, 5th edition~~. (b) The maximum operating pressure of the heat exchanger shall not exceed the maximum operating pressure of the potable water ~~supply pressure of the heat-transfer medium shall be limited to a maximum of 30 psig (207 kPa) by an approved safety or relief valve~~. (3) The word "Caution" and the statements in letters shall have an uppercased height of not less than -.120 or an inch (3.048 mm). the vertical spacing between lines of type shall be not less than 0.046 of an inch (1.168 mm). Lowercase letters shall be compatible with the uppercase letter size specifications.	

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	506.9 Combustion Air Ducts. Revise- (8) The remaining space surrounding a chimney liner, gas vent, special gas vent, or plastic piping installed within a masonry chimney flue, metal or factory-built chimney, shall not be used to supply combustion air ~~unless it is listed and shown in the manufacturer's installation instructions~~. **Exception.** Direct-vent appliances designed for installation in a solid-fuel-burning fireplace where installed in accordance with the manufacturer's installation instructions. [NFPA 54: 9.3.8.7]	
	507.4 Drainage Pan. Where a water heater is located in an attic, in or on an attic-ceiling assembly, floor-ceiling assembly, or floor-subfloor assembly where damage results from a leaking water heater, a watertight pan of corrosion-resistant materials shall be installed beneath the water heater with not less than ¾ of an inch (20 mm) diameter drain to an approved location. Such pan shall be not less than 1 ½ inches (38 mm) in depth.	
	507.14 Installation in Commercial Garages. Appliances installed in commercial garage shall comply with Section 507.14.1 and Section 507.14.2.	
	509.1 Listing. New section.	
	509.3 Design and Construction. A venting system shall be designed and constructed so as to ~~develop a positive flow to~~ convey flue, vent, or both gases and vent gases to the outdoors. [NFPA 54:12.1]	
		509.3.6 Above-ceiling or Nonducted Air Handling System. New section.
		509.4.1 Plastic Piping. ~~Plastic piping used for venting appliances listed for use with such venting materials shall be approved.~~ Where plastic piping is used to vent an appliance, the appliance shall be listed for use with such venting materials and the appliance

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		manufacturer's installation instruction shall identify the specific plastic piping material. [NFPA 54:12.5.2]
	509.5 Masonry, Metal, and Factory-Built Chimneys. Chimneys shall be installed in accordance with Section 509.5.1 through Section 509.3.	
	509.5.1 Decorative Shrouds. New section.	
	509.5.1.2 Listing Requirements. New section.	
	509.6 Gas Vents. ~~A gas vent passing through a roof shall extend through the entire roof flashing, roof jack, or roof thimble and be terminated with a listed termination cap~~. Gas vents shall be installed in accordance with the manufacturer's installation instructions [NFPA ~~54:12.7.3.2~~ 54:12.7.1(1)]	
	509.6.2.7 Insulation Shiled. New section.	
	509.6.4.2 Multistory Venting System. New section.	
	509.8.5 Vent Terminals. **Exception.** This shall not apply to vent terminals that are 2 feet (610 mm) or more above or 25 feet (7620 mm) or more below operable openings. [NFPA 54:12.9.6]	
	509.10.1.2 Residential-Type Appliances. Revise- (1) Vent connectors for listed appliances having draft hoods, appliances having draft hoods, and equipped with listed conversion burners, and Category 1 appliances that are not installed in attics, crawl spaces, or other unconditioned areas shall be one of the following:	
	509.10.7 Length of Vent Connector. The length of the vent connector shall comply with Section 509.10.7.1 or Section 509.10.7.2.	
	509.13.1 Listing. New section.	
	CHAPTER 6 WATER SUPPLY AND DISTRIBUTION	**CHAPTER 6 WATER SUPPLY AND DISTRIBUTION**

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	601.1 Applicability. New section.	
	603.3 Backflow Prevention Devices, Assemblies, and Methods. Backflow prevention devices, assemblies, and methods shall comply with Section 603.3.1 through Section 603.3.9.	
	TABLE 603.2 BACKFLOW PREVENTION DEVICES, ASSEMBLIES, AND METHODS. Revised.	
	603.4.7 Freeze Protection. In cold climate areas, backflow assemblies and devices shall be protected from freezing with an outdoor enclosure in accordance with ASSE 1060 or by a method acceptable to the Authority Having Jurisdiction.	
	603.5 Specific Requirements. Specific requirements for backflow prevention shall comply with Section 603.5.1 through Section 603.5.20.	
	604.1 Pipe, Tube, and Fittings. Pipe, tube, fittings, solvent cements, thread sealants, solders, and flux, used in potable water systems intended to supply drinking water shall be in accordance with the requirements of NSF 61. Where fittings and valves are made from copper alloys containing more than 15 percent zinc by weight, and are used in plastic piping systems, they shall be resistant to dezincification and stress corrosion cracking in accordance with NSF 14. Materials used in the water supply system, except valves and similar devices, shall be od a like material. Except where otherwise approved by the Authority Having Jurisdiction. Materials for building water piping and building supply piping shall comply with the applicable standards referenced in Table 604.1.	
	604.2 Lead Content. New section.	
	604.2.1 Lead Content of Water Supply Pipe and Fittings. New section.	

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		603.4.3 Access and Clearance. Access and clearance shall be provided for the required testing, maintenance, and repair. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than 12 inches (305 mm) between the lowest portion of the assembly and grade, floor, or platform. Installations elevated that exceed 5 feet (1524 mm) above the floor or grade shall be provided with a platform capable of supporting a tester or maintenance person.
	~~604.4~~ 604.5 Flexible ~~Copper~~ Connectors. ~~Listed~~ Flexible water connectors shall be installed in readily accessible locations, and where under continuous pressure shall be in accordance with ASME A112.18.6/CSA B125.6 ~~unless otherwise listed~~.	
	604.10 Plastic Materials. Renumbered.	
	604.10.1 Tracer Wire. New section.	**604.10.1 Tracer Wire.** Plastic materials for building supply piping outside underground shall have a blue insulated copper trace wire an electrically continuous corrosion-resistant blue insulated copper tracer wire, or other approved conductor installed adjacent to the piping. Access shall be provided to the tracer wire, or the tracer wire shall terminate aboveground at each end of the nonmetallic piping. The tracer wire size shall be not less than 18 AWG, and the insulation type shall be suitable for direct burial.
	TABLE 604.1 MATERIALS FOR BUILDING SUPPLY AND WATER DISTRIBUTION PIPING AND FITTING. Revise.	
	604.13 Water Heater Connectors. Flexible metallic water connectors (copper or stainless steel), ~~or~~ reinforced, braided stainless steel, or polymer braided with EPDM core connectors that connect a	

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	water heater ~~water heater connectors connecting water heating~~ to the piping system shall be in accordance with ASME A1112.18.6/CSA B125.~~6the applicable standards referenced in Table 1401.1~~. Copper, copper alloy, or stainless steel flexible connectors shall not exceed 24 inches (610 mm). PEX, PEX-AL-PEX, PE-AL-PE, or PE-RT tubing shall not be installed within the first 18 inches (457 mm) of piping connected to a water heater.	
	605.3 CPVC/AL/CPVC Plastic Pipe and Joints. New section.	
	605.3.1 Solvent Cement Joints. New section.	
	~~**606.7.1.1**~~ **607.6.1.1 Butt-Fusion Joints.** Butt-fusion joints shall be installed in accordance with ASTM F2620 and shall be made by heating the squared ends of two pipes, pipe and fitting, or two fittings by holding ends against a heated element. The heated element shall be removed where the proper melt is obtained and joined ends shall be placed together with applied force.	
	~~**605.7.1.2**~~ **605.6.1.2 Electro-Fusion Joints.** Elector-fusion joints shall be heated internally by a conductor at the interface of the joint. Align and restrain fitting to pipe to prevent movement and apply electric current to the fitting. Turn off the current when the proper time has elapsed to heat the joint. The joint shall fuse together and remain undisturbed until cool. ~~made by embedding the resistance wire in the fitting and supplying with a heat source. Pipe shall be clamped in place and power applied through a controlled processor. The material surrounding the wire shall be melted along with the pipe and shall provide the pressure required for fusion.~~	
	~~**606.7.1.3**~~ **605.6.1.3 Socket-Fusion Joints.** Socket-fusion joints shall be installed in accordance with ASTM F2620 and be made by simultaneously	

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	heating the outside surface of a pipe end and the inside of a fitting socket. Where proper melt is obtained, the pipe and fitting shall be joined by inserting one into the other with applied force. The joint shall fuse together and remain undisturbed until cool.	
	606.1 General.-Revised.	
	606.5 Control Valve. Add- Where parallel water distribution system manifolds are located in attics, crawl spaces, or other locations not readily accessible, a separate shut off valve shall be required immediately ahead of each individual fixture or appliance served.	
	607.1 General. Revised**.**	
	607.3 Venting. New section.	
	607.4 Overflow. New section.	
	607.5 Valves. New section.	
	608.5 Discharge Piping. New section.	
609.1 Installation. Water piping shall be adequately supported in accordance with Table 313.1. Burred ends shall be reamed to the full bore of the pipe or tube. Changes in direction shall be made by the appropriate use of fittings, except that changes in direction in copper tubing shall be permitted to be made with bends, provided that such bends are made with bending equipment that does not deform or create a loss in the cross-sectional area of the tubing. Changes in direction are allowed with flexible pipe and tubing without fittings in accordance with the manufacturer's		

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instructions. Provisions shall be made for expansion in hot water piping. Piping, equipment, appurtenances, and devices shall be installed in a workmanlike manner in accordance with the provisions and intent of the code. Building supply yard piping shall be not less than ~~12~~ 6 inches (~~305~~ 152 mm) below the average local frost depth. The cover shall be not less than 12 inches (305 mm) below finish grade.		
		609.4 Testing. **Exception:** PEX, PP or PE-RT tube shall be permitted to be tested with air where permitted by the manufacturer's instructions.
	609.11 Pipe Insulation. New section.	
	609.11.1 Insulation Requirements. New section.	
	609.11.2 Pipe Insulation Wall Thickness. New section.	
	612.1 Where Required. New section.	
	TABLE 611.4 SIZING OR RESIDENTIAL WATER SOFTENERS. New Table.	
	612.2 Types of Systems. New section.	
	612.3 Sprinklers. New section and subsections.	
	TABLE 612.3.3.1 LOCATIONS WHERE INTERMEDIATE TEMPERATUREE SPRINKLERS ARE REQUIRED. New Table.	
	612.4 Sprinkler Piping System. New section and subsections.	
	612.5 Sprinkler Piping Design. New section and subsections.	
	TABLE 612.3.6 MINIMUM SEPARATION FROM OBSTRUCTION. New Table.	

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	TABLE 612.5.3.2(1) WATER SERVICE PRESSURE LOSS. New Table.	
	TABLE 612.5.3.2(2) MINIMUM WATER METER PRESSURE LOSS. New Table.	
	612.6 Instructions and Signs. New section and subsections.	
	612.7 Inspection and Testing. New section and subsections.	
	TABLE 612.5.3.2(3) ELEVATION LOSS. New Table.	
	TABLE 612.5.3.2(4) ALLOWABLE PIPE LENGTH FOR ¾ INCH TYPE M COPPER WATER TUBING New Table.	
	TABLE 612.5.3.2(5) ALLOWABLE PIPE LENGTH FOR 1 INCH TYPE M COPPER WATER TUBING New Table.	
	TABLE 612.5.3.2(6) ALLOWABLE PIPE LENGTH FOR ¾ INCH IPS CPVC PIPE. New Table.	
	TABLE 612.5.3.2(7) ALLOWABLE PIPE LENGTH FOR 1 INCH IPS CPVC PIPE. New Table.	
	TABLE 612.5.3.2(8) ALLOWABLE PIPE LENGTH FOR ¾ INCH PEX TUBING. New Table.	
	TABLE 612.5.3.2(9) ALLOWABLE PIPE LENGTH FOR 1 INCH PEX TUBING. New Table.	
	CHAPTER 7 SANITARY DRAINAGE	**CHAPTER 7 SANITARY DRAINAGE**
	701.1 Applicability. New section.	
		701.2 Drainage Piping. Revise- (2) ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Table 701.2 and Chapter 14 “Firestop Protection.” Except for individual single-family dwelling units, materials exposed within ducts or

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		plenums shall have a flame-spread index of not more than 25 and a smoke-developed index of not more than 50, where tested in accordance with ASTM E84 or UL 723. These tests shall comply with all requirements of the standards to include the sample size, both for width and length. Plastic pipe shall not be tested filled with water.
	701.4 Continuous Wastes. New section.	
	~~**705.10**~~ **705.8 Special Joints.** Special joints shall comply with Section 705.8.1 through 705.8.4.	
	~~**705.11**~~ **705.9 Joints Between Various Materials.** Add- Mechanical couplings used to join different materials shall be in accordance with ASTM C1173 for belowground use, ASTM C160 for aboveground use, or ASTM C1461 for aboveground and belowground use.	
	707.4 Location. Add- A cleanout shall be installed above the fixture connection fitting, serving each urinal, regardless of the location of the urinal in the building.	
	710.13 Macerating Toilet Systems and Pumped Waste Systems. Fixtures shall be permitted to discharge to macerating toilet system or pumped waste system shall be permitted ~~Listed macerating toilet systems shall be permitted~~ as an alternate to a sewage pump system where approved by the Authority Having Jurisdiction. Such systems shall comply with ASME A112.3.4/CSA B45.9 and shall be installed in accordance with the manufacturer's installation instructions.	
712.1 Media. The piping of the plumbing, drainage and venting systems shall be tested with water or		

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air ~~except that plastic piping shall not be tested with air.~~ The authority Having Jurisdiction shall be permitted to require the removal of cleanouts, etc., to ascertain whether the pressure has reached all parts of the system. After the plumbing fixtures have been set and their traps filled with water, they shall be submitted to a final test.		
717.1 General. The minimum size of a building sewer shall be determined on the basis of the total number of fixture units drained by such sewer, in accordance with Table 717.1. No building sewer shall be smaller than the building drain <u>or less than four (4) inches in diameter</u>. For alternate methods of sizing building sewers, see Appendix C.		
723.1 General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to highest point thereof, or by approved equivalent low-pressure air test. ~~Plastic DWV piping systems shall not be tested by the air test method.~~ The building sewer shall be watertight.		
	CHAPTER 8 INDIRECT WASTES	**CHAPTER 8 INDIRECT WASTES**
	<u>801.1 Applicability.</u> <u>New section.</u>	
	<u>803.1 Materials.</u> <u>New section.</u>	
	<u>803.2 Copper and Copper Alloys.</u> <u>New section.</u>	
	811.2 Waste and Vent Pipes. Add- <u>PP pipe and fittings shall comply with ASTM F1673 or CSA</u>	

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	B181.3. Chemical-resistant glass pipe and fittings shall comply with ASTM C1053. High-silicon iron pipe and fittings shall comply with ASTM A861.	
	814.1.1 Condensate Pumps. New section.	
	814.2 Condensate Control. New section.	
	814.2.1 Protection of Appurtenances. New section.	
	814.3.1 Cleanouts. New section.	
	814.4 Appliance Condensate Drains. New section.	
	814.5 Point of Discharge. New section.	
	814.6 Condensate Waste From Air-Conditioning Coils. New section.	
	814.7 Plastic Fittings. New section.	
	CHAPTER 9 VENTS	**CHAPTER 9 VENTS**
	901.1 Applicability. New section.	
		903.1 Applicable Standards. Revise- (2) ABS and PVC DWV piping installations shall be in accordance with Chapter 14 “Firestop Protection.” Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of not more than 25 and a smoke-developed index of not more than 50 where tested in accordance with ASTM E84 or UL 723. These tests shall comply with all requirements of the standards to include the sample size, both for width and length. Plastic pipe shall not be tested filled with water.
	908.2.3 Trap Arm. New section.	
	908.2.4 Water Closet. New section.	
	908.2.5 Additional Fixtures. New section.	
	CHAPTER 10 TRAPS AND INTERCEPTS	
	1001.1 Applicability. New section.	

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	1013.1.3 Food Waste Disposal Units and Dishwashers. Add- **Exception:** Food waste disposers shall be permitted to discharge to grease interceptors that are designed to receive the discharge of food waste.	
	CHAPTER 11 STORN DRAINAGE	**CHAPTER 11 STORN DRAINAGE**
	1101.1 Applicability. New section.	
	1101.4 Material Uses. Add- Pipe, tube, and fittings conveying rainwater shall be of such materials and design as to perform their intended function to the satisfaction of the Authority Having Jurisdiction.	**1101.4 Material Uses.** Add- These tests shall comply with all requirements of the standards to include the sample size, both for width and length. Plastic pipe shall not be tested filled with water.
	1101.4.1 Copper and Copper Alloys. New section.	
	~~**1102.1**~~ **1101.4.2 Conductors.** Renumbered; Add- Conductors installed aboveground level shall be of seamless copper water tube, Type K, L, or M; Schedule 40 copper pipe or Schedule 40 copper alloy pipe, Type DWV copper drainage tube; service weight cast-iron soil pipe or hub-less cast-iron soil pipe, standard weight galvanized steel pipe; stainless steel 304 or 316L [stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) aboveground]; or Schedule 40 ABS or Schedule 40 PVC plastic pipe.	
	~~**1101.13**~~ **1101.14 Rainwater Sumps.** Add- Pumps rated a t 600 V or less shall comply with UL778 and shall be installed in accordance with the manufacturer's installation instructions.	
	~~**1105.0**~~ **1102.0 Roof Drains.**	
	1102.1 Applications. New section.	
	1102.2 Dome Strainers Required. New section.	
		1106.0 Engineered Storm Drainage System. New section and subsections.

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1109.2 Methods of Testing Storm Drainage Systems. Except for outside leaders and perforated or open-jointed drain tile, the piping of storm drain systems shall be tested upon completion of the rough piping installation by water or air~~, except that plastic pipe shall not be tested with air,~~ and proved tight. The Authority Having Jurisdiction shall be permitted to require the removal of cleanout plugs to ascertain whether the pressure has reached parts of the system. One of the following test methods shall be used in accordance with Section 1109.2.1 through Section 1109.2.3.		
	CHAPTER 12 FUEL GAS PIPING	
1202.1 Installation. The regulations of this chapter shall govern the installation of fuel gas piping in or in connection with a building, structure or within the property lines of premises up to 5 pounds-force per square inch (34 kPa), other than service pipe. Fuel oil piping systems shall be installed in accordance with NFPA31. <u>Whenever there is a conflict between this code and NFPA 54 and NFPA 58 as adopted by the Nevada LP-Gas Board for LP-Gas installations, the adopted</u>		

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codes of the Nevada LP-Gas Board shall govern.		
		1208.4.1 Maximum Gas Demand. The volumetric flow rate of gas to be provided (in cubic feet per hour) shall be the sum of the maximum inputs of the appliances served. The volumetric flow rate of gas to be provided shall be adjusted for altitude where the installation is above 2000 feet (610 m). [NFPA 54: 5.4.2.1-5.4.2.2] ~~calculated using the manufacturer's input ratings of the appliance served, adjusted for altitude~~. Where the input rating is not indicated, the gas supplier, appliance manufacturer, or a qualified agency shall be contacted, or the rating from Table 1208.4.1 shall be used for estimating the volumetric flow rate of gas to be supplied. The total connected hourly load shall be used as the basis for piping sizing, assuming all the appliances are operating at full capacity simultaneously. **Exception:** Sizing shall be permitted to be based upon established load diversity factors. [NFPA 54:5.4.2.3]
1208.6.1.3 Snow hazard. On any new gas installation or reconnecting the gas service of an existing installation, gas meters above 5000 feet in elevation in Storey County or 6225 feet in elevation in Carson City and Washoe County must be protected from falling, sliding and accumulating of snow, unless the gas meter is installed in a protected location such as under an engineered deck, roof, or shed. Engineered		

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decks, roofs, or sheds shall be enclosed on all sides when used to protect gas meters on the snow shedding sides of a structure as approved by the gas utility.		
	1210.1.1 Cover Requirements. Underground piping systems shall be installed with a cover not less than ~~18~~ 12 inches (~~457~~ 305 mm). Where external damage to the pipe or tubing from external forces is ~~not~~ likely to result, the cover shall be not less than ~~12~~ 18 inches (~~305~~ 457 mm). Where a cover of not less than 12 inches (305 mm) cannot be provided, the pipe shall be installed in conduit or bridged (shielded). [NFPA 54:7.1.2.1]	
	1212.1.1 Commercial Cooking Appliances. New section.	
	1212.1.2 Restraining Device. New section.	
	1213.2 Test Preparation. Test preparation shall comply with Section 1213.2 though Section 1213.2.6.	
1213.3 Test Pressure. This inspection shall include an air, CO2, or nitrogen pressure test, at which time the gas piping shall stand a pressure of not less than ~~10~~ 25 psi (~~69~~ 172.4 kPa) gauge pressure. Test pressures shall be held for a length of time satisfactory to the Authority Having Jurisdiction, but in no case less than ~~15~~ 30 minutes with no perceptible drop in pressure. For welded piping, and for piping carrying gas at pressures in excess of 14 inches water column	**1213.3 Test Pressure.** This inspection shall include an air, CO2, or nitrogen pressure test, at which time the gas piping shall stand a pressure of not less than 10 psi (69 kPa) gauge pressure. Test pressures shall be held for a length of time satisfactory to the Authority Having Jurisdiction, but in no case less than 15 minutes with no perceptible drop in pressure. For welded piping, and for piping carrying gas at pressures in excess of 14 inches water column pressure (3.5 kPa), the test pressure shall be not less than 60 psi (414 kPa) and shall be continued for a length of time satisfactory to the Authority Having Jurisdiction, but in no case for less than 30 minutes. For CSST carrying ga at pressure in excess of 14 inches water column (3.5 kPa) pressure, the test pressure shall be 30 psi (207	

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pressure (3.5 kPa), the test pressure shall be not less than 60 psi (414 kPa) and shall be continued for a length of time satisfactory to the Authority Having Jurisdiction, but in no case for less than 30 minutes. These tests shall be made using air, CO2, or nitrogen pressure and shall be made in the presence of the Authority Having Jurisdiction. Necessary apparatus for conducting tests shall be furnished by the permit holder. Test gauges used in conducting tests shall be in accordance with Section 318.0.	kPa) pressure for 30 minutes. These tests shall be made using air, CO2, or nitrogen pressure and shall be made in the presence of the Authority Having Jurisdiction. Necessary apparatus for conducting tests shall be furnished by the permit holder. Test gauges used in conducting tests shall be in accordance with Section 318.0.	
1213.5.1 Turning Gas On. During the process of turning gas on into a system of new gas piping or into a system or portion of a gas system that has been restored after an interruption of service, the entire system shall be inspected to determine that there are no open fittings or ends and that the valves at unused outlets are closed and plugged or capped. [NFPA 54:8.2.2]		
1213.5.1.1 During the process of turning gas on into a system of new gas *piping* or into a system or portion of a gas system that has been restored after an interruption of service; in the City of Fernley, City of Reno, City of Sparks, Storey County and Washoe County a manometer test shall		

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be made after all valves, unions, connectors and piping to the appliances are complete. A pressure test shall be made with the use of a manometer gauge measuring inches of water column. With all valves including gas cock and gas control valves in the open position, a pressure of at least eleven (11) to fifteen (15) inches of water column shall be measured for at least fifteen (15) minutes, with no perceptible drop in pressure.		
1213.5.1.2 For medium pressure gas systems: Where the appliance is rated for seven (7) to eleven (11) inches of water column, a manometer test of eleven (11) to fifteen (15) inches of water column will be conducted between the pressure regulating valve and the appliance and shall be measured for at least fifteen (15) minutes with no perceptible drop in pressure.		
1213.5.1.3 For appliances or equipment requiring pounds of gas pressure: A pressure test using a pressure gauge measuring in one tenth (1/10) increments shall be conducted on the gas train of that appliance or equipment. The pressure shall be equal to the appliance's normal		

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operating pressure for a period of thirty (30) minutes with no perceptible drop in pressure.		
1213.5.1.4 Manometer testing. Manometer testing shall be performed by a person holding a valid Washoe County manometer tester card for which the number is to be provided at the time of request for inspection. A visual manometer test to be witnessed by the authority having jurisdiction may be allowed by the Building Official. A manometer test does not need to be reported when the serving gas utility performs a manometer or clock test prior to providing service.		
		1215.6 Variable Gas Pressure. Where the supply gas pressure exceeds ~~139 inches~~ 5 psi (34.6 kPa) ~~of water column~~ for natural gas and ~~277 inches~~ 10 psi (69 kPa) ~~of water column~~ for undiluted propane or is less than 6 inches (1.5 kPa) of water column, or where diversity demand factors are used, the design, pipe, sizing, materials, location, and use of such systems first shall be approved by the Authority Having Jurisdiction. Piping systems designed for pressures exceeding the serving gas supplier's standard delivery pressure shall have prior verification

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		from the gas supplier of the availability of the design pressure.
	CHAPTER 13 HEALTH CARE FACILITIES AND MEDICAL GAS AND VACUUM SYSTEMS	**CHAPTER 13 HEALTH CARE FACILITIES AND MEDICAL GAS AND VACUUM SYSTEMS**
	1301.1 ~~Where Required~~ Applicability. New section.	
	~~1309.5~~ 1301.2 Where Not Applicable. Renumbered. Revise- (2) ~~Gas central supply and~~ Bulk supply systems~~, except as addressed in this chapter~~. Add- (8) Breathing air replenishment (BAR) stations. (9) Portable compressed gas systems. (10) Medical support gas systems. (11) Gas-powered device supply systems. (12) Scavenging systems.	
	~~1309.7~~ 1301.6 Existing Systems. The altered, renovated, or modernized portion of an existing system or individual component shall be required to meet the installation and equipment requirements stated in this chapter. Where the alteration, renovation, or modernization adversely impacts existing performance requirements of a system or component, additional upgrading shall be required. An existing system that is not in strict compliance with the provisions of this code shall be permitted to be continued in use as long as the Authority Having Jurisdiction has determined that the use does not constitute a distinct hazard to life. [NFPA 99:5.1.1.4]	
	1302.0 Design Requirements. New section.	
	1302.1 Building System Categories New section.	**1302.1 Building System Risk Categories**.
		1302.1.1 Risk Assessment. New section.
		1302.1.2 Document Risk Assessment. New section.
	1302.2 Patient Care Rooms. New section.	
	1302.3 Anesthetizing Locations. New section.	

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	1302.4 Wet Procedure Locations. New section.	
	1303.0 ~~Protrusions from Walls~~ Health Care Facilities.	
	1303.4 Sterilizers and Bedpan Steamers. New section.	
	1303.7 Clinical Sinks. New section.	
	1303.7.1 Drainage Connection. New section.	
	1303.8 Water Supply for Hospitals. New section.	
	~~1310.4~~ 1304.3 Supply Source. Medical gas and medical vacuum systems shall be supplied from a central supply source consisting of not less than two units- primary and secondary, consisting of one of the following: (1) Two cylinders banks with not less than two cylinders in each bank. (2) Not less than two air compressors. (3) Not less than two vacuum pumps. (4) A proportioning system for medical air USP. **Exception:** A single Category 3 medical gas source system shall not supply more than two adjoining single treatment facilities. [NFPA 99:5.3.1.1.4] ~~e.g., a manifold consisting of two banks with not less than two cylinders in each bank; not less than two air compressors; or nor less than two vacuum pumps. However, two supply pipelines are not required.~~	
	1306.0 Qualifications of Installers. New section.	
	1306.1 General. New section.	
	~~1315.2~~ 1308.2 Cleaning. Add- Where tube ends, fittings, or other components become contaminated before installation they shall be recleaned in accordance with Section 1311.0.	
	1308.5 Tubes for Medical Gas Systems. Sections combined and revised**.**	
	1308.5 Tubes for Medical Vacuum Systems. New section.	
	1309.1 General. New section.	

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	1309.2 Changes in Direction. New section.	
	1309.2.1 Medical Vacuum Systems. New section.	
	~~**1318.2**~~ **1309.3 Brazed Joints.** Brazed joints shall be made using a brazing alloy that exhibits a melting temperature in excess of 1000^0F (538^0C) to retain the integrity of the piping system in the event of a fire exposure. [NFPA ~~99:5.1.10.5.1.1~~ 99:5.1.10.4.1.3, 5.3.6.4.2] Fittings for tubes, turns, offsets, and other changes in direction shall be made with wrought-copper capillary fittings in accordance with ASME B16.22 or brazed fittings in accordance with ASME B16.50. [NFPA 99:5.1.10.4.1.1, 5.3.6.2.3] Cast-copper alloy fittings shall not be permitted. [NFPA 99:5.1.10.4.1.2, 5.3.6.2.4] Brazed tube joints shall be the socket type [NFPA 99:5.1.10.5.1.2] ~~Filler metals shall bond with and be metallurgically compatible with the base metals being joined. [NFPA 99:5.1.10.1.3]~~ ~~Filler metals shall comply with AWS A5.8. [NFPA 99:5.1.10.5.1.3]~~ ~~Copper-to-copper joints shall be brazed using a copper-phosphate or copper-phosphorus-silver brazing filler metal (BCuP series) without flux. [NFPA 99:5.1.10.5.4.1]~~ ~~Flux shall only be used where brazing dissimilar metals, such as copper and bronze or brass, using a silver (BAg series) brazing filler material. [NFPA 99:5.1.10.5.4.1]~~ ~~Joints to be brazed in place shall be accessible for necessary preparation, assembly, heating, filler application, cooling, cleaning, and inspection. [NFPA 99:5.1.10.5.1.7].~~	
	1309.3.1 Tube Joints. New section.	
	1309.3.2 Filler Metals. New section.	
	1309.3.3 Copper-to-copper Joints. New section.	

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	1309.3.4 Accessible. New section.	
	1309.3.1 Tube Joints. New section.	
	~~**1318.3**~~ **1309.3.5 Tube Ends.** Tube cutters shall be cut square using a sharp tubing cutter to avoid deforming the tube. [NFPA 99:5.1.10.5.2.1, 5.3.6.5.1]	
	1309.3.5.1 Cutting Wheel. The cutting wheels on tubing cutters shall be free from grease, oil, or other lubricant not approved for oxygen service. [NFPA 99:5.1.10.4.42.2, 5.3.6.3.2]	
	1309.3.5.2 Cut Ends. The cut ends of the tube shall be rolled smooth or deburred with a sharp clean deburring tool, taking care to prevent chips from entering the tube. [NFPA 99:5.1.10.4.2.3, 5.3.6.5.3]	
	~~**1318.4**~~ **1309.3.6 Cleaning Procedures.** Revised.	
	1309.3.6.1 Exterior Surfaces. New section.	
	1309.3.6.2 Interior Surfaces. New section.	
	1309.3.6.3 Abrasive Pads. New section.	
	1309.3.6.4 Prohibited. New section.	
	1309.3.6.5 Wiped. New section.	
	1309.3.6.6 Examination. New section.	
	1309.3.6.7 On-Site Recleaning. New section.	
	1309.3.6.8 Contamination. New section.	
	1309.3.6.9 Timeframe for Brazing. New section.	
	~~**1318.5**~~ **1309.3.7 Flux.** Renamed, renumbered, and revised.	
	1309.3.7.1 Surface Cleaning. New section.	
	1309.3.7.2 Flux. New section.	
	1309.3.7.3 Short Sections of Copper. New section.	
	1309.3.7.4 Flux-Coated Brazing Rods. New section.	
	~~**1318.7**~~ **1309.3.8 Nitrogen Purge**	
	1309.3.8.1 Source. New section.	
	1309.3.8.2 Flow Rate Control. New section.	
	1309.3.8.3 Oxygen Analyzer. New section.	

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	1309.3.8.4 During Installation. New section.	
	1309.3.8.5 Discharge Opening. New section.	
	1309.3.8.6 Temperature of Joint. New section.	
	1309.3.8.7 Opening to be Sealed. New section.	
	1309.3.8.8 Final Brazed Connection. New section.	
	1309.3.8.9 Final Tie-In Test. New section.	
	1309.3.8.10 Autogenous Orbital Welding Process. New section.	
	1309.3.9 Assembling and Heating Brazed Joints. Renumbered and revised.	
	1309.3.9.1 Heating of Joints. New section.	
	~~1318.8~~ 1309.3.10 ~~Prohibited Joints~~ Inspection of Brazed Joints. Renumbered, renamed, and revised.	
	1309.3.10.1 Where Flux is Used. New section.	
	1309.3.10.2 Visually Inspected. New section.	
	1309.3.10.3 Prohibited Brazed Joints. New section.	
	1309.3.10.4 Defective Brazed Joints. New section.	
	~~1315.6~~ 1309.4 Special Fittings. Renumbered and revised.	
	1309.4.1 Memory Metal Fittings. New section.	
	1309.4.2 Axially Swaged Fittings. New section.	
	1309.4.3 Threaded Fittings. New section.	
	1309.4.4 Dielectric Fittings. New section.	
	1309.4.4.5 Other Types of Fittings. New section.	
	1309.5 Welded Joints. New section.	
	1309.5.1 Qualifications. New section.	
	1309.5.2 Welder Qualification Procedure. New section.	
	1309.5.2.1 Purging of Joints. New section.	
	1309.5.2.2 Test Coupons. New section.	
	1309.5.3 Welding for Stainless Tube. New section.	
	~~1315.7~~ 1309.6 Prohibited Joints. Revise- (3) The use of pipe-crimping tools to permanently stop the	

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	flow of medical gas and medical vacuum piping. [NFPA ~~99:5.1.10.8~~ 5.1.10.10(3)] Add- (4) Removable and nonremovable push-fit fittings that employ a quick assembly push fit connector. [NFPA 99:5.1.10.10(4)] (5)Push-lock for Category 3 medical gas systems. [NFPA 99:5.3.6.2.6(2)]	
	~~1317.0~~ 1310.0 Installation of Piping. Renumbered**.**	
	1310.1 General. New Section.	
	~~1313.0~~ 1310.2 Required Pipe Sizing. New section.	
	~~1313.1~~ 1310.2 .1 Maximum Demand. Revised.	
	~~1313.2~~ 1310.2.2 Sizing Procedures. Revised.	
	Table ~~1313.1~~ 1310.2.1(1) SYSTEM SIZING-FLOW REQUIREMENTS FOR STATION OUTLETS AND INLETS. Renumbered.	
	Table 1310.2.2(1) MAXIMUM PERMITTED PRESSURE LOSS IN MEDICAL GAS AND MEDICAL VACUUM SYSTEMS. New Table.	
	1310.3.2 Underground Piping. New section.	
	~~1317.2~~ 1310.4 Location. Revised.	
	1310.4.1 Prohibited Locations. New section.	
	1310.4.2 Approved Locations. New section.	
	~~1317.7~~ 1310.5 Pipe Support. Revised.	
	1310.5.1 Hangers and Supports. New section.	
	1310.5.2 Copper Tube. New section.	
	1310.5.3 Damo Locations. New section.	
	1310.5.4 Maximum Spacing. New section.	
	~~1317.8~~ 1310.5.5 Seismic Provisions. Renumbered.	
	TABLE 1310.5.4.(2) MAXIMUM PERMITTED PRESSURE LOSS IN MEDICAL GAS AND MEDICAL VACUUM SYSTEMS. New Table.	
	1310.6 Backfilling and Trenching. New section**.**	
	1310.6.1 Conduit, Cover, or Enclosure. New section**.**	

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	1310.6.2 Excessive Stress. New section.	
	1310.6.3 Minimum Backfill. New section.	
	1310.6.4 Trenches. New section.	
	1310.6.5 Composition of Backfill. New section.	
	1310.6.6 Marker. New section.	
	1310.6.7 Warning. New section.	
	1310.6.8 Wall Sleeve. New section.	
	~~1317.5~~ **1310.7 Connectors.** Hose and flexible connectors, both metallic and nonmetallic, shall not be longer than necessary and shall not penetrate or be concealed in walls, floors, ceilings, or partitions. ~~Flexible connectors, metallic or nonmetallic, shall have a minimum burst or pressure, with a gauge pressure of 1000 psi (6895 kPa).~~ [NFPA ~~99:5.1.10.10.7~~ 99:5.1.10.11.6.1, 5.3.6.16.1] Hose and flexible connectors for Category 3 medical gas shall be gas specific and not be permitted to conduct any other gas, gas mixture, or liquid. [NFPA 99:5.3.6.16.1] **Exception:** Flexible connectors, used in Category 3 systems, of other than all metal construction that connect manifolds to the gas distribution system shall be not more than 5 feet (1524 mm) in length. [NFPA 99:5.3.6.2.1.9]	
	1310.7.1 Flexible Connectors. New section.	
	1310.7.2 Metallic Flexible Connectors. New section.	
	~~1317.9~~ **1310.8 ~~Testing~~ Prohibited System Interconnections**. Renumbered and renamed.	
	1310.8.1 Flexible Connectors. New section.	
	~~1317.6~~ **1310.9 ~~Positive-Pressure Medical Gas Piping Distribution Systems~~ Change in System Use.** Renumbered and renamed.	
	1310.9.1 Medical Vacuum System. New section.	
	TABLE 1310.2.1(2) PRESSURE LOSS FOR MEDICAL AIR. New Table.	

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	TABLE 1310.2.1(3) PRESSURE LOSS FOR NITROGEN. New Table.	
	TABLE 1310.2.1(4) PRESSURE LOSS FOR NITROUS OXIDE AND CARBON DIOXIDE. New Table.	
	TABLE 1310.2.1(5) PRESSURE LOSS FOR OXYGEN. New Table.	
	TABLE 1310.2.1(6) PRESSURE LOSS FOR VACUUM. New Table.	
	TABLE 1310.2.1(7) PRESSURE LOSS FOR VACUUM (CATEGORY 3). New Table.	
	1310.10 Breaching. New section.	
	1310.10.1 Labeling and Identification. New section.	
	1310.11.2 Location of Pipe Labeling. New section.	
	~~**1318.4**~~ **1311.1 Cleaning ~~Procedures~~.** Renumbered, renamed, and revised.	
	~~**1315.8**~~ **1312.0 Shutoff Valves.** Renumbered.	
	1312.1 General. Add- **Exception:** Shutoff valves for medical vacuum service shall be permitted to be ball or butterfly type. [NFPA 99:5.1.4.3.2]	**1312.1 General.** New or replacement valves shall be permitted to be of any type as long as they meet the following conditions: Revise- (3) They are constructed of materials ~~approved~~ suitable for the service. Add- (6) They permit in-line serviceability. (7) They are cleaned for oxygen service by the manufacturer if used for any positive pressure service. [NFPA 99:5.1.4.1.6]
	1312.1.3 Emergency Shutoff Valves. New Section.	
	1312.1.3.1 Remote Activated. New Section.	
	1312.1.4 Labeled. New Section.	
	~~**1319.6**~~ **1312.4 Riser Valves.** Renumbered and revised.	
	1312.4.1 Location. New section.	

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	~~1319.8~~ **1312.5 Service Valves.** Renumbered and revised	
	1312.5.1 Branch Piping. Add- Service valves shall be placed in the branch piping prior to a zone valve box assembly on that branch. [NFPA 99:5.1.4.7.2]	
	1312.5.2 Location. New section.	
	~~1319.7~~ **1312.6 Zone Valves.** Add- (3) The zone valve shall not be located in the same room with the station outlets or inlets that it controls. [NFPA 99:5.1.4.8]	
	~~1319.7.2~~ **1312.6.2 Arrangement.** Zone valves shall be so arranged that shutting off the supply of medical gas or vacuum to one zone will not affect the supply of medical gas or vacuum to another zone, room. Location, or the rest of the system. [NFPA ~~99:5.1.4.8.2~~ 99:5.1.4.8.2, 5.1.4.8.7.2]	
	1312.6.3 Indicators. New section.	
	1312.6.4 Location. New section.	
	1312.9.1 Nonstandard Operating Pressures. New section.	
	1312.9.2 Labeling. New section.	
		1312.9.3 Main Line Valves. Main line valves shall be labeled in substance as follows: **MAIN LINE VALVE FOR THE (GAS/VACUUM NAME) SERVING (NAME OF BUILDING)** [NFPA 99:5.1.11.2.4]
	1313.0 Central Supply Systems. Section and subsections completely revised.	
	1314.2.1 Required Components. New section.	
	1314.1.2.1 Category 1 and 2 Systems. New section.	
	1314.1.2.2 Category 3 Systems. New section.	
	~~1324.3~~ **1314.1.3 Air Sources.** Renumbered and revised.	

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	1314.1.3.1 Category 1 and 2 Systems. New section.	
	1314.1.3.2 Category 3 Systems. New section.	
	~~**1324.4**~~ **1314.1.4 Air Intakes.** Renumbered and revised.	
	1314.1.4.1 Location. New section.	
	1314.1.4.2 Separate Compressors. New section.	
	1314.1.4.3 Screening. New section.	
	~~**1325.3**~~ **1315.5 Vacuum Source Exhaust.** Renumbered, renamed, and revised.	
	1315.5.1 Location. New section.	
	1315.5.2 Screening. New section.	
		1315.2.1 Category 2 Medical-Surgical Vacuum. Category 2 systems shall comply with Section 1315.0, except as follows: (1) Medical-surgical vacuum systems shall be permitted to be simplex. (2) The facility shall develop their emergency plan to deal with the loss of medical-surgical vacuum. [NFPA 99:5.2.3.6]
		1315.2.2 Category 3 Medical-Surgical Vacuum. Category 3 medical-surgical vacuum systems if used, shall comply with Section 1315.2. [NFPA 99:5.3.3.9]
	1315.5.3 Dips and Loops. New section.	
	~~**1320.2.3**~~ **1316.2.2 Design.** Pressure-relief valves shall be ~~of~~ brass, bronze or stainless steel or bronze and ~~specifically~~ designed for the gas service involved. [NFPA 99:5.3.6.21.6]	
	~~**1321.1**~~ **1317.1 General.** Station outlets and inlets shall be installed in strict accordance with the manufacturer's installation instructions. Each station outlet and inlet for medical gases and medical vacuum shall be gas-specific. [NFPA 99: 5.1.5.1, 5.3.6.17.1]	

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	1317.2 Required Valves. New section.	
	1317.2.1 Secondary Valves. New section.	
	~~**1323.1**~~ **1318.1** ~~**General**~~ **Category 1 and 2 Systems.** Revise- (5) Visual and audible indication that the ~~wiring~~ communication to an alarm initiating device is disconnected. (9) Power for master, and area alarms, sensors and switches from the life safety branch of the emergency electrical system as described in NFPA 99 ~~Chapter 4, Electrical System~~. (11) Wiring from switches or sensors that is supervised or protected as required by Section 517.30(C)(3) of NFPA 70 for emergency system circuits. Where used for communications, wiring from switches or sensors that is supervised or protected as required by NFPA 70 for life safety and critical branch circuits in which protection is one of the following types: (a) Conduit. (b) Free air. (c) Wire. (d) Cable tray. (e) Raceways. Add- (15) Alarm switches, sensors, or both installed so as to be removable. [NFPA 99:5.1.9.1]	
	1318.2 Category 3 Systems. New section.	
	~~**1326.2.1**~~ **1319.2 Breached Systems.** Renumbered and revised	
	1319.4 Initial Piping Blow Down. New section.	
	~~**1326.7**~~ **1319.5 Initial Pressure Test-** ~~**Piped Gas Systems-**~~ **Medical Gas and Medical Vacuum Systems.** Renumbered and revised	
	1319.5.1 Shutoff Valve. New section.	
	1319.5.2 Required Test Pressure. New section.	
	1319.5.3 Leaks. New section.	
	1319.6.1 Atmospheric Pressure. New section	
	1319.6.3 System to be Charged. New section.	

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	1319.6.4 Check Outlets and Inlets. New section.	
	1319.6.5 Repeat Tests. New section.	
	1319.6.6 Identification of Systems. New section.	
	~~**1326.9**~~ **1319.7 Standing Pressure Test- Medical Gas Piping Systems** ~~**Piped Gas Systems**~~**.** Renumbered, renamed, and revised.	
	1319.7.1 Time Frame for Testing. New section.	
	1319.7.2 Source Valve. New section.	
		1319.7.2.1 Category 3 Gas Powered Device Distribution Piping. The source valve shall be closed unless the source gas is being used for the test. [NFPA 99:5.3.12.2.9(2)]
	1319.7.3 Length of Testing. New section.	
		1319.7.3.1 Category 3 Gas Powered Device Distribution Piping. The piping systems shall be subjected to a 24hour standing pressure testing using oil-free, dry nitrogen NF or the system gas. [NFPA 99:5.3.12.2.9(3)]
	1319.7.4 Test Pressure. New section.	
	1319.7.5 Conclusion of Testing. New section.	
		1319.7.5.1 Category 3 Gas Powered Device Distribution Piping. At the conclusion of the tests, there shall be no change in the test pressure greater than a gauge pressure of 5 psi (35 kPa). [NFPA 99:5.1.12.2.6.4, 5.3.12.2.9(5)]
	1319.7.6 Leaks. New section.	
	1319.7.7 Proof of Testing. New section.	
	~~**1326.11**~~ **1319.8 Standing Pressure Test-** ~~**Piped**~~ **Medical Vacuum Piping Systems**~~**.**~~ Renumbered, renamed, and revised.	
	1319.8.1 Time Frame for Testing. New section.	
	1319.8.2 Length of Testing. New section.	
	1319.8.3 Test Pressure. New section.	
	1319.8.4 Disconnection of Testing Source. New section.	

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	1319.8.5 Conclusion of Testing. New section.	
	1319.8.6 Leaks. New section.	
	1319.8.7 Proof of Testing. New section.	
	1319.9 Purge tests. New section.	
	1319.9.1 Procedure. New section.	
	1319.9.2 Location. New section.	
	1319.10 Operational Test. New section.	
	1319.10.1 Test Gas. New section.	
	1319.10.2 Medical Gas Outlets. New section.	
	1319.10.3 Medical-Surgical Vacuum Inlets. New section.	
	1319.10.4 Oxygen and Medical Air Outlets. New section.	
	1319.11 Medical Gas Concentration Test. New section.	
	TABLE 1319.11 GAS CONCENTRATIONS. New Table.	
	CHAPTER ~~15~~ 14 FIRESTOP PROTECTION	
Delete Chapter 15 in its entirety.	**CHAPTER ~~16~~ 15 ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS**	
	1501.10 Commercial, Industrial, and Institutional Restrooms Signs. New section.	
	1501.10.1 Equipment Room Signs. New section.	
	1501.11 Inspection and Testing. New section.	
	1501.11.1 Supply System Inspection and Testing. New section.	
	1501.11.2.1 Visual System Inspection. New section.	
	1501.11.2.2 Cross-Connection Test. New section.	
	1501.11.2.3 Discovery of Cross-Connection. New section.	
	1501.11.2.4 Annual Inspection. New section.	
	1501.12 Separation Requirements. New section.	
	1501.13 Abandonment. New section.	

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	1501.13.1 General. New section.	
	1501.13.2 Underground Tank. New section.	
	1501.14 Sizing. New section.	
	CHAPTER ~~17~~ 16 NONPOTABLE RAINWATER CATCHMENT SYSTEMS	
	1601.1 Allowable Use of Alternative Water. New section.	
	1601.2 System Design. New section.	
	1601.3 Permit. New section.	
	1601.4 Component Identification. New section.	
	1601.5 Maintenance and Inspection. New section.	
	1601.5.1 Frequency. New section.	
	1601.5.2 Maintenance Log. New section.	
	1601.5.3 Maintenance Responsibility. New section.	
	TABLE 1601.5 MINIMUM ALTRNATE WATER SOURCE TESTING, INSPECTION AND MAINTENANCE FREQUENCY. New Table.	
	1601.6 Operation and Maintenance Manual. New section.	
	1601.7 Minimum Water Quality Requirements. New section.	
	1601.8 Material Compatibility. New section.	
	1601.9 System Controls. New section.	
	1601.10 Separation Requirements. New section.	
	1601.11 Abandonment. New section.	
	1601.11.1 General. New section.	
	1601.11.2 Underground Tests. New section.	
	1601.12 Sizing. New section.	
	~~1702.9.3~~ 1602.3.1 ~~Collection~~ Other Surfaces. Revised.	
	~~1702.9.4~~ 1602.9.4 Minimum Water Quality. The minimum water quality for harvested rainwater shall meet the applicable water quality requirements for the intended applications as determined by the	

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	Authority Having Jurisdiction. In absence of water quality requirements determined by the Authority Having Jurisdiction, the minimum treatment and water quality shall be in accordance with Table 1602.9.4. ~~No treatment is required for rainwater used for subsurface or non-sprinklered surface irrigation where the maximum storage volume is less than 360 gallons (1363 L).~~	
	TABLE 1062.9.4 MINIMUM WATER QUALITY. New Table.	
	~~**1702.9.5.6(A)**~~ **1602.9.5.6 Animals and Insects.** Rainwater tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank. Rainwater tank openings exceeding 12 inches (305 mm) in diameter shall be secured to prevent tampering and unattended entry by either a lockable device or other approved method.	
	1602.9.5.6 Storage Tank Venting. New section.	
	~~**1702.11.1**~~ **1602.11.1 Supply System Inspection and Testing.** Add- Storage tanks shall be filled with water to the overflow opening for a period of 24 hours, and during inspection, or by other means as approved by the Authority Having Jurisdiction. Seams and joints shall be exposed during inspection and checked for water-tightness.	
	Appendices	**Appendices**
	APPENDIX C ALTERNATE PLUMBING SYSTEMS	
	C201.1 Branch Interval. New definition.	
	APPENDIX E MANUFACTURED/MOBILE HOME PARKS AND RECREATIONAL VEHICLE PARKS	
	E101.2 Definitions. Add- **Recreational Vehicle (RV)** **Recreational Vehicle Park** **Recreational Vehicle Site**	

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	APPENDIX G SIZING OF VENTING SYSTEMS ~~SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGAORY 1 APPLIANCES, AND APPLIANCES LISTED FOR USE WITH TYPE B VENTS~~	
	G101.1 Applicability. New section.	
	APPENDIX H PRIVATE SEWAGE DISPOSAL SYSTEMS	
	H101.1 Applicability. New section.	
	H3.1 General. Revise (5) Leaching chambers that comply with IAPMO P3 63 and bundled expanded polystyrene synthetic aggregate units that comply with IAPMO IGC 276 shall be sized using ~~on the bottom absorption area (nominal unit width) in square feet. The~~ the required area shall be calculated using ~~Table H2.1(2)~~ H 201.1(3) with a 0.70 multiplier.	
	APPEDIX I INSTALLATION STANDARD FOR EPX TUBING SYSTEMS FOR HOT- AND COLD-WATER DISTRIBUTION. New appendix.	
	APPENDIX J COMBINATION OF INDOOR AND OUTDOOR COMBUSTION AND VENTILATION OPENING DESIGN	
	J 101.1 Applicability. New section.	
	APPENDIX K POTABLE RAINWATER CATCHMENT SYSTEMS	
	TABLE K 104.2(1) MINIMUM WATER QUALITY. New Table.	
	TABLE K 104.2(2) MINIMUM SYSTEM MAINTENANCE REQUIREMENTS. New Table.	
	K 104.4.7 Storage Tank Venting. New section.	
	K 106.1 General. New section.	

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	APPENDIX L SUSTAINABLE PRACTICES	**APPENDIX L SUSTAINABLE PRACTICES**
	L 201.0 Definitions. Add- **Catch Can Test.** New definition. **Combination Ovens.** New definition. **Evapotranspiration (ET).** New definition. **Food Steamers (Steam Cookers).** New definition. **Hydrozone.** New definition. **Irrigation Emission Device.** New definition. **Irrigation Zone.** New definition. **Lavatory.** New definition. **Low Application Rate Irrigator.** New definition. **Low Flow Emitter.** New definition. **Low Precipitation Rate Sprinkler Heads.** New definition. **Precipitation Rate.** New definition. **Recirculation System.** New definition. **Soil Absorption Rate.** New definition. **Sprinkler Head.** New definition. **Storage Tank.** New definition. **Stormwater.** New definition. **Stormwater Catchment System.** New definition.	
	TABLE L 402.1 MAXIMUM FIXTURE AND FIXTURE FITTINGS FLOW RATE. New Table.	
	L 402.4 Residential Kitchen Faucets. New section.	
	L 402.6.2 Bath and Shower Diverters. New section.	
	L 402.6.3 Shower Valves. New section.	
	L 402.7 Commercial Pre-Rinse Spray Valves. New section.	
	L 402.8 Emergency Safety Showers and Eye Wash Stations. New section.	
	L 402.9 Drinking Fountains. New section.	
	L 403.0 Appliances. New section and subsections.	
	L 404.0 Occupancy Specific Water Efficiency Requirements. New section and subsections.	

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	L 405.0 Leak Detection and Control. New section and subsections.	
		L 407.2 Approval. New section.
		L 408.1.1 Condensate Drainage Recovery. New section.
	L ~~405.1~~ 409.1 General. Sump pumps powered by potable or reclaimed (recycled) water pressure shall be used as an emergency backup pump. The water-powered pump shall be equipped with a battery powered alarm having a minimum rating of 85 dba at 10 feet (3048 mm). Water-powered pumps shall have a water efficiency factor of pumping at least 1.4 gallons (5.3 L) of water to a heiht of 10 feet (3048 mm) for every gallon of water used to operate the pump, measured at a water pressure of 60 psi (414 kPa). Pumps shall be clearly labeled as to the gallons of water pumped per gallon of potable water consumed ~~are not permitted~~. Water-powered stormwater sump pumps shall be equipped with a reduced pressure principle backflow prevention assembly.	
	L 410.0 Water Softeners and Treatment Devices. New section and subsections.	
	L 411.0 Landscape Irrigation Systems. New section and subsections.	
	L 412.0 Trap Seal Protection. New section and subsections.	
	L 413.0 Vehicle Wash Facilities. New section and subsections.	
		L 413.2 Self-Service. New section.
		L 413.3 Reverse Osmosis. New section.
		L 413.4 Towel Ringers. New section.
		L ~~603.3.3~~ 503.3.3 Insulation. Add- (3) The first 8 feet (2438 mm) of branch piping connecting to recirculated, heat-traced, or impedance heated piping.

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		(4) The inlet piping between the storage tank and a heat trap in a nonrecirculating storage system. (5) Piping that is externally heated (such as heat trace or impedance heating). [ASHRAE 90.1:7.4.3]
		TABLE L 503.3.2 PERFORMANCE REQUIREMENTS FOR WATER-HEATING EQUIPMENT MINIMUM EFFICIENCY REQUIREMENTS. Table revised.
		L 503.4.2.1 Buildings with High-Capacity Service Water Heating Systems. Revise- (3) Individual gas water heaters with input capacity, not more than ~~1 000 000~~ 100 000 Btu/h (29.3 kW). [ASHRAE 90.1:7.5.3]
	L 504.2 Minimum Water Quality. Upon initial startup, the quality of the water for the intended application shall be verified at the point(s) of use as determined by the Authority Having Jurisdiction. In absence of water quality requirements determined by the Authority Having Jurisdiction, the minimum water quality shall be in accordance with Table L 504.2(1). Normal system maintenance will require system testing every 3 months. Systems shall comply with Table L 504.2(2). ~~The minimum water quality for harvested rainwater shall comply with the applicable water quality requirements for the intended applications as determined by the public health Authority Having Jurisdiction, Health Department, or other department having jurisdiction.~~	
	TABLE L 504.2(1) MINIMUM WATER QUALITY. New Table.	
	TABLE L 504.2(2) MINIMUM SYSTEM MAINTENANCE REQUIREMENTS. New Table.	

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	L 504.4.7 Storage Tank Venting. New section and subsections.	
	L 506.1 General. New section.	
	L 601.2 Insulation. New section.	
	L 601.3 Recirculation Systems. New section and subsections.	
	L 601.4 Recirculation Pump Controls. New section.	
	L 601.5 Temperature Maintenance Controls. New section.	
	L 601.6 System Balancing. New section.	
	L 601.7 Flow Balancing Valves. New section.	
	L 601.8 Air Elimination. New section.	
	L 601.9 Gravity or Thermosyphon Systems. New section.	
	L 602.7.1 Maximum Volume of Hot Water Without Recirculation or Heat Trace. New section.	
	L 602.7.2 Maximum Volume of Hot Water with Recirculation of Heat Trace. New section.	
	L 602.7.3 Hot Water System Submeters. New section.	
	L 603.3 Mandatory Provisions. New section.	
	TABLE L ~~603.4.2~~ 603.3.2 PERFORMANCE REQUIREMENTS FOR WATER HEATING EQUIPMENT. Revised Table.	
	TABLE L 603.3.3 MINIMUM PIPE INSULATION THICKNESS FOR HEATING AND HOT WATER SYSTEMS (STEAM, STEAM CONDENSATE, HOT WATER HEATING, AND DOMESTIC WATER SYSTEMS. New Table.	
	L 603.4.2.1 Buildings with High-Capacity Service Water Heating Systems. New section.	
	L 606.0 Drain Water Heat Exchangers. New section.	

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		APPENDIX M PEAK WATER DEMAND CALCULATOR. New appendix.