2026 Oregon Plumbing Specialty Code

Summary of amendments and substantive changes

Building Codes Division
Department of Consumer and Business Services

The 2026 Oregon Plumbing Specialty Code (OPSC), adopted by Oregon Administrative Rule (OAR) 918-480-0005, became effective Oct. 1, 2026.

The 2026 OPSC is based on the 2024 Uniform Plumbing Code (UPC) with Oregon amendments. The following is a summary of the Oregon amendments and significant changes. This summary is intended to help with the transition from the previous edition and does not include all changes adopted in the 2026 OPSC.

The changes are denoted as follows:

Existing Oregon amendments

Blue/underline = Existing Oregon added language

~~Red/strikethrough~~ = Existing Oregon deleted language

New Oregon amendments

Blue/dotted underline = New 2026 Oregon added language

~~Red/double strikethrough~~ = New 2026 Oregon deleted language

New IRC changes

Purple = New 2024 UPC language

All section reference corrections and renumbered sections are not shown in this summary.

Notes for Chapter 1: The entire chapter is included in this summary showing only the changes to the 2023 OPSC.

The following items are amendments to the 2024 UPC that occur throughout the code, unless otherwise noted in this summary:

- Authority having jurisdiction = Building official
- NFPA 70 = Applicable provisions of the Oregon Electrical Specialty Code

For questions about the 2026 OPSC, visit the division website to contact a building code specialist.

CHAPTER 1—ADMINISTRATION

101.0 General.

101.1 Title. This document shall be known as the "Oregon Plumbing Specialty Code,'' may be cited as such, and will be referred to herein as "this code."

101.2 Scope. The provisions of this code shall apply to the erection, installation, alteration, repair, relocation, replacement, or addition to plumbing systems as provided in ORS 447.020 and OAR 918-008-0000.

Municipalities, as defined in ORS 455.010(5), may establish administrative procedures in accordance with ORS 455.020(4), and may amend specific sections of Chapter 1, as identified throughout this chapter. When the requirements of this Chapter conflict with any administrative requirements throughout this code this Chapter shall prevail.

ORS 447.020 is not part of this code but is reprinted here for the reader's convenience:

447.020 Plumbing to Conform to State Building Code; Rules; Enforcement.

(1) All installations of plumbing and drainage in buildings and structures in this state and all potable water supply, drainage, and waste installations, within or serving buildings or structures, except in temporary construction camps, and except as otherwise provided in ORS 447.010 to 447.156 and 447.992, shall be made in accordance with the requirements of ORS 447.010 to 447.156 and 447.992 and ORS chapter 455.

(2) The Director of the Department of Consumer and Business Services with the approval of the State Plumbing Board shall make rules pursuant to ORS chapter 183 for the purpose of setting standards for plumbing and defining compliance with the provisions of ORS 447.010 to 447.156 and 447.992 particularly pertaining to installation of piping, protection and adequacy of the water supply, workmanship and materials, traps and cleanouts, domestic hot water storage tanks and devices, drinking fountains, solar heating and cooling systems, approval of devices, equipment and fixtures, hangers and supports, drainage and venting, house drains and house sewers, storm water drains, special wastes, light and ventilation of water closets and bathrooms, and excavation and grading.

(3) The director shall appoint an adequate staff experienced and trained to serve as plumbing inspectors to enforce rules adopted under this section.

101.3 Purpose. This code provides minimum plumbing requirements and standards for the protection of the public health, safety, and welfare.

The purpose of this code is not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this code.

OAR 918-008-0000 is not part of this code but is reproduced here for the reader's convenience:

918-008-0000 Purpose and Scope.

(1) The Department of Consumer and Business Services, Building Codes Division, adopts model building codes, standards and other publications by reference, as necessary, through administrative rule to create the state building code. When a matter is included in a specialty code or referenced publication that is in conflict with Oregon Revised Statutes or Oregon Administrative Rules, the statute or rule applies and the code or standard provision does not. All remaining parts or application of the code or standard remain in effect.

(2) Unless required by law, matters generally not authorized for inclusion in a specialty code or referenced standard include, but are not limited to: licensing or certification requirements, or other qualifications and standards for businesses or workers; structures or equipment maintenance requirements; matters covered by federal or state law; and matters that conflict with other specialty codes or publications adopted by the department.

(3) OAR 918-008-0000 to OAR 918-008-0070 provides the process for adopting and amending the state building code that is consistent across all program areas.

(4) The state building code is derived from the most appropriate version of base model codes, which are updated periodically.

(5) The Oregon specialty code amendment process begins approximately midway into a code cycle.

(6) An appropriate advisory board approves or forwards the adoption of the Oregon specialty code and amendments to the Department for adoption.

(7) Notwithstanding sections (3) through (6) of this rule, the division may adopt supplemental code amendments as authorized by OAR 918-008-0028.

101.4 Statutory and Administrative Rule References. This code is adopted pursuant to Oregon Revised Statute (ORS) and the administrative rules adopted thereunder (OAR). Where in any specific case this code and the statutes or rules specify different requirements, the statute or rule shall govern. Statutes related to this code include, but are not limited to, ORS chapters 447, 455 and 693.

Statutes referenced may be obtained from the Building Codes Division, 1535 Edgewater St NW, Salem OR 97304, or P.O. Box 14470, Salem OR 97309 at a nominal cost or read online at www.oregon.gov/bcd.

101.5 Validity. Where a provision of this code, or the application thereof to a person or circumstance, is held invalid, the remainder of the code, or the application of such provision to other persons or circumstances, shall not be affected thereby.

102.0 Applicability.

102.1 Conflicts Between Codes. Where the requirements of this plumbing code conflict with the requirements of other codes and standards, this code shall prevail. In instances where this code, applicable standards, or the manufacturer's installation instructions conflict, the more stringent provisions shall prevail. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall prevail.

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 or repair continued where the use or repair is in accordance with the original design and location and no hazard to life, health, or property has been created by such plumbing system.

102.3 Additions, Alterations, Renovations, 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 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 plumbing installations shall comply with the provisions for new construction.

102.3.1 Building Sewers and Drains. Existing building sewers and building drains shall be permitted to be used in connection with new buildings or new plumbing and drainage work where they are found on examination and test to be in accordance with the requirements governing new work in accordance with this code. No building, or part thereof, shall be erected or placed over a part of a drainage system that is constructed of materials other than those approved elsewhere in this code for use under or within a building.

102.3.2 Openings. Openings into a drainage or vent system, excepting those openings to which plumbing fixtures are properly connected or which constitute vent terminals, shall be permanently plugged or capped in an approved manner, using the appropriate materials in accordance with this code.

102.4 Health and Safety. Where compliance with the provisions of this code fails to eliminate or alleviate a nuisance, or other dangerous or insanitary condition that involves health or safety hazards, the owner or the owner's agent shall install such additional plumbing and drainage facilities or shall make such repairs or alterations as ordered by the Building Official.

102.5 Changes in Building Occupancy. Plumbing systems that are a part of a building or structure undergoing a change in use or occupancy, as defined in the building code, shall be in accordance with the requirements of this code that are applicable to the new use or occupancy.

102.6 Moved Structures. Parts of the plumbing system of a building or part thereof that is moved from one foundation to another, or from one location to another, shall be in accordance with the provisions of this code for new installations and completely tested as prescribed elsewhere in this section for new work, except that walls or floors need not be removed during such test where other equivalent means of inspection acceptable to the Building Official are provided.

Plumbing systems and fixtures serving buildings or structures moved within the state shall comply with ORS 455.410.

ORS 455.410 is not part of this code but is reprinted here for the reader's convenience:

455.410 Relocated Buildings; Substantial Compliance Required; Permits.

(1) Existing buildings or structures which are removed from their foundation and relocated to another site within this state shall be in substantial compliance as defined in subsections (2) and (3) of this section.

(2) "Substantial compliance" means compliance with local construction codes in effect as of the original permit date of the building or structure, or where there was no permitting required at the time of original construction, with basic health and safety standards, as described in the closest dated Uniform Housing Code, as published by the International Conference of Building Officials as of the date of construction. Only the insulation, overhead and underneath the structure, shall be upgraded to the current insulation requirements of the state building code, or to the maximum extent possible subject to the design of the structure. Nothing in this statute shall be construed to mean that all heating, plumbing and electrical systems shall be replaced with governing new work in accordance with this code. No systems meeting current standards for new construction, except that any life-threatening deficiencies in those systems shall be repaired, notwithstanding that the cost of rehabilitation may exceed 50 percent of the value of the structure before rehabilitation.

(3) All foundation and basement construction on the structure and any remodeling at the new location shall be constructed subject to all applicable local current building and safety codes, or where none exist, with the applicable standards as described in the Uniform Housing Code described in subsection (2) of this section.

(4) All moved houses shall be provided with either battery-operated or hard-wired smoke detection devices located in accordance with the provisions of the state building code.

(5) Nothing in this section is intended to permit any person to move a structure unless the person first consults the appropriate building inspection authority and obtains all required permits.

102.7 Appendices. The provisions in the appendices shall not apply unless formally adopted in Section 102.7.1.

102.7.1 Appendices Adopted. The following appendices are adopted as part of the Oregon Plumbing Specialty Code.

(1) Appendix A (Recommended Rules for Sizing the Water Supply System)

(2) Appendix B (Explanatory Notes of Combination Waste and Vent Systems)

(3) Appendix C (Alternate Plumbing Systems)

(4) Appendix D (Sizing of Storm Water Drainage Systems)

(5) Appendix E (Manufacture/Mobile Home Parks and Recreational Vehicle Parks)

(6) Appendix K (Potable Rainwater Catchment Systems)

(7) Appendix M (Peak Water Demand Calculator)

102.7.2 Appendices Not Adopted.

102.7.2.1 Appendices Available for Municipal Adoption. The following appendix is not adopted by the State of Oregon but may be adopted by local municipalities by local ordinance. Such adoptions shall comply with the requirements specified in the adopted appendix unless otherwise approved under the provisions of ORS 455.040.

(1) Appendix L (Sustainable Practices)

(2) Appendix N (Impact of Water Temperature on the Potential for Scalding and Legionella Growth)

102.7.2.2 Appendices Not Available for Municipal Adoption. The following appendices are not adopted by the State of Oregon and may not be adopted by the municipality.

(1) Appendix F (Firefighter Breathing Air Replenishment Systems)

(2) Appendix G (Sizing of Venting Systems)

(3) Appendix H (Private Sewage Disposal Systems)

(4) Appendix I (Installation Standards)

(5) Appendix J (Combination of Indoor and Outdoor Combustion and Ventilation Opening Design)

103.0 Duties and Powers of the Building Official.

Note: Unless amended by a municipality under authority of ORS 455.040, Section 103.0 applies.

103.1 General. The Building Official shall be the Authority duly appointed to enforce this code. The Building Official shall have the power to render interpretations of this code and to adopt and enforce rules and regulations supplemental to this code as deemed necessary in order to clarify the application of the provisions of this code. Such interpretations, rules, and regulations shall comply with the intent and purpose of this code.

In accordance with ORS Chapter 455 and 693 the Building Official shall have the authority to appoint inspectors, plan examiners, and other employees.

103.2 Liability. See ORS 30.265 for regulations relating to liability.

ORS 30.265 is not part of this code but is reprinted here for the reader's convenience:

30.265 Scope of Liability of Public Body, Officers, Employees and Agents; Liability in Nuclear Incident.

(1) Subject to the limitations of ORS 30.260 to 30.300, every public body is subject to civil action for its torts and those of its officers, employees and agents acting within the scope of their employment or duties, whether arising out of a governmental or proprietary function or while operating a motor vehicle in a ridesharing arrangement authorized under ORS 276.598.

(2) The sole cause of action for a tort committed by officers, employees or agents of a public body acting within the scope of their employment or duties and eligible for representation and indemnification under ORS 30.285 or 30.287 is an action under ORS 30.260 to 30.300. The remedy provided by ORS 30.260 to 30.300 is exclusive of any other action against any such officer, employee or agent of a public body whose act or omission within the scope of the officer's, employee's or agent's employment or duties gives rise to the action. No other form of civil action is permitted.

(3) If an action under ORS 30.260 to 30.300 alleges damages in an amount equal to or less than the damages allowed under ORS 30.271, 30.272 or 30.273, the sole cause of action for a tort committed by officers, employees or agents of a public body acting within the scope of their employment or duties and eligible for representation and indemnification under ORS 30.285 or 30.287 is an action against the public body. If an action is filed against an officer, employee or agent of a public body, and the plaintiff alleges damages in an amount equal to or less than the damages allowed under ORS 30.271, 30.272 or 30.273, the court upon motion shall substitute the public body as the defendant. Substitution of the public body as the defendant does not exempt the public body from making any report required under ORS 742.400.

(4) If an action under ORS 30.260 to 30.300 alleges damages in an amount greater than the damages allowed under ORS 30.271, 30.272 or 30.273, the action may be brought and maintained against an officer, employee or agent of a public body, whether or not the public body is also named as a defendant. An action brought under this subsection is subject to the limitations on damages imposed under ORS 30.271, 30.272 or 30.273, and the total combined amount recovered in the action may not exceed those limitations for a single accident or occurrence without regard to the number or types of defendants named in the action.

(5) Every public body is immune from liability for any claim for injury to or death of any person or injury to property resulting from an act or omission of an officer, employee or agent of a public body when such officer, employee or agent is immune from liability.

(6) Every public body and its officers, employees and agents acting within the scope of their employment or duties, or while operating a motor vehicle in a ridesharing arrangement authorized under ORS 276.598, are immune from liability for:

(a) Any claim for injury to or death of any person covered by any workers' compensation law.

(b) Any claim in connection with the assessment and collection of taxes.

(c) Any claim based upon the performance of or the failure to exercise or perform a discretionary function or duty, whether or not the discretion is abused.

(d) Any claim that is limited or barred by the provisions of any other statute, including but not limited to any statute of ultimate repose.

(e) Any claim arising out of riot, civil commotion or mob action or out of any act or omission in connection with the prevention of any of the foregoing.

(f) Any claim arising out of an act done or omitted under apparent authority of a law, resolution, rule or regulation that is unconstitutional, invalid or inapplicable except to the extent that they would have been liable had the law, resolution, rule or regulation been constitutional, valid and applicable, unless such act was done or omitted in bad faith or with malice.

(7) This section applies to any action of any officer, employee or agent of the state relating to a nuclear incident, whether or not the officer, employee or agent is acting within the scope of employment, and provided the nuclear incident is covered by an insurance or indemnity agreement under 42 U.S.C. 2210.

(8) Subsection (6)(c) of this section does not apply to any discretionary act that is found to be the cause or partial cause of a nuclear incident covered by an insurance or indemnity agreement under the provisions of 42 U.S.C. 2210, including but not limited to road design and route selection.

103.3 Applications and Permits. The Building Official shall be permitted to require the submission of plans, specifications, drawings, and such other information as required by OAR 918-780-0040 prior to the commencement of, and at a time during the progress of, work regulated by this code.

The issuance of a permit upon construction documents shall not prevent the Building Official from thereafter requiring the correction of errors in said construction documents or from preventing construction operations being carried on thereunder where in violation of this code or of other pertinent state law or from revoking a certificate of approval where issued in error.

103.4 Right of Entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the Building Official has reasonable cause to believe that there exists in a building or upon premises a condition or violation of this code that makes the building or premises unsafe, insanitary, dangerous, or hazardous, the Building Official shall be permitted to enter the building or premises at reasonable times to inspect or to perform the duties imposed by the Building Official by this code, provided that where such building or premises is occupied, the Building Official shall present credentials to the occupant and request entry. Where such building or premises is unoccupied, the Building Official shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. Where entry is refused, the Building Official has recourse to every remedy provided by law to secure entry.

Where the Building Official shall have first obtained an inspection warrant or other remedy provided by law to secure entry, no owner, occupant, or person having charge, care or control of a building or premises shall fail or neglect, after a request is made as herein provided, to promptly permit entry herein by the Building Official for the purpose of inspection and examination pursuant to this code.

104.0 Permits.

Note: Unless amended by a municipality under authority of ORS 455.040, Section 104.0 applies.

104.1 Permits Required. It shall be unlawful for a person, firm, or corporation to make an installation, alteration, repair, replacement, or remodel a plumbing system regulated by this code except as permitted in Section 104.2, OAR Chapter 918, Division 100, and OAR 918-780-0035, or to cause the same to be done without first obtaining a separate plumbing permit for each separate building or structure.

OAR 918-780-0035 is not part of this code but is reprinted here for the reader's convenience:

918-780-0035 Exempt Ordinary Minor Plumbing Repairs.

(1) Effective April 1, 2006, state building code provisions for permit or inspection of ordinary minor plumbing repairs follow:

(a) A registered plumbing contractor and any person exempt from licensing under ORS 693.020 are exempted from permit or inspection for ordinary minor plumbing repairs as defined in section (2) for residential and commercial structures;

(b) The term "any person" is defined by ORS 693.020 and includes but is not limited to individuals, corporations, partnerships, public and municipal corporations, political subdivisions, any Oregon state and federal government agencies.

(2) The term "ordinary minor plumbing repairs" is defined as follows:

(a) Includes repair, replacement or maintenance of existing plumbing fixtures, appliances, appurtenances and related water supply and drain attachments for the purpose of restoring a plumbing installation to a safe and sanitary operating condition.

(b) Does not include new construction, replacement of water heaters, or underground plumbing.

(3) In addition to the exemption in section (1), a registered plumbing contractor does not need a permit or inspection for emergency repair or replacement of the following: freeze-damaged, leaking-exposed, or concealed piping not exceeding five feet of new piping per structure for a period of 180 days, provided the repair or replacement does not involve any changes or alterations to the existing plumbing system.

104.2 Exempt Work. 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 the code or any other laws or ordinances of this jurisdiction. A permit shall not be required for the following:

(1) The stopping of leaks or repairing freeze damage in drains, soil, waste, or vent pipe not exceeding five feet of new piping, provided the repair or replacement does not involve any changes or alteration to the existing plumbing system.

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

104.3 Application for Permit. To obtain a permit, the applicant shall first file an application therefore in writing or digitally, on a form furnished by the Building Official for that purpose. Such application shall:

(1) Identify and describe the work to be covered by the permit for which application is made.

(2) Describe the land upon which the proposed work is to be done by legal description, street address, or similar description that will readily identify and definitely locate the proposed building or work.

(3) Indicate the use or occupancy for which the proposed work is intended.

(4) Be accompanied by construction documents in accordance with Section 104.3.1.

(5) Be signed by the permittee or the permittee's authorized agent. The Building Official shall be permitted to require evidence to indicate such authority.

(6) Give such other data and information in accordance with the Building Official.

104.3.1 Construction Documents. Where required under OAR 918-780-0040, construction documents, engineering calculations, diagrams, and other data shall be submitted in two or more sets, or in a digital format where permitted by the Building Official, with each application for a permit. The construction documents, computations, and specifications shall be prepared by, and the plumbing designed by, a registered design professional. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted when approved by the Building Official. Construction documents shall identify with clarity that the intended work to be performed is in accordance with the code.

Manufacturer's installation instructions, as required by this code, shall be available on the job site at the time of inspection.

Exception: The Building Official shall be permitted to waive the submission of construction documents, calculations, or other data where the Building Official finds that the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with the code.

OAR 918-780-0040 is not part of this code but is reprinted here for the reader's convenience:

918-780-0040 Plumbing Plan Reviews.

(1) A jurisdiction providing plumbing code plan review services may only require plumbing plan review for a complex structure. For purposes of this rule, a "complex structure" is a plumbing system designed, constructed or reconstructed to accommodate any of the following:

(a) The installation or alteration of a medical gas and vacuum system for health care facilities;

(b) The installation or alteration of chemical drainage waste and vent systems containing chemical agents potentially detrimental to the integrity of a plumbing system;

(c) The installation or alteration of wastewater pretreatment systems for building sewers;

(d) The installation of vacuum drainage waste and vent systems;

(e) The installation or alteration of reclaimed wastewater systems;

(f) The installation of a commercial booster pump system needed to maintain a minimum residual water pressure in a structure supplied by a municipal source;

(g) The installation of a plumbing system requiring a building water service line with an interior diameter or nominal pipe size of two inches or greater except those two inch systems which have been designed and stamped by a licensed engineer;

(h) The installation of any multi-purpose sprinkler system under standards adopted by the department.

(2) If a jurisdiction providing plumbing code plan review services requires a plumbing code plan review as authorized by section (1) of this rule, the jurisdiction may require the submission of complete specifications, piping layout and fixture location drawings of the proposed system or alteration before issuing a permit. Plans and specifications must indicate the nature and extent of the work proposed and show in detail that the work will conform to provisions of the Plumbing Specialty Code.

(3) A jurisdiction requiring plumbing code plan review may not require plan review on more than one building or structure under construction or reconstruction at the same jobsite, as long as:

(a) The plumbing systems of the buildings or structures are materially alike; and

(b) A person obtains plumbing permits for the buildings or structures within a reasonable time.

(4) Any required plumbing code plan review service may be waived by a jurisdiction if the nature of the work applied for is such that reviewing of plans is not necessary to determine compliance with the Plumbing Specialty Code.

(5) When the plumbing plan review is completed by a qualified plumbing plan reviewer and a plumbing permit issued, the plans must be endorsed in writing and stamped "Approved." The approved plans cannot be changed without authorization from the jurisdiction providing plumbing code plan review services.
(6) Issuance of a permit or approval of plans will not prevent the jurisdiction providing plumbing code plan review services from:
(a) Requiring the correction of errors in plans and specifications; or
(b) Preventing construction operations when in violation of the Plumbing Specialty Code or of any other ordinance; or
(c) Revoking any certificate of approval when issued in error.
(7) Nothing in this rule prevents a jurisdiction from providing plan review services for utility systems situated outside the building exterior of a particular jobsite.
(8) Nothing in this rule prevents a jurisdiction from requiring information on grease processing equipment systems.
(9) Where applicable, the Department of Consumer and Business Services' fees for plan review on complex structures will be based on the time required to review the plans, but must not exceed 30 percent of the total plumbing permit fee for the building or structure under review. When plans are incomplete or substantially changed to require additional plan review services, the department may charge an additional fee based on the time required for the additional review.
(10) Nothing in these rules shall prohibit the owner or owner's agent from requesting and receiving a plan review for non-complex structures.

104.3.2 Plan Review Fees. Where a plan or other data is required by OAR 918-780-0040 to be submitted a plan review fee shall be paid at the time of submitting construction documents for review.

The plan review fees for plumbing work shall be a percentage of the total plumbing permit as set forth in Section 104.3.2.

The plan review fees specified in this subsection are separate fees from the permit fees specified in Section 104.5.

Where plans are incomplete or changed so as to require additional review, a fee shall be charged at the rate adopted by the municipality under the authority of ORS 455.210, or as set forth in OAR 918-780-0040 where the State of Oregon has jurisdiction.

ORS 455.210 is not part of this code but is reprinted here for the reader's convenience:

455.210.

(1) Fees shall be prescribed as required by ORS 455.020 for plan review and permits issued by the Department of Consumer and Business Services for the construction, reconstruction, alteration and repair of prefabricated structures and of buildings and other structures and the installation of mechanical heating and ventilating devices and equipment. The fees may not exceed 130 percent of the fee schedule printed in the "Uniform Building Code," 1979 Edition, and in the "Uniform Mechanical Code," 1979 Edition, both published by the International Conference of Building Officials. Fees are not effective until approved by the Oregon Department of Administrative Services.

(3)(a) A municipality may adopt by ordinance or regulation such fees as may be necessary and reasonable to provide for the administration and enforcement of any specialty code or codes for which the municipality has assumed responsibility under ORS 455.148 or 455.150. A municipality shall give the director notice of the proposed adoption of a new or increased fee under this subsection. The municipality shall give the notice to the director at the time the municipality provides the opportunity for public comment under ORS 294.160 regarding the fee or, if the proposed fee is contained in an estimate of municipal budget resources, at the time notice of the last budget meeting is published under ORS 294.426.

104.3.3 Time Limitation of Application. Applications for which no permit is issued within 180 days following the date of application shall expire by limitation, plans and other data submitted for review thereafter, shall be returned to the applicant or destroyed by the Building Official. The Building Official shall be permitted to exceed the time for action by the applicant for a period not to exceed 180 days upon request by the applicant showing that circumstances beyond the control of the applicant have prevented the action from being taken. No application shall be extended more than once. In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee.

104.3.4 Alternative Materials, Design and Methods of Construction and Equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the Building Official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or 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. This approval shall have no effect beyond the jurisdictional boundaries of said Building Official.

104.3.5 Request for Ruling. ORS 455.060 provides for state rulings on acceptable materials, designs and methods of construction. When a ruling has been issued, ORS 455.060(4) applies.

ORS 455.060 is not part of this code but is reprinted here for the reader's convenience:

455.060 Rulings on Acceptability of Material, Design or Method of Construction; Effect of Approval; Fees.

(1) Any person who desires to use or furnish any material, design or method of construction or installation in the state, or any Building Official, may request the Director of the Department of Consumer and Business Services to issue a ruling with respect to the acceptability of any material, design or method of construction about which there is a question under any provision of the state building code. Requests shall be in writing and, if made by anyone other than a Building Official, shall be made and the ruling issued prior to the use or attempted use of such questioned material, design or method.
(2) In making rulings, the director shall obtain the approval of the appropriate advisory board as to technical and scientific facts and shall consider the standards and interpretations published by the body that promulgated any nationally recognized model code adopted as a specialty code of this state.
(3) A copy of the ruling issued by the director shall be certified to the person making the request. Additional copies shall be transmitted to all Building Officials in the state. The director shall keep a permanent record of all such rulings, and shall furnish copies thereof to any interested person upon payment of such fees as the director may prescribe.
(4) A Building Official or inspector shall approve the use of any material, design or method of construction approved by the director pursuant to this section if the requirements of all other local ordinances are satisfied.

104.4 Permit Issuance. The application, construction documents, and other data filed by an applicant for a permit shall be reviewed by the Building Official. Where the Building Official finds that the work described in an application for permit and the plans, specifications, and other data filed therewith are in accordance with the requirements of this code and that the fees specified in Section 104.5 have been paid, the Building Official shall issue a permit therefore to the applicant.

104.4.1 Approved Plans or Construction Documents. Where the Building Official issues the permit where plans are required, the Building Official shall endorse in writing or stamp the construction documents "APPROVED." Such approved construction documents shall not be changed, modified, or altered without authorization from the Building Official, and the work shall be done in accordance with approved plans.

Construction documents shall be approved in the timelines specified in ORS 455.467.

ORS 455.467(1) is not part of this code but is reprinted here for the reader's convenience:

455.467 Timelines for Approval or Disapproval of Certain Specialty Code Building Plans; Exceptions; Phased Permit Systems; Failure to Adhere to Timelines.

(1) Except as provided in subsection (2) of this section, for specialty code plan reviews of simple low-rise residential dwellings, the Department of Consumer and Business Services or a municipality that administers a building inspection program under ORS 455.148 or 455.150 shall approve or disapprove the specialty code building plan:
(a) For a jurisdiction with a population that is less than 300,000, within 10 business days of receiving a complete application, or shall implement the process described in ORS 455.465.
(b) For a jurisdiction with a population that is 300,000 or more, within 15 business days of receiving a complete application, or shall implement the process described in ORS 455.465.
(2) The 10-day and 15-day requirements in subsection (1) of this section do not apply if:
(a) The plan requires approval by federal, state or local agencies outside the jurisdiction of the issuing agency;
(b) The plan is for a complex structure that requires additional review as determined by the department or municipality; or
(c) Based on conditions that exist in the affected municipality, the Director of the Department of Consumer and Business Services authorizes a different plan review schedule as described in a building inspection program submitted under ORS 455.148 or 455.150.

The Building Official shall be permitted 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 in accordance with the pertinent requirements of this code. The holder of such permit shall be permitted to proceed at the holder's risk without assurance that the permit for the entire building, structure, or plumbing system will be granted.

ORS 455.467 (3) through (6) is not part of this code but is reprinted here for the reader's convenience:

455.467.

(3) For specialty code plan reviews of commercial structures, a municipality shall include in its building inspection program submitted under ORS 455.148 or 455.150 a process for plan review services. The municipality shall include in its program detailed reasons supporting the proposed plan review process. The plan review services provided by the municipality shall:

(a) Allow an applicant to defer the submittal of plans for one or more construction phases for a commercial construction project in accordance with the state building code; and

(b) Allow an applicant to receive permits for each of the phases of a commercial construction project as described in the state building code when the plan review for that phase is approved.

(4) For a phased commercial construction project as described in subsection (3) of this section, the municipality shall inform the applicant of the detailed plans necessary for each phase of the project and the estimated time for initial and phased review of the building plans for conformance with the state building code.

(5) An applicant submitting plans under subsection (3) of this section is responsible for ensuring that the project meets all specialty code requirements and that the project does not proceed beyond the level of approval authorized by the Building Official.

(6) A municipality that repeatedly fails to meet the plan review period described in this section or otherwise authorized in its building inspection program submitted under ORS 455.148 or 455.150 shall be considered to be engaging in a pattern of conduct of failing to provide timely plan reviews under ORS 455.160.

104.4.2 Validity of Permit. The issuance of a permit or approval of construction documents shall not be construed to be a permit for, or an approval of, a violation of the provisions of this code or state law. 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 plans, specifications, or other data shall not prevent the Building Official from thereafter requiring the correction of errors in said plans, specifications, and other data or from preventing building operations being carried on thereunder where in violation of this code or of other state laws.

104.4.3 Expiration. A permit issued by the Building Official under the provisions of this code shall expire by limitation and become null and void where the work authorized by such permit is not commenced within 180 days from the date of such permit, or where the work authorized by such permit is suspended or abandoned at a time after the work is commenced for a period of 180 days. Before such work is recommenced, a new permit shall first be obtained to do so, and the fee, therefore, 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 suspensions or abandonment has not exceeded 1 year.

104.4.4 Extensions. A permittee holding an unexpired permit shall be permitted to apply for an extension of the time within which work shall be permitted to commence under that permit where the permittee is unable to commence work within the time required by this section. The Building Official shall be permitted to extend the time for action by the permittee for a period not exceeding 180 days upon written request by the permittee showing that circumstances beyond the control of the permittee have prevented the action from being taken. No permit shall be extended more than once. In order to renew action on a permit after expiration, the permittee shall pay a new full permit fee.

104.4.5 Suspension or Revocation. The Building Official shall be permitted, with written notification, to suspend or revoke a permit issued under the provisions of this code where the permit is issued in error or on the basis of incorrect information supplied or in violation of other state laws.

104.4.6 Retention of Plans. One set of approved construction documents and computations shall be retained by the Building Official until final approval of the work covered therein. This set of approved construction documents, and computations shall be retained by the Building Official for a period of not less than that dictated by OAR 166-150-0020 where a county has jurisdiction; OAR 166-200-0025 where a city has jurisdiction; and OAR Chapter 166, Division 300 for the jurisdictions where the State of Oregon has jurisdiction.

104.5 Fees.

> **Note:** Unless amended by a municipality under authority of ORS 455.040, Section 104.5 applies.

Fees shall be assessed in accordance with the provisions of this section and as set forth in the fee schedule of the municipality under the authority of ORS 455.210, or as set forth in OAR 918-780-0080 where the State of Oregon has jurisdiction.

> **ORS 455.210 (1) and (3)(a)** are not part of this code but is reprinted here for the reader's convenience:
>
> **455.210.**
>
> (1) Fees shall be prescribed as required by ORS 455.020 for plan review and permits issued by the Department of Consumer and Business Services for the construction, reconstruction, alteration and repair of prefabricated structures and of buildings and other structures and the installation of mechanical heating and ventilating devices and equipment. The fees may not exceed 130 percent of the fee schedule printed in the "Uniform Building Code," 1979 Edition, and in the "Uniform Mechanical Code," 1979 Edition, both published by the International Conference of Building Officials. Fees are not effective until approved by the Oregon Department of Administrative Services.
>
> (3)(a) A municipality may adopt by ordinance or regulation such fees as may be necessary and reasonable to provide for the administration and enforcement of any specialty code or codes for which the municipality has assumed responsibility under ORS 455.148 or 455.150. A municipality shall give the director notice of the proposed adoption of a new or increased fee under this subsection. The municipality shall give the notice to the director at the time the municipality provides the opportunity for public comment under ORS 294.160 regarding the fee or, if the proposed fee is contained in an estimate of municipal budget resources, at the time notice of the last budget meeting is published under ORS 294.426.

104.5.1 Work Commencing Before Permit Issuance. Any person who commences any work on a plumbing system before obtaining the necessary permits shall be subject to an investigative fee as specified in ORS 455.058.

104.5.2 Investigation Fees. The amount of the investigative fee shall be the average or actual additional cost of ensuring that the work is in conformance with the Oregon Plumbing Specialty Code and shall be in addition to the required permit fees. Fees shall be charged according to the rates established by the municipality, or as established by the state where the State of Oregon has jurisdiction.

An investigative fee does not apply to emergency installations provided the permit application is submitted within the next five business days.

104.5.3 Fee Refunds. The Building Official shall be permitted to authorize the refunding of a fee.

105.0 Inspections and Testing.

105.1 General. Plumbing systems for which a permit is required by this code shall be inspected by the Building Official.

No plumbing system or portion thereof shall be covered, concealed, or put into use until inspected and approved as prescribed in this code. Neither the Building Official nor the municipality shall be liable for expense entailed in the removal or replacement of material required to permit inspection. Plumbing systems regulated by this code shall not be connected to the water or the sewer system until authorized by the Building Official.

105.2 Required Inspections. New plumbing work and such portions of existing systems as affected by new work, or changes, shall be inspected by the Building Official to ensure compliance with the requirements of this code and to ensure that the installation and construction of the plumbing system are in accordance with approved plans. The Building Official shall make the following inspections and other such inspections as necessary. The permittee or the permittee's authorized agent shall be responsible for the scheduling of such inspections as follows:

(1) Rough-in inspection shall be made after trenches or ditches are excavated and bedded, piping installed, and before concrete, cover, or backfill is put in place, or prior to placement of sub-flooring if frame construction.
(2) Rough-in inspection shall be made prior to the installation of wall or ceiling membranes.
(3) Final inspection of plumbing fixtures and connections shall be made upon completion of the installation.

Exception: Rough-in inspections prior to placement of subflooring for frame construction may be waived by the Building Official, if adequate accessibility is available and prior approval is granted.

ORS 455.058 is not part of this code but is reprinted here for the reader's convenience:

455.058 Investigation Fee for Work Commenced Without Permit; Rules.

(1) Except as provided in subsection (2) of this section, the Department of Consumer and Business Services, or a municipality administering and enforcing a building inspection program, may assess an investigation fee against a person that is required to obtain a permit for work on the electrical, gas, mechanical, elevator, boiler, plumbing or other systems of a building or structure if the work is commenced before the permit required for the work is obtained. The amount of the investigation fee shall be the average or actual additional cost of ensuring that a building, structure or system is in conformance with state building code requirements that results from the person not obtaining a required permit before work for which the permit is required commences.

(2) This section does not apply to:

(a) An emergency repair required for health, safety, the prevention of property damage or the prevention of financial harm if the required building permit for the repair is obtained no later than five business days after commencement of the repair; or

(b) Any project for which construction, alteration, repair, maintenance or installation in a building or structure prior to obtaining a permit is expressly authorized by law.

(3) The department may adopt rules and establish policies and procedures for use by the department or municipalities in assessing an investigation fee under this section.

105.2.1 Uncovering. Where a drainage or plumbing system, building sewer~~, private sewage disposal system,~~ or part thereof, which is installed, altered, or repaired, is covered or concealed before being inspected, tested, and approved as prescribed in this code, it shall be uncovered for inspection after notice to uncover the work has been issued to the responsible person by the Building Official.

The requirements of this section shall not be considered to prohibit the operation of plumbing installed to replace existing equipment or fixtures serving an occupied portion of the building in the event a request for inspection of such equipment or fixture has been filed with the Building Official not more than 72 hours after such replacement work is completed, and before a portion of such plumbing system is concealed by a permanent portion of the building.

105.2.1.1 Water Supply System. No water supply system or portion thereof shall be covered or concealed until it first has been tested, inspected, and approved.

105.2.1.2 Covering or Using. No plumbing or drainage system, building sewer~~, private sewer disposal system,~~ or part thereof, shall be covered, concealed, or put into use until it has been tested, inspected, and accepted as prescribed in this code.

105.2.2 Other Inspections. In addition to the inspections required by this code, the Building Official shall be permitted to require other inspections to ascertain compliance with the provisions of this code and other laws that are enforced by the Building Official.

105.2.3 Inspection Requests. It shall be the duty of the person doing the work authorized by a permit to notify the Building Official that such work is ready for inspection. The Building Official shall be permitted to require that a request for inspection be filed not less than 24 hours before such inspection is desired. Such request shall be permitted to be made in writing or by telephone, or other methods established by the municipality, at the option of the Building Official.

It shall be the duty of the person requesting inspections in accordance with this code to provide access to and means for inspection of such work.

105.2.4 Responsibility. It shall be the duty of the holder of a permit to make sure that the work will stand the test prescribed before giving the notification.

The equipment, material, and labor necessary for inspection or tests shall be furnished by the person to whom the permit is issued or by whom inspection is requested.

105.2.5 Reinspections. A reinspection fee shall be permitted to be assessed for each inspection or reinspection where such portion of work for which inspection is called is not complete or where required corrections have not been made. Fees shall be charged according to the rates established by the municipality, or as established by the state where the State of Oregon has jurisdiction.

This provision shall not be interpreted as requiring reinspection fees the first time a job is rejected for failure to be in accordance with the requirements of this code, but as controlling the practice of calling for inspections before the job is ready for inspection or reinspection.

Reinspection fees shall be permitted to be assessed where the approved plans are not readily available to the inspector, for failure to provide access on the date for which the inspection is requested, or for deviating from plans requiring the approval of the Building Official.

To obtain reinspection, the applicant shall comply with established procedures for that purpose and pay the reinspection fee. In instances where reinspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

105.3 Testing of Systems. Plumbing systems shall be tested and approved in accordance with this code. Tests shall be conducted in the presence of the Building Official.

No test or inspection shall be required where a plumbing system, or part thereof, is set up for exhibition purposes and has no connection with a water or drainage system. In cases where it would be impractical to provide the required water or air tests, or for minor installations and repairs, the Building Official shall be permitted to make such inspection as deemed advisable in order to be assured that the work has been performed in accordance with the intent of this code. Joints and connections in the plumbing system shall be gastight and watertight for the pressures required by the test.

105.3.1 Defective Systems. An air test shall be used in testing the sanitary condition of the drainage or plumbing system of building premises where there is reason to believe that it has become defective. In buildings or premises condemned by a municipal authority other than the Building Official because of an insanitary condition of the plumbing system, or part thereof, the alterations in such system shall be in accordance with the requirements of this code.

105.3.2 Retesting. Where the Building Official finds that the work will not pass the test, necessary corrections shall be made, and the work shall be resubmitted for test or inspection.

105.3.3 Approval. Where prescribed tests and inspections indicate that the work is in accordance with this code, a certificate of approval shall be issued by the Building Official to the permittee on demand.

105.4 Connection to Service Utilities. No person shall make connection from a water-supply line nor shall connect to a sewer system regulated by this code and for which a permit is required until approved by the Building Official. The Building Official shall be permitted to authorize temporary connection of the plumbing equipment for the purpose of testing the equipment.

106.0 Violations and Penalties.

106.1 General. It shall be unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, or use plumbing or permit the same to be done in violation of this code. The Building Official is authorized to serve a notice of violation or order on the person responsible for violation of this code. Prohibited acts are described in ORS 455.450.

ORS 455.450 is not part of this code but is reprinted here for the reader's convenience:

455.450 Prohibited acts.

A person may not:

(1) Violate, or procure or assist in the violation of, any final order of the Director of the Department of Consumer and Business Services, an advisory board, a state administrative officer or any local appeals board, Building Official or inspector, concerning the application of the state building code in a particular case or concerning a license, certificate, registration or other authorization.

(2) Engage in, or procure or assist any other person to engage in, any conduct or activity for which a permit, label, license, certificate, registration or other formal authorization is required by any specialty code, any provision of ORS 446.003 to 446.200, 446.225 to 446.285, 446.395 to 446.420, 446.566 to 446.646, 446.666 to 446.746, 479.510 to 479.945, 479.950 and 480.510 to 480.670, this chapter or ORS chapter 447, 460 or 693, or any rule adopted or order issued for the administration and enforcement of those provisions, without first having obtained such permit, label, license, certificate, registration or other formal authorization.

(3) Violate, or procure or assist in the violation of, any standard, specification, requirement, prohibition or other technical provision set forth in the state building code or an applicable local building code or in any rule or order of the Department of Consumer and Business Services, an advisory board, a local governing body or local Building Official.

106.2 Notices of Correction or Violation. Notices of correction or violation shall be written by the Building Official and shall be permitted to be posted at the site of the work or mailed or delivered to the permittee or their authorized representative. Notices of correction shall comply with OAR 918-098-1900.

Refusal, failure, or neglect to comply with such notice or order within 30 days of receipt thereof, shall be considered a violation of this code and shall be subject to the penalties set forth by the governing laws of the municipality.

OAR 918-098-1900 is not part of this code but is reprinted here for the reader's convenience:

918-098-1900 Corrective Notices – Cite-it Write-it Requirement.

In addition to any other requirements set forth in statute and rule, all Building Officials, inspectors and plans examiners certified under Division 098, OAR 918-2250540, 918-281-0020, 918-695-0400, and ORS 460.055 must include an exact reference to the applicable specialty code section, Oregon administrative rule, or statute, when issuing corrective notices at construction sites or to buildings or related appurtenances during a plan review while administering or enforcing a building inspection program. The Building Official, inspector, or plans examiner must include a plain statement of facts upon which the citation for correction action is based.

106.3 Penalties. A person, firm, or corporation violating a provision of this code shall be subject to penalties as described in ORS 445.895 or as adopted by the municipality. Municipal authority to levy penalties is limited to violations of code application only.

106.4 Stop Orders. Where work is being done contrary to the provisions of this code, the Building Official shall be permitted to order the work stopped by notice in writing served on persons engaged in the doing or causing such work to be done, and such persons shall forthwith stop work until authorized by the Building Official to proceed with the work.

106.5 Authority to Disconnect Utilities in Emergencies. The Building Official shall have the authority to disconnect a plumbing system to a building, structure, or equipment regulated by this code in case of emergency where necessary to eliminate an immediate hazard to life or property.

106.6 Authority to Condemn. Where the Building Official ascertains that a plumbing system or portion thereof, regulated by this code, has become hazardous to life, health, or property, or has become insanitary, the Building Official shall order in writing that such plumbing either be removed or placed in a safe or sanitary condition. The order shall fix a reasonable time limit for compliance. No person shall use or maintain defective plumbing after receiving such notice.

Where such plumbing system is to be disconnected, written notice shall be given. In cases of immediate danger to life or property, such disconnection shall be permitted to be made immediately without such notice.

ORS 455.895 is not part of this code but is reprinted here for the reader's convenience:

455.895 Civil penalties.

(1)(a) The State Plumbing Board may impose a civil penalty against a person as provided under ORS 447.992 and 693.992. Amounts recovered under this paragraph are subject to ORS 693.165.

(b) The Electrical and Elevator Board may impose a civil penalty against a person as provided under ORS 479.995. Amounts recovered under this paragraph are subject to ORS 479.850.

(c) The Board of Boiler Rules may impose a civil penalty against a person as provided under ORS 480.670. Amounts recovered under this paragraph are subject to ORS 480.670.

(2) The Department of Consumer and Business Services, or an appropriate advisory board, if any, may at its discretion impose a civil penalty against any person who violates the state building code or ORS 446.003 to 446.200, 446.225 to 446.285, 446.395 to 446.420, 446.566 to 446.646, 446.666 to 446.746, 479.510 to 479.945, 479.950 or 480.510 to 480.670, or this chapter or ORS chapter 447, 460 or 693, or any rule adopted or order issued for the administration and enforcement of those statutes. Except as provided in subsections (3), (4) and (9) of this section or ORS 446.995, a civil penalty imposed under this section must be in an amount determined by the appropriate advisory board or the department of not more than $5,000 for each offense or, in the case of a continuing offense, not more than $1,000 for each day of the offense.

(3) Each violation of ORS 446.003 to 446.200 or 446.225 to 446.285, or any rule or order issued under ORS 446.003 to 446.200 or 446.225 to 446.285, constitutes a separate violation with respect to each manufactured structure or with respect to each failure or refusal to allow or perform an act required thereby, except that the maximum civil penalty may not exceed $1 million for any related series of violations occurring within one year from the date of the first violation.

(4) The department may impose a civil penalty of not more than $25,000 against a public body responsible for administering and enforcing a building inspection program. As used in this subsection, "public body" has the meaning given that term in ORS 174.109.
(5) The maximum penalty established by this section for a violation may be imposed only upon a finding that the person has engaged in a pattern of violations. The department, by rule, shall define what constitutes a pattern of violations. Except as provided in subsections (1) and (10) of this section, moneys received from any civil penalty under this section are appropriated continuously for and shall be used by the department for enforcement and administration of provisions and rules described in subsection (2) of this section.
(6) Civil penalties under this section shall be imposed as provided in ORS 183.745.
(7) A civil penalty imposed under this section may be remitted or reduced upon such terms and conditions as the department or the appropriate advisory board considers proper and consistent with the public health and safety. In any judicial review of a civil penalty imposed under this section, the court may, in its discretion, reduce the penalty.
(8) Any officer, director, shareholder or agent of a corporation, or member or agent of a partnership or association, who personally participates in or is an accessory to any violation by the partnership, association or corporation of a provision or rule described in subsection (2) of this section is subject to the penalties prescribed in this section.
(9) In addition to the civil penalty set forth in subsection (1) or (2) of this section, any person who violates a provision or rule described in subsection (2) of this section may be required by the department or the appropriate advisory board to forfeit and pay to the General Fund of the State Treasury a civil penalty in an amount determined by the department or advisory board that does not exceed five times the amount by which such person profited in any transaction that violates a provision or rule described in subsection (2) of this section.
(10) If a civil penalty is imposed for a violation of a provision of ORS 446.566 to 446.646 and the violation relates to a filing or failure to file with a county assessor functioning as agent of the department, the department, after deducting an amount equal to the department's procedural, collection and other related costs and expenses, shall forward one-half of the remaining civil penalty amount to the county in which the manufactured structure is located at the time of the violation.

107.0 Appeals.

107.1 General. In order to hear and decide appeals of orders, decisions, or determinations made by the Building Official relative to the application and interpretations of this code, the municipality shall establish an appeals procedure. An appeals board, when appointed, shall consist of members who are qualified by experience and training to pass upon matters pertaining to plumbing.

107.2 Limitations of Authority. An application for appeal shall be based upon a claim that the true intent of this code or rules legally adopted thereunder have been misinterpreted, the provisions of this code do not fully apply, or an equivalent or superior form of construction is proposed. An appeals board, when appointed, shall have no authority to waive requirements of this code.

107.3 Appeal of Decision of Building Official. ORS 455.475 provides an alternative appeals process to that set forth by a municipality.

Note: Forms for filing an appeal under ORS 455.475 are available online at: www.bcd.oregon.gov.

107.4 Appeal to the State Plumbing Board. ORS 445.690 allows an appeal of a municipal appeals board decision to the State Plumbing Board. Appeals to the State Plumbing Board are limited to those that are technical and scientific in nature.

ORS 455.475 is not part of this code but is reprinted here for the reader's convenience:

455.475 Appeal of decision of Building Official.

(1) An applicant for a building permit may appeal a decision made by a Building Official under authority established pursuant to ORS 455.148, 455.150 or 455.467. The following apply to an appeal under this subsection:

(a) An appeal regarding the interpretation or application of a particular specialty code provision shall be made first to the appropriate specialty code chief inspector of the Department of Consumer and Business Services. The decision of the department chief inspector may be appealed to the appropriate advisory board. The decision of the advisory board may only be appealed to the Director of the Department of Consumer and Business Services if codes in addition to the applicable specialty code are at issue.

(b) If the appropriate advisory board determines that a decision by the department chief inspector is a major code interpretation, then the inspector shall distribute the decision in writing to all applicable specialty code public and private inspection authorities in the state. The decision shall be distributed within 60 days after the board's determination, and there shall be no charge for the distribution of the decision. As used in this paragraph, a "major code interpretation" means a code interpretation decision that affects or may affect more than one job site or more than one inspection jurisdiction.

(2) Except as provided in subsection (1) of this section, an applicant for a building permit may appeal the decision of a Building Official on any matter relating to the administration and enforcement of this chapter to the department. The appeal must be in writing. A decision by the department on an appeal filed under this subsection is subject to judicial review as provided in ORS 183.484.

(3) If an appeal is made under this section, an inspection authority shall extend the plan review deadline by the number of days it takes for a final decision to be issued for the appeal.

ORS 455.690 is not part of this code but is reproduced here for the reader's convenience:

455.690 Appeal to advisory boards.

Any person aggrieved by the final decision of a municipal appeals board or a subordinate officer of the Department of Consumer and Business Services as to the application of any provision of a specialty code may, within 30 days after the date of the decision, appeal to the appropriate advisory board. The appellant shall submit a fee of $20, payable to the department, with the request for appeal. The final decision of the involved municipality or state officer shall be subject to review and final determination by the appropriate advisory board as to technical and scientific determinations related to the application of the specialty code involved.

CHAPTER 2—DEFINITIONS

201.0 General.

202.2 Terms Defined in Other Codes. Where terms are not defined in this code and are defined in the Electrical Code, Building Code, Residential Code, or Mechanical Code, such terms shall have the meanings ascribed in those codes.

202.3 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. Words of common usage are given the plain, natural, and ordinary meanings. Words that have well-defined legal meanings are given those meanings.

203.0 – A –

Approved Testing Agency. *… "Authority Having Jurisdiction" is replaced with "State Plumbing Board."*

Authority Having Jurisdiction. The organization, office, or individual responsible for enforcing ~~the~~ other requirements that are not part of ~~a~~ this code ~~or standard, or for approving equipment, materials, installations, or procedures~~. The Authority Having Jurisdiction shall be a federal, state, ~~local, or other regional department or an individual such as a plumbing official, mechanical official, labor department official, health department official, building official, or others having statutory~~ or municipal authority. In the absence of statutory authority, the Authority Having Jurisdiction may be some other responsible party. This definition shall include the Authority Having Jurisdiction's duly authorized representative.

204.0 – B –

Board. For the purposes of this code, "Board" shall mean the State Plumbing Board as defined in ORS 447.010.

> **ORS 447.010(1)** is not a part of this code but is reprinted here for the reader's convenience:
> (1) "Board" means the State Plumbing Board established under ORS 693.115.

Boiler Code. For the purposes of this code, "Boiler Code" shall mean the *Oregon Boiler and Pressure Vessel Specialty Code* as adopted by OAR 918-225-0430. The Boiler Code is expressly enforced by the State of Oregon Building Codes Division. Inspections and plan review are performed only by inspectors authorized by the state.

Building Code. For the purposes of this code, "Building Code" shall mean the *Oregon Structural Specialty Code* as adopted by OAR 918-460-0100 or the *Oregon Residential Specialty Code* as adopted by OAR 918-480-0005, whichever is the appropriate governing code.

Building Official. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative of the Building Official.

Building Sewer. ~~That part of the horizontal piping of a drainage system that extends from the end of the building drain and that receives the discharge of the building drain and conveys it to a public sewer, private sewer, private sewage disposal system, or another point of disposal.~~ See OAR 918-690-0410 and ORS 701.348.

> **OAR 918-690-0410(2) and ORS 701.348(4)** are not a part of this code but is reprinted here for the reader's convenience:
> **OAR 918-690-0410(2).**
> (2) "Building sewer" is defined in ORS 701.348;
> **ORS 701.348(4).**
> (4) As used in this section, "building sewer" means that part of the system of drainage piping that conveys sewage into a septic tank, cesspool or other treatment unit that begins five feet outside the building or structure within which the sewage originates.

Section 204.0 - Building Drain & Sewer – Significant Change

Summary: *Clarification of an existing amendment*

Commentary: *Changes to the definitions of Building Drain and Building Sanitary Sewer were made for clarity. These changes have no impact on how the definitions are applied in the field.*

Building Drain. That part of the lowest piping of a drainage system that receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer ~~beginning 2 feet (610 mm) outside the building wall~~.

Building Sewer (Sanitary). A building sewer beginning 5 feet (1524 mm) outside the building wall that conveys sewage only.

Building Sewer (Storm). A building sewer beginning 2 feet (610 mm) outside the building wall that conveys storm water or another drainage, but no sewage.

205.0 – C –

Certified Backflow Assembly Tester. A person who has shown competence to test ~~and maintain~~ backflow assemblies to the satisfaction of the Oregon Health Authority ~~Authority Having Jurisdiction~~.

206.0 – D –

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 is 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 is taken as being equal to 2 feet (610 mm)~~ by the Floodplain Administrator.

Downspout. The removable rain leader from the roof gutter to the building storm drain, combined building sewer, or other means of disposal located outside of the building. See ~~Conductor and~~ Leader.

Dwelling. Any building that contains one or two dwelling units used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

Dwelling Unit. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

207.0 – E –

Electrical Code. For the purposes of this code, "Electrical Code" shall mean the *Oregon Electrical Specialty Code* as adopted by OAR 918-305-0100.

208.0 – F –

Flood Hazard Area. The area established as a flood hazard by the Floodplain Administrator.

~~The greater of the following two areas:~~

~~(1) The Area within a floodplain subject to a 1 percent or greater chance of flooding in any given year.~~
~~(2) The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.~~

Flood Hazard Area Subject to High Velocity Wave Action. Area within the flood hazard area that is subject to high velocity wave action and shown on a Flood Insurance Rate Map or other flood hazard map as Zone V, VO, VE or V1-30.

Flood Plain Administrator. See Section 102.3.1.

Food Service Establishment. A facility that engages in activities of preparing or serving food or beverage for consumption by person(s) either on or off the premises, including but not limited to restaurants, cafes, commercial kitchens, caterers, hotels and motels, schools, hospitals, prisons, correctional facilities, nursing homes, care institutions, and any other facility preparing and serving food for consumption.

210.0 – H –

Health Care Facilities. Buildings or portions of buildings in which human medical, dental, psychiatric, nursing, obstetrical, or surgical care is provided.

214.0 – L –

Listing Agency. … *"Authority Having Jurisdiction" is replaced with "State Plumbing Board."*

Lot. … *"Authority Having Jurisdiction" is replaced with "municipality."*

215.0 – M –

Manufactured Dwelling Code. For the purposes of this code, "Manufactured Dwelling Code" shall mean the *Oregon Manufactured Dwelling Installation Specialty Code* as adopted by OAR 918-500-0510.

Mid-Story Guide. A support designed to keep piping in alignment, located ~~mid~~half-way between floors or a floor and ceiling.

Plumbing. ~~The business, trade, or work having to do with the installation, removal, alteration, or repair of plumbing systems or parts thereof.~~ Defined in ORS 447.010(6).

ORS 447.010(6) is not part of this code but is reprinted here for the reader's convenience:
447.010 Definitions for ORS 447.010 to 447.156 and 447.992. As used in ORS 447.010 to 447.156 and 447.992, unless the context requires otherwise:
(6) "Plumbing" is the art of installing, altering or repairing in or adjacent to or serving buildings:
(a) Pipes, fixtures and other apparatus for bringing in the water supply and removing liquid and water-carried waste, including the water supply distributing pipes.
(b) Fixtures and fixture traps.
(c) Soil, waste and vent pipes.
(d) House drain and house sewer to the sewer service lateral at the curb, or in the street, or alley, or other disposal terminal holding human or domestic sewage.
(e) Storm water drainage, with their devices, appurtenances and connections.
(f) Pipes, fixtures and other apparatus for medical gas, anesthetic waste gas and vacuum systems.
(g) Solar heating and cooling systems.

Plumbing System. Includes all potable water, alternate water sources, building supply, and distribution pipes; all plumbing fixtures and traps; all drainage and vent pipes; and all building drains and building sewers, including their respective joints and connections, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, medical gas and medical vacuum systems, ~~liquid and fuel gas piping,~~ and water heaters ~~and vents for same~~.

Potable Water. Water that is satisfactory for drinking, culinary, and domestic purposes and that meets the requirements of the Oregon Health Authority and the Building Official ~~Health Authority Having Jurisdiction~~.

Private Sewage Disposal System. A septic tank with the effluent discharging into a subsurface disposal field, into one or more seepage pits, or into a combination of subsurface disposal field and seepage pit or of such other facilities as may be permitted under the procedures set forth ~~elsewhere in this code~~ by other regulating agencies.

Public Water System. ~~A system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of twenty-five individuals daily for at least 60 days per year.~~ Defined in OAR 333-061-0020.

> **OAR 333-061-0020** is not part of this code but is reprinted here for the reader's convenience:
> **333-061-0020 Definitions**
> As used in these rules, unless the context indicates otherwise:
> "Public Water System" means a system for the provision to the public of piped water for human consumption, if such system has more than three service connections, or supplies water to a public or commercial establishment that operates a total of at least 60 days per year, and that is used by 10 or more individuals per day. Public water system also means a system for the provision to the public of water through constructed conveyances other than pipes to at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days of the year. A public water system is either a "Community Water System," a "Transient Non-Community Water System," a "NTNC Water System" or an "Oregon Very Small Water System."

220.0 – R –

Registered Design Professional. An individual who is registered or licensed by the laws of the state to perform such design work in the jurisdiction, including licensed journeyman plumbers.

Remote Outlet. Where used for sizing water piping, it is the furthest outlet dimension, measuring from the meter, the longest of either the developed length of the cold-water piping to the furthest outlet on the cold-water piping or through the water heater to the furthest outlet on the hot-water piping.

Residential Code. For the purposes of this code, "Residential Code" shall mean the Oregon Residential Specialty Code as adopted by OAR 918-480-0005.

Roughing-In. The installation of all parts of the plumbing system that can be completed prior to the installation of fixtures. This includes drainage, water supply~~, gas piping~~, vent piping, and the necessary fixture supports.

221.0 – S –

Septic Tank. A watertight receptacle that receives the discharge of a drainage system or part thereof, designed and constructed so as to retain solids, digest organic matter through a period of detention, and allow the liquids to discharge into the soil outside of the tank through a system of open joint piping or a seepage pit ~~meeting the requirements of this code~~.

222.0 – T –

Townhouse. A single-family dwelling unit constructed in a group of three or more attached units in which each unit extends from foundation to roof and with a yard or public way on not less than two sides. Townhouses do not include detached two-family dwellings located on a single lot.

224.0 – V –

Vented Line. A horizontal soil or waste pipe with a vented fixture upstream, on the same floor level.

225.0 – W –

Wet Room. A barrier free floor with a shower and drainage fixture(s).

Deleted definitions

The following UPC definitions are not adopted:

- ~~Anodeless Riser.~~
- ~~Appliance.~~
- ~~Appliance, Low-Heat.~~
- ~~Appliance, Medium-Heat.~~
- ~~Appliance Categorized Vent Diameter/Area.~~
- ~~Appliance Fuel Connector.~~
- ~~Bonding Jumper.~~
- ~~Chimney.~~
- ~~Chimney, Factory-Built.~~
- ~~Chimney, Masonry.~~
- ~~Chimney, Metal.~~
- ~~Chimney Classifications:~~
- ~~Chimney, High-Heat Appliance-Type.~~
- ~~Chimney, Low-Heat Appliance-Type.~~
- ~~Chimney, Medium-Heat Appliance-Type.~~
- ~~Chimney, Residential Appliance-Type.~~
- ~~Circuit Vent.~~
- ~~Combustible Material.~~
- ~~Department Having Jurisdiction.~~
- ~~Direct-Vent Appliances.~~
- ~~Effective Ground-Fault Current Path.~~
- ~~Excess Flow Valve (EFV).~~
- ~~Flue Collar.~~
- ~~Fuel Gas.~~
- ~~Gas Piping.~~
- ~~Gas Piping System.~~
- ~~Grounding Electrode.~~
- ~~Liquefied Petroleum Gas (LP-Gas) Facilities.~~
- ~~Penetration Firestop System.~~
- ~~Person.~~
- ~~Plumbing Official.~~
- ~~Service Piping.~~
- ~~Subsoil Irrigation Field.~~
- ~~Subsurface Irrigation Field.~~
- ~~Surge Tank.~~
- ~~Toilet Facility.~~
- ~~Transition Gas Riser.~~
- ~~Vent Connector, Gas.~~
- ~~Vent Offset.~~
- ~~Vented Appliance.~~
- ~~Category I Vented Appliance.~~
- ~~Category II Vented Appliance.~~
- ~~Category III Vented Appliance.~~
- ~~Category IV Vented Appliance.~~
- ~~Venting System.~~
- ~~Vent, Gas.~~
- ~~Type B Gas Vent.~~
- ~~Type BW Gas Vent.~~
- ~~Type L Gas Vent.~~
- ~~Water Heater or Hot Water Heating Boiler.~~
- ~~Welder, Pipe.~~

CHAPTER 3—GENERAL REGULATIONS

301.0 General.

301.2.2 Standards. *… "Authority Having Jurisdiction" is replaced with "State Plumbing Board."*

301.3 Alternate Materials and Methods of Construction Equivalency. Alternate materials and methods shall be requested in accordance with Chapter 1 of this code. *…The rest of Section 301.3 is deleted.*

301.4 Flood Hazard Areas. Plumbing systems shall be located above the design flood elevation ~~in accordance with the building code for utilities and attendant equipment or the elevation of the lowest floor, whichever is higher~~ as established by the Floodplain Administrator.

Exception: Plumbing systems shall be permitted to be located below the design flood elevation ~~in accordance with the building code for utilities and attendant equipment or the elevation of the lowest floor, whichever is higher,~~ provided that 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 such elevation.

301.4.1 Coastal High Hazard Areas. Plumbing systems in buildings located in coastal high hazard areas ~~shall be in accordance with the requirements of Section 301.4, and~~ as established by the Floodplain Administrator, shall not have plumbing systems, pipes, and fixtures ~~shall not be~~ mounted on or penetrate through walls that are intended to breakaway under flood loads in accordance with the Building Code.

301.5.5 Design Review. The Building Official shall have the authority to require testing of the alternative engineered design in accordance with Section 301.3.1, including the authority to require an independent review of ~~the design documents~~ alternate materials or engineered systems by a registered design professional ~~selected by the Authority Having Jurisdiction~~ and at the expense of the applicant.

306.0 Industrial Wastes.

306.2 Safe Discharge. Sewage or other waste from a plumbing system that is capable of being deleterious to surface or subsurface waters shall not be discharged into the ground or a waterway unless it has first been rendered safe by some acceptable form of treatment in accordance with the ~~Authority Having Jurisdiction~~ requirements of this code.

307.0 Location.

UPC 307.2 Ownership. *…Not adopted.*

309.0 Workmanship.

UPC 309.5 Sound Transmission. *…Not adopted and IRC Section 309.6 is renumbered.*

Section 309.5 Dead Legs—Significant Change

Summary: *Clarification of an existing amendment*

Commentary: *OPSC Section 309.5 now identifies what a dead leg is and when a method of flushing is required. The revised Statewide Code Interpretation 22-01 provides further detail and explanation of the requirements.*

A dead leg is a section of pipe at least 1.5 times its diameter in length, that has no flow or does not circulate. A segment of pipe less than 1.5 times its diameter is not a dead leg, and no method of flushing is required. Where a dead leg exists, an accessible method of flushing is required. This can be accomplished in many ways such as by extending that pipe to a fixture or other regularly used outlet such as a hose bibb, or by providing access to openable valves, angle stops, hammer arrestors, or even expansion tanks.

309.5 Dead Legs. ~~Dead legs shall have an accessible method of flushing and shall not exceed 1.5 times the diameter of the pipe.~~ Where a dead leg exceeds 1.5 times the diameter of the pipe in length, an accessible method of flushing shall be provided.

311.0 Independent Systems.

Section 311.1 Independent Systems, General—Significant Change

Summary: *New Oregon amendments*

Commentary: *Section 311.1 is expanded in the 2026 OPSC to cover all plumbing site utilities including Sanitary Sewer, Storm, Sewer, and Building Supply (or Water Service). The intent of this section is to require separate connections for buildings on the same lot by either a common utility shared by those buildings, or by independent connections to a public utility.*

311.1 General. The drainage and water supply systems of each new building and new work installed in an existing building shall be separate and independent from that of any other building, and, where available, every building shall have an independent connection with a public or private sewer and an independent connection with a public or approved private water system.

Exception: Where one building stands in the rear of another building on an interior lot, and no public or private sewer or water system is available, or can be constructed to the rear building through an adjoining court, yard, or driveway, the building drain or water distribution system from the front building shall be permitted to be extended to the rear building.

312.0 Protection of Piping, Tubing, Materials, and Structures.

312.3 Building Sewer and Drainage Piping. No building sewer or other drainage piping or part thereof, constructed of materials other than those approved for use under or within a building, shall be installed under or within ~~2~~ 5 feet (~~610~~ 1524 mm) of a building or structure, or less than 1 foot (305 mm) below the surface of the ground.

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.

312.9 Steel Nail Plates. Plastic piping or tubing, and copper or copper alloy piping or tubing penetrating framing members to within 1 inch (25.4 mm) of the exposed framing shall be protected by steel nail plates not less than No. 18 gauge (0.0478 inches) (1.2 mm) in thickness. The steel nail plate shall extend along the framing member not less than $1^1/_2$ inches (38 mm) beyond the outside diameter of the pipe or tubing. ~~Fuel gas piping shall be protected in accordance with Section 1210.4.3.~~

313.0 Hangers, Supports, and Anchors.

313.1 General. Piping, tubing, fixtures, appliances, and appurtenances shall be supported in accordance with this code~~,~~ and the manufacturer's installation instructions~~, and in accordance with the Authority Having Jurisdiction~~. Except as provided in Section 507.2, seismic restraints shall be in accordance with the Building Code.

313.3 Suspended Piping. Suspended piping shall be supported at intervals not to exceed those shown in Table 313.3.

Exception: Piping supported in accordance with the manufacturer's installation instructions.

UPC 313.7 Gas Piping. *…Not adopted.*

314.0 Trenching, Excavation, and Backfill.

314.4 Excavations. Excavations shall be completely backfilled as soon after inspection as practicable. Precaution shall be taken to ensure compactness of backfill around piping without damage to such piping. Trenches shall be backfilled in thin layers to 12 inches (305 mm) above the top of the piping with clean earth, which shall not contain stones, boulders, cinder fill, frozen earth, construction debris, or other materials that will damage or break the piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc., shall be permitted to be then used to complete backfill to grade. Fill shall be properly compacted. Precautions shall be taken to ensure permanent stability for pipe laid in filled or made ground.

~~Underground thermoplastic pipe and fittings for sewers and other gravity flow applications shall be installed in accordance with this code and Section 314.4.1.~~

UPC 314.4.1 Installation of Thermoplastic Pipe and Fittings. *…Not adopted.*

315.0 Joints and Connections.

315.1 Unions. Approved unions shall be permitted to be used in drainage piping where accessibly located in the trap seal or between a fixture and its trap; in the vent system, except underground or in wet vents; at any point in the water supply system~~; and in gas piping as permitted by Section 1212.6~~.

319.0 Medical Gas and Vacuum Systems.

319.1 General. Such piping shall be in accordance with the requirements of Chapter 13. ~~The Authority Having Jurisdiction shall require evidence of the competency of the installers and verifiers.~~

CHAPTER 4—
PLUMBING FIXTURES AND FIXTURE FITTINGS

401.0 General.

401.1 Applicability. This chapter shall govern the materials and installation of plumbing fixtures, including faucets and fixture fittings~~, and the minimum number of plumbing fixtures required based on occupancy~~.

401.3 Water-Conserving Plumbing Fixtures and Fittings.

401.3.1 General. The maximum water consumption of fixtures and fixture fittings in new buildings shall comply with the flow rates specified in Table 401.3.1.

TABLE 401.3.1
MAXIMUM FIXTURE AND FIXTURE FITTINGS FLOW RATES

FIXTURE TYPE	FLOW RATE
Showerheads/Body Sprays	1.8 gpm at 80 psi
Kitchen faucets residential[4]	1.8 gpm at 60 psi
Lavatory faucets residential	1.5 gpm at 60 psi
Lavatory faucets other than residential	0.5 gpm at 60 psi
Metering faucets	0.25 gallons/cycle
Metering faucets for wash fountains	One 0.25 gallons/cycle fixture fitting for each 20 inches rim space
Wash fountains	One 2.2 gpm at 60 psi fixture fitting for each 20 inches rim space
Water Closets other than remote locations[3]	1.28 gallons/flush[1]
Water Closets remote locations[3]	1.6 gallons/flush
Urinals	0.5 gallons/flush[2]

For SI Units: 1 gallon per minute = 0.06 L/s, 1 pound-force per square inch = 6.8947 kPa, 1 inch = 25.4 mm, 1 gallon = 3.785 L

Notes:

[1] Shall meet EPA WaterSense Tank-Type Toilet Specification.

[2] Shall meet EPA WaterSense Flushing Urinal Specification.

[3] Remote location is where a water closet is located not less than 30 feet (9144 mm) upstream of the nearest drain line connections or fixtures and is located where less than 1.5 drainage fixture units are upstream of the water closet drain line connection.

[4] Kitchen faucets are permitted to temporarily increase the flow above the maximum rate, but not to exceed 2.2 gpm (8.3 L/m) at 60 psi (414 kPa) and shall revert to a maximum flow rate of 1.8 gpm (6.8 L/m) at 60 psi (414 kPa) upon valve closure.

402.0 Installation

402.5 Setting. Fixtures shall be set level and in proper alignment with reference to adjacent walls. No water closet or bidet shall be set closer than 15 inches (381 mm) from its center to a side wall or obstruction or closer than 30 inches (762 mm) center to center to a similar fixture. The clear space in front of a water closet, lavatory, or bidet shall be not less than 24 inches (610 mm). No urinal shall be set closer than 12 inches (305 mm) from its center to a side wall or partition or closer than 24 inches (610 mm) center to center. The clear space in front of water closets and bidets in dwellings and dwelling units shall not be less than 21 inches (533.4 mm).

Exception: The installation of paper dispensers or accessibility grab bars shall not be considered obstructions.

Section 402.6 Flanged Fixture Connections—Significant Change

Summary: *New Oregon amendment and new UPC provisions*

Commentary: *This new Oregon amendment removes the requirement for flanges to be set on top of the finished floor and allows them to be set on an approved firm base. Some manufacturer-specific flange/fixture designs require the mounting face of the flange to be flush with the finished floor. A flange set on top of the finished floor would not align with those designs and prevent such fixtures from being used. This change corrects that issue while still ensuring the intent remains for a fixture flange to be securely mounted to prevent movement of fixtures and limit potential leaks from failed seals.*

This section is also expended by model code to mandate that carrier fittings be securely attached to the structure. This has been the case previously through manufacturer's installation instructions, but having a direct code basis will solidify the requirement. Typically, this means carriers need to be bolted or fastened to the floor and to adjacent wall framing to prevent movement of the carrier and attached fixture.

402.6 Flanged Fixture Connections. Fixture connections between drainage pipes and water closets, floor outlet service sinks and urinals shall be made using an approved copper alloy, hard lead, ABS, PVC, or iron flanges caulked, soldered, solvent cemented; rubber compression gaskets; or screwed to the drainage pipe. The connection shall be bolted with an approved gasket, washer, or setting compound between the fixture and the connection. The bottom of the flange shall be set on an approved firm base ~~the top of the finished floor~~.

Wall-mounted water closet fixtures shall be securely bolted to an approved carrier fitting. The approved carrier fitting shall be securely attached to the structure. The connecting pipe between the carrier fitting and the fixture shall be an approved material and designed to accommodate an adequately sized gasket. Gasket material shall be neoprene, felt, or similar approved types.

403.0 Accessible Plumbing Facilities.

UPC 403.3 Exposed Pipes and Surfaces. *…Not adopted.*

407.0 Lavatories.

407.1 Application. Lavatories shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, ASME A112.19.12, CSA B45.5/IAPMO Z124, CSA B45.8/IAPMO Z403, CSA B45.11/IAPMO Z401 or CSA B45.12/IAPMO Z402. ~~Group wash fixtures shall comply with the requirements of Section 401.2. Every 20 inches (508 mm) of rim space of a group wash fixture shall be considered as one lavatory for determining the number of lavatories required in accordance with Table 422.1. Lavatory assemblies with automatic soap dispensers, faucets, or hand dryers shall comply with IAPMO IGC 127.~~

407.2.1 Maximum Flow Rate. The maximum flow rate for public lavatory faucets shall not exceed 0.5 gpm at 60 psi (1.9 L/m at 414 kPa) and ~~2.2~~ 1.5 gpm at 60 psi (~~8.3~~ 5.7 L/m at 414 kPa) for private lavatory faucets.

408.0 Showers.

Section 408.3 Body Spray Water Consumption—Significant Change

Summary: *New UPC provisions with new Oregon amendments.*

Commentary: *The UPC added a new definition in Section 204.0 for "Body Spray" and added provisions in Section 408.3 limiting the flow rate for body spray type shower fixtures to fill a gap where there was previously no code-based guidance or limitation on these shower fixture fittings. Oregon amends the flow rate limitation to 1.8 gpm at 80 psi to align with existing Oregon-specific requirements.*

New definition

Body Spray. A shower device for spraying water onto a bather from other than the overhead position.

408.3 Water Consumption. Showerheads shall have a maximum flow rate of not more than ~~2.5~~ 1.8 gpm at 80 psi (~~9.5~~ 6.8 L/m at 552 kPa). Body sprays shall have a flow rate of not more than ~~2.5~~ 1.8 gpm at 80 psi (~~9.5~~ 6.8 L/m at 552 kPa).

Section 408.4.3 Temperature-Actuated, Flow-Reduction Devices …—Significant Change

Summary: *New UPC provisions.*

Commentary: *A new section was added in the UPC addressing temperature actuated, flow reduction devices for individual fixture fittings.*

Temperature actuated, flow reduction (TAFR) valves are required to be installed on the discharge outlet of the fixture fitting or integrated into fixture fittings. These valves must comply with ASSE 1062 and are intended for use in-line with, or integrated into, individual plumbing supply fittings such as shower heads, bathtubs, whirlpool bathtubs, utility sink, kitchen sink, and lavatory faucets. TAFR valves are designed to automatically reduce flow to a trickle within five seconds of outlet temperatures exceeding a preset actuation temperature of not more than 120°F. These devices can be used on existing fixtures to provide scald protection – typically, where no other form of scald protection is provided.

TAFR valves ARE NOT intended to be installed in place of devices complying with ASSE 1016, ASSE 1017, ASSE 1066, ASSE 1069, or ASSE 1070. These devices provide scald protection ONLY, and DO NOT provide thermal shock protection.

ASSE Guidelines for Temperature Control Devices in Domestic Hot Water Systems

408.4.3 Temperature-Actuated, Flow-Reduction Devices for Individual Fixture Fittings. Temperature-actuated, flow-reduction devices, where installed for individual fixture fittings, shall comply with ASSE 1062. Such devices shall not be used alone as a substitute for the balanced pressure, thermostatic or combination shower valves requirements or as a substitute for bathtub or whirlpool tub water temperature-limiting valves requirements.

Section 408.8.5 Tests for Shower Receptors—Significant Change

Summary: *New UPC provisions with Oregon amendments*

Commentary: *The UPC added a minimum depth and time for testing the installation of a site-built watertight shower receptor. The new provisions are amended by replacing "threshold" with "dam or curb," for the reasons explained in the commentary for Section 408.6.*

The new testing provisions require shower receptors to be tested with no less than 2 inches of water measured from the highest point of the shower floor. This is easily accomplished where showers have a dam or curb. But where showers have no dam or curb, additional measures will need to be used to accommodate the 2-inch minimum depth. This could be accomplished with a temporary curb built of scrap lumber allowing the liner to be raised up to 2 inches during the test and removed once the required inspection is complete. It is the responsibility of the plumber to ensure shower receptors are installed and tested in accordance with the OPSC.

408.6 Finished Curb or Threshold. Where a shower receptor has a finished dam, curb, or threshold, it shall be not less than 1 inch (25.4 mm) lower than the sides and back of such receptor. In no case, shall a dam or ~~threshold~~ curb be less than 2 inches (51 mm) or exceeding 9 inches (229 mm) in depth where measured from the top of the dam or ~~threshold~~ curb to the top of the drain. Each such receptor shall be provided with a nailing flange either integral or field installed in accordance with the manufacturer's installation instructions. The flange shall be watertight and extend vertically not less than 1 inch (25.4 mm) above the top of the sides of the receptor. The finished floor of the receptor shall slope uniformly from the sides towards the drain not less than $^1/_8$ inch per foot (10.4 mm/m), nor more than $^1/_2$ inch per foot (41.6 mm/m).

Thresholds 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. Where there is a shower without a threshold, the floor space within the same room shall be considered a wet room ~~location and shall comply with the requirements of the building, residential, and electrical codes~~.

Exceptions:

(1) Showers in accordance with Section 403.2.
(2) A cast-iron shower receptor flange shall be not less than 0.3 of an inch (7.62 mm) in height.
(3) For flanges not used as a means of securing, the sealing flange shall be not less than 0.3 of an inch (7.62 mm) in height.

Section 408.8.5 Tests for Shower Receptors—Significant Change

Summary: *New UPC provisions with Oregon amendments*

Commentary: *The UPC added a minimum depth and time for testing the installation of a site-built watertight shower receptor. The new provisions are amended by replacing "threshold" with "dam or curb," for the reasons explained in the commentary for Section 408.6.*

The new testing provisions require shower receptors to be tested with no less than 2 inches of water measured from the highest point of the shower floor. This is easily accomplished where showers have a dam or curb. But where showers have no dam or curb, additional measures will need to be used to accommodate the 2-inch minimum depth. This could be accomplished with a temporary curb built of scrap lumber allowing the liner to be raised up to 2 inches during the test and removed once the required inspection is complete. It is the responsibility of the plumber to ensure shower receptors are installed and tested in accordance with the OPSC.

408.8.5 Tests for Shower Receptors. Shower receptors shall be tested for watertightness by filling with water to a depth of not less than 2 inches (51 mm) for not less than 15 minutes. Where no ~~threshold~~ dam or curb is present, a 2 inch (51 mm) barrier shall be temporarily constructed for testing. The test plug shall be so placed that both upper and under sides of the subpan shall be subjected to the test at the point where it is clamped to the drain.

411.0 Water Closets.

411.3 Water Closet Seats. Water closet seats shall be properly sized for the water closet bowl type, and shall be of smooth, non-absorbent material. Seats, for public use, shall be of the elongated type and either of the open front type or have an automatic seat cover dispenser. Water closet seats shall be provided with or without covers (lids). Plastic seats shall comply with IAPMO/ANSI Z124.5.

412.0 Urinals.

412.1 Application. Urinals shall comply with ASME A112.19.2/CSA B45.1, ASME A112.19.19, or CSA B45.5/IAPMO Z124. Urinals shall have an average water consumption not to exceed 0.5 gallons (1.9 Lpf) ~~1 gallon (3.8 Lpf)~~ of water per flush.

412.1.1 Nonwater Urinals. Nonwater urinals shall have a liquid barrier sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. ~~Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation.~~ Where nonwater urinals are installed, not less than one water supplied fixture rated at not less than 1 water supply fixture unit (WSFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. Where nonwater urinals are installed, they shall have a water distribution line rough-in to each individual urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit.

412.1.2 Nonwater Urinals with Drain Cleansing Action. Nonwater urinals with drain cleansing action shall comply with ASME A112.19.19~~ and shall be cleaned, maintained and installed in accordance with the manufacturer's installation instructions~~.

414.0 Dishwashing Machines.

414.3 Drainage Connection. Domestic dishwashing machines shall discharge ~~indirectly through an air gap fitting~~ in accordance with Section 807.3, through an air gap fitting, into a waste receptor, into a wye branch fitting on the tailpiece of a kitchen sink, or into the dishwasher connection of a food waste disposer. Commercial dishwashing machines shall discharge indirectly through an air break in accordance with Section 807.1, or by a direct connection in accordance with Section 704.3.

415.0 Drinking Fountains.

UPC 415.2 Drinking Fountain Alternatives. *…Not adopted and UPC 416.3 and 415.4 are renumbered.*

416.0 Emergency Eyewash and Shower Equipment.

416.5 Drain. ~~A drain shall not be required for emergency eyewash or shower equipment.~~ Where a drain is provided, the discharge shall be in accordance with Section 811.0.

418.0 Floor Drains.

418.3 Location of Floor Drains. Floor drains shall be installed in the following areas:

(1) Toilet rooms containing two or more water closets or a combination of one water closet and one urinal, except in a dwelling unit. One or more floor mounted urinals shall be permitted to be used as a floor drain to meet the requirements of this section.

(2) Commercial kitchens and in accordance with Section 704.3.

(3) Laundry rooms in commercial buildings and common laundry facilities ~~in multi-family~~ serving three or more dwelling ~~buildings~~ units.

(4) Boiler rooms.

420.2 Water Consumption. Sink faucets shall have a maximum flow rate of not more than ~~2.2~~ 1.8 gpm at 60 psi (~~8.3~~ 6.8 L/m at 414 kPa).

Exceptions:

(1) Clinical sinks

(2) Laundry sinks

(3) Service sinks

422.0 Minimum Number of Required Fixtures.

422.1 General. The minimum number of required fixtures shall be in accordance with the Building Code.

UPC 422.1 through 422.7, and Table 422.1*…Not adopted.*

CHAPTER 5—WATER HEATERS

501.0 General.

Section 501.1 Applicability and Final Approval—Significant Change

Summary: *New UPC provisions*

Commentary: *Section 501.1 adopts a new addition to the UPC model code requiring installation of water heaters to be approved by the building official. This aligns with Oregon permit and inspection requirements enforced through OPSC Sections 503.1 and 503.2 and supported by statute and rule.*

Also, the OPSC has retained the existing amendments specifying that these provisions apply to fuel-burning "instantaneous" water heaters and does not include "chimneys, vents, and their connections."

501.1 Applicability. The regulations of this chapter shall govern the construction, location, and installation of fuel-burning instantaneous and other types of water heaters heating potable water~~, together with chimneys, vents, and their connectors~~. The minimum capacity for storage water heaters shall be in accordance with the first-hour rating listed in Table 501.1(2). A list of accepted water heater appliance standards is referenced in Table 501.1(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.

Water heaters shall be installed in accordance with the manufacturer's installation instructions. The final installation shall be approved by the Building Official.

Table 501.1(1) Water Heaters *…A note was added for the first column of the table, and a new definition was added in Chapter 2.*

New table note:

* Dual purpose water heaters shall be installed in accordance with this code, the Boiler Code and the manufacturer's installation instructions.

New Definition:

Water Heater, Dual Purpose. An appliance intended to be a heat source for both space heating and domestic hot water applications.

502.0 Definitions.

502.1 Direct-Vent Water Heaters. Water heaters that are constructed and installed so that air for combustion is derived directly from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

502.2 Hot Water Supply Boiler. A storage type potable water heating unit exceeding any of the parameters of Section 502.3. A hot water supply boiler is regulated by the Boiler Code.

502.3 Storage Type Water Heaters. Storage type water heaters regulated by this code are appliances which heat potable water and are equipped with approved safety devices and operate at or below the following:

(1) Volume of 120 gallons (454 L);

(2) Water temperature of 210°F (99°C);

(3) One hundred fifty pounds-force per square inch (psi) (1034 kPa) operating pressure; and

(4) Two hundred thousand British Thermal Units (BTU) (58.6 kW•h) input.

Exception: Potable water heaters designed to create hot water instantaneously on demand without the use of a storage tank.

502.4 Indirect-Fired Water Heater. A water heater consisting of a storage tank equipped with an internal or external heat exchanger used to transfer heat from an external source to heat potable water. The storage tank either contains heated potable water or water supplied from an external source, such as a boiler.

502.5 Water Heater. An appliance for supplying hot water for domestic or commercial purposes.

502.6 Instantaneous-Tankless Water Heater. Potable water heating units, sometimes with a small buffer tank, designed to create hot water instantaneously on demand without the use of a storage tank, regardless of size or BTU input, and shall be listed per Chapter 17.

503.0 Permits and Inspection.

UPC 502.0 Permits and 503.0 Inspection. *…Combined and sections are renumbered under Section 503.0.*

UPC 503.1 Inspection of Chimneys or Vents. *…Not adopted.*

503.2 Final Water Heater Inspection. This inspection shall be made after work authorized by the permit has been installed. The Building Official will make such inspection ~~as deemed necessary~~ to be assured that the work has been installed in accordance with the intent of this code~~. No appliance or part thereof shall be covered or concealed until the same has been inspected and approved by the Authority Having Jurisdiction~~.

504.0 Water Heater Requirements.

504.1 Location. *…The reference to Section 506.4 is revised to "the Mechanical Code."*

504.6 Temperature, Pressure, and Vacuum Relief Devices. Temperature, pressure, and vacuum relief devices or combinations thereof~~, and automatic gas shutoff devices~~ shall be installed in accordance with the terms of their listings and the manufacturer's installation instructions. A shutoff valve shall not be placed between the relief valve and the water heater or on discharge pipes between such valves and the atmosphere. The hourly British thermal units (Btu) (kW•h) discharge capacity or the rated steam relief capacity of the device shall be not less than the input rating of the water heater. {NFPA 54:10.26.6} Discharge piping shall be installed in accordance with Section 608.5.

505.0 Oil-Burning and Other Water Heaters.

505.1 Water Heaters. Water heaters deriving heat from fuels or types of energy other than gas shall comply with the standards referenced in Table 501.1(1) or~~,~~ Section 505.3~~, or Section 505.4~~. Vents or chimneys for such appliances shall be of approved types. An adequate supply of air for combustion and for adequate ventilation of heater rooms or compartments shall be provided. Each such appliance shall be installed in a location ~~approved by~~ in accordance with the ~~Authority Having Jurisdiction and local and state fire prevention agencies~~ requirements of this code.

UPC 505.3 Oil-Fired Water Heaters. *…Not adopted and UPC 505.4 is renumbered.*

506.0 Air for Combustion and Ventilation.

UPC 506.0 Air for Combustion and Ventilation. *…Not adopted and is noted as reserved in the OPSC.*

507.0 Appliance and Equipment Installation Requirements.

Section 507.2 Seismic Provisions—Significant Change

Summary: *New and existing Oregon amendments*

Commentary: *"Storage tank" was added at the beginning to clarify that these seismic provisions apply to storage tank water heaters specifically. Tankless or instantaneous water heaters typically include manufacturer-specific installation specifications that require those units to be securely fastened to a wall or otherwise supported by prefabricated rack systems proprietary to each manufacturer. No additional straps or anchors are needed when the installation is made based on the MII.*

The existing Oregon amendment has been retained and further amended to align with the Oregon Residential Specialty Code. Water heaters are not required to be strapped or anchored in one- and two-family dwellings located in Seismic Design Categories B and C, and in townhouses located in Seismic Design Category B. Visit the Oregon Design Criteria Hub to determine the Seismic Design Category of a location.

507.2 Seismic Provisions. Storage tank water heaters shall be anchored or strapped to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper one-third and lower one-third of its vertical dimensions. At the lower point, a distance of not less than 4 inches (102 mm) shall be maintained from the controls with the strapping.

Exception: Water heaters in one- and two-family dwellings in Seismic Design Category B and C and townhouses in Seismic Design Category B are not required to be anchored or strapped to resist horizontal displacement due to earthquake motion.

UPC 507.3 Appliance Support. *…Not adopted and Section 507.4 is renumbered.*

UPC 507.3.1 Structural Capacity. *…Not adopted.*

Section 507.4 Drainage Pan—Significant Change

Summary: *New UPC provisions and existing Oregon amendments*

Commentary: *The UPC modified Section 507.4 by breaking out the requirements into a numbered list and adding some new provisions.*

Section 507.4, Item (1) now requires the terminating end of the drainpipe to be readily visible. This means that the end of the pan drain should discharge in a location that can be observed by building occupants or inspectors with the intent of leaks being recognized before catastrophic failure occurs causing greater damage to finish materials, structures, or building contents. Approved locations include but are not limited to floor drains, floor sinks, laundry or mop sinks, or to the building exterior. Final determination of an approved discharge location is at the discretion of the building official. Section 507.4, Item (3) now requires that piping from drainage pans be rated for the temperature rating of the water heater and Item (4) prohibits discharge from a relief valve into a drainage pan.

The exceptions under Section 507.4 remain and exclude replacement of existing water heaters and instantaneous water heaters from the drainage pan requirements.

507.4 ~~507.5~~ Drainage Pan. Where a water heater is located in an attic, in or on an attic ceiling assembly, floor-ceiling assembly, floor-subfloor assembly or where damage results from a leaking water heater, a watertight pan of corrosion-resistant materials shall be installed beneath the water heater in accordance with the following:

(1) The drainage pan shall be provided with not less than $^3/_4$ of an inch (20 mm) diameter drain to an approved location. The terminating end of the drainpipe shall be readily visible.

(2) The drainage pan shall be not less than $1^1/_2$ inches (38 mm) in depth.

(3) Where a drainage pan pipe is installed, the material of the piping shall be rated for the temperature rating of the water heater and shall be approved for use with the liquid being discharged.

(4) Discharge from a relief valve into a drainage pan shall be prohibited.

Exceptions:

(1) Replacement of an existing water heater shall not require a water heater pan or drain unless one already exists.

(2) Instantaneous water heaters.

UPC 507.6 through 507.11. *…Not adopted.*

507.5 ~~507.12~~ Flammable Vapors. Appliances shall not be installed in areas where the open use, handling, or dispensing of flammable liquids occurs, unless the design, operation, or installation reduces the potential of ignition of the flammable vapors. ~~Appliances~~ Water heaters installed in compliance with Section 507.6 through Section 507.8 shall be considered to comply with the intent of this provision.

507.6 ~~507.13~~ Installation in Residential Garages. ~~Appliances~~ Fuel gas water heaters in residential garages and in adjacent spaces that open to the garage and are not part of the living space of a dwelling unit shall be installed so that all ~~heating elements, switches,~~ burners~~,~~ and burner-ignition devices are located not less than 18 inches (457 mm) above the floor.

Exception: Listed flammable vapor ignition resistant (FVIR) appliances. {NFPA 54:9.1.10.1}

507.6.1 ~~507.13.1~~ Physical Damage. ~~Appliances~~ Fuel gas water heaters installed in garages, warehouses, or other areas subject to mechanical damage shall be guarded against such damage by being installed behind protective barriers in accordance with the Mechanical Code or by being elevated or located out of the normal path of vehicles.

507.6.2 ~~507.13.2~~ Access from the Outside. Where ~~appliances~~ fuel gas water heaters are installed in a separate, enclosed space having access only from outside of the garage, such appliances shall be permitted to be installed at floor level, providing the required combustion air is taken from the exterior of the garage. {NFPA 54:9.1.10.3}

507.7 ~~507.14~~ Installation in Commercial Garages. ~~Appliances~~ Fuel gas water heaters installed in commercial garages shall comply with Section 507.7.1 and Section 507.7.2.

507.7.1 ~~507.14.1~~ Parking Structures. ~~Appliances~~ Fuel gas water heaters installed in enclosed, basement, and underground parking structures shall be installed in accordance with the Mechanical Code ~~NFPA 88A~~.

507.7.2 ~~507.14.2~~ Repair Garages. ~~Appliances~~ Fuel gas water heaters installed in repair garages shall be installed in accordance with ~~NFPA 30A~~ the provisions of the Mechanical Code.

UPC 507.15 Installation in Aircraft Hangars. *…Renumbered to 507.8.*

UPC 507.16 through 507.22. *…Not adopted.*

UPC 507.23 Installation Instructions. *…Renumbered to 507.9.*

UPC 507.24 through 507.26. *…Not adopted.*

508.0 Water Heaters ~~Appliances~~ on Roofs, in Attics or Under-Floor Spaces.

UPC 508.1 through 508.2.3. *…Not adopted.*

UPC 508.3. *…Renumbered to 508.1 and "Appliances" is replaced with "Water heaters."*

UPC 508.3.1 through 508.3.3. *…Renumbered to 508.1.1 through 508.1.3.*

UPC 508.4. *…Renumbered to 508.2 and "Appliances" is replaced with "Water heaters."*

UPC 508.4.1 through 508.4.4. *…Renumbered to 508.2.1 through 508.2.4.*

509.0 Venting of Appliances.

UPC 509.0 Venting of Appliances. *…Not adopted and deleted in its entirety.*

510.0 Sizing of Category I Venting Systems.

UPC 510.0 Sizing of Category I Venting Systems. *…Not adopted and deleted in its entirety.*

CHAPTER 6—WATER SUPPLY AND DISTRIBUTION

601.0 General.

UPC 601.2.1 Hot and Cold Water Required. *…Not adopted.*

602.0 Unlawful Connections.

602.4 Approval by Authority. No water piping supplied by a private water supply system shall be connected to any other source of supply without the approval of the Building Official, Oregon Health Authority ~~Authority Having Jurisdiction, Health Department,~~ or other department having jurisdiction.

603.0 Cross-Connection Control.

603.2 Approval of Devices or Assemblies. Before a device or an assembly is installed for the prevention of backflow, it shall have first been approved by the ~~Authority Having Jurisdiction~~ Building Official, Building Codes Division or the State Plumbing Board. Devices or assemblies shall be tested in accordance with recognized standards or other standards acceptable to the ~~Authority Having Jurisdiction~~ Building Official, Building Codes Division or the State Plumbing Board. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in Section 603.5.1 through Section 603.5.22.

Devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested at the time of installation~~, repair, or relocation and not less than on an annual schedule thereafter, or more often where required by the Authority Having Jurisdiction. Where found to be defective or inoperative, the device or assembly shall be repaired or replaced. No device or assembly shall be removed from use or relocated or other device or assembly substituted, without the approval of the Authority Having Jurisdiction~~.

~~Testing or maintenance shall be performed by a certified backflow assembly tester or repairer certified in accordance with ASSE/IAPMO/ANSI Series 5000 or any other additional certification approved by the Authority Having Jurisdiction.~~

603.4 General Requirements. Assemblies shall comply with listed standards and be acceptable to the Building Official, in accordance with the requirements of this code ~~with jurisdiction over the selection and installation of backflow prevention assemblies~~.

Section 603.4.2 Testing—Significant Change

Summary: *New Oregon amendment*

Commentary: *Section 603.4.2 is updated to align with the requirements for backflow assembly tester certification through the Oregon Health Authority (OHA). "Certified backflow assembly tester" is defined in Section 205.0. OHA 's Backflow Assembly Testers Certification.*

603.4.2 Testing. The premise owner or responsible person shall have the backflow prevention assembly tested at the time of installation by a backflow assembly tester certified by the Oregon Health Authority ~~by a certified backflow assembly tester at the time of installation, repair, or relocation and not less than on an annual schedule thereafter, or more often where required by the Authority Having Jurisdiction. The periodic testing shall be performed in accordance with the procedures referenced in ASSE/IAPMO/ANSI Series 5000 by a tester qualified in accordance with those standards. The field test kit used shall comply with ASSE 1064~~

603.4.9 Prohibited Locations. Backflow prevention devices with atmospheric vents or ports shall not be installed in pits, underground, or submerged locations. Backflow preventers shall not be located in an area containing fumes that are toxic, poisonous, or corrosive.

Exception: A double check valve assembly (DC) shall be permitted to be installed below grade.

603.5.6 Protection from Lawn Sprinklers and Irrigation Systems. Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following devices:

(1) Atmospheric vacuum breaker (AVB)
(2) Pressure vacuum breaker backflow prevention assembly (PVB)
(3) Spill-resistant pressure vacuum breaker (SVB)
(4) Reduced-pressure principle backflow prevention assembly (RP)
(5) Double check valve backflow prevention assembly (DC).
(6)~~(5)~~ A valve complying with IAPMO PS 72

603.5.6.2 Systems with Backflow Devices. Where systems have a backflow device installed downstream from a potable water supply pump or a potable water supply pump connection, the device shall be one of the following:

(1) Atmospheric vacuum breaker (AVB)
(2) Pressure vacuum breaker backflow prevention assembly (PVB)
(3) Spill-resistant pressure vacuum breaker (SVB)
(4) Reduced-pressure principle backflow prevention assembly (RP)
(5) Double check valve backflow prevention assembly (DC).

603.5.11 Nonpotable Water Piping. In cases where it is impractical to correct individual cross-connections on the domestic waterline, the line supplying such outlets shall be considered a nonpotable water line. No drinking or domestic water outlets shall be connected to the nonpotable waterline. Where possible, portions of the nonpotable waterline shall be exposed, and exposed portions shall be properly identified in ~~a manner satisfactory to the Authority Having Jurisdiction~~ accordance with this code. Each outlet on the nonpotable waterline that is permitted to be used for drinking or domestic purposes shall be posted: “CAUTION: NONPOTABLE WATER, DO NOT DRINK.”

603.5.17 Potable Water Outlets and Valves. Potable water outlets, freeze-proof yard hydrants, combination stop-and-waste valves, or other fixtures that incorporate a stop and waste feature that drains into the ground shall not be installed underground.

Exception: External vertical yard hydrants shall be of the self-draining sanitary type or be provided with a dual check valve backflow preventer in accordance with ASSE 1024.

604.0 Materials.

604.10 Plastic Materials. Approved plastic materials shall be permitted to be used in building supply piping, provided that where metal building supply piping is used for electrical grounding purposes, replacement piping, therefore, shall be of like materials.

Exception: Where a grounding system ~~acceptable to the Authority Having Jurisdiction~~ is installed, inspected, and approved~~, the~~ in accordance with the Electrical Code, metallic pipe shall be permitted to be replaced with nonmetallic pipe.

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

Exception: CPVC, PE-RT, PEX, and PP tubing in accordance with the manufacturer’s installation instructions and approved for hot and cold potable water distribution in accordance with Table 604.1 shall be permitted to be installed within the first 18 inches (457 mm) of piping connected to an instantaneous on-demand tankless water heater.

608.0 Water Pressure, Pressure Regulators, Pressure Relief Valves, and Vacuum Relief Valves.

Section 608.2 and 608.3—Significant Change

Summary: *New UPC provisions*

Commentary: *Sections 608.2 and 608.3 now requires expansion tanks to be securely fasted to the structure. This can be accomplished using premanufactured or field fabricated supports that anchor the tank to an adjacent structure such as a wall or even a Unistrut rack. Relying on piping to support an expansion tank is not acceptable unless approved by the local building official or inspector as an alternate method of installation. Existing Oregon amendments to Sections 608.2 and 608.3 are retained.*

608.2 Excessive Water Pressure. Where static water pressure in the water supply piping exceeds 80 psi (552 kPa), an approved-type pressure regulator preceded by an adequate strainer shall be installed and the static pressure reduced to 80 psi (552 kPa) or less. Pressure regulators for potable water distribution systems shall comply with ASSE 1003 ~~or AWWA C530. Pressure regulator(s) equal to or exceeding 1½ inches (40 mm) shall not require a strainer~~. Such regulator(s) shall control the pressure to water outlets in the building unless otherwise approved by the Building Official. Each such regulator and strainer shall be accessibly located aboveground or in a vault equipped with ~~a properly sized and sloped boresighted drain to daylight,~~ adequate means to provide drainage and shall be protected from freezing, and shall have the strainer readily accessible for cleaning without removing the regulator or strainer body or disconnecting the supply piping.

Pipe size determinations shall be based on 80 percent of the reduced pressure where using Table 610.4. An approved expansion tank shall be installed in the cold water distribution piping downstream of each such regulator to prevent pressure exceeding 80 psi from developing due to thermal expansion. Expansion tanks used in potable water systems intended to supply drinking water shall comply with NSF/ANSI/CAN 61. The expansion tank shall be properly sized, securely fastened to the structure, and installed in accordance with the manufacturer's installation instructions and listing. Systems designed by a ~~licensed~~ certified plumbing contractor or registered design professionals shall be permitted to use approved pressure relief valves in lieu of expansion tanks provided such relief valves have a maximum pressure relief setting of 100 psi (689 kPa) or less.

608.3 Expansion Tanks, and Combination Temperature and Pressure-Relief Valves. A water system provided with a check valve, backflow preventer, or other normally closed device that prevents dissipation of building pressure back into the water main, independent of the type of water heater used, shall be provided with an approved, listed, and adequately sized expansion tank or other approved device having a similar function to control thermal expansion. Prepressurized water expansion tanks shall comply with IAPMO/ANSI Z1088. Such expansion tank or other approved device shall be installed on the building side of the check valve, backflow preventer, or other device and shall be sized, securely fastened to the structure, and installed in accordance with the manufacturer's installation instructions.

A water system containing storage water heating equipment shall be provided with an approved, listed, adequately sized combination temperature and pressure-relief valve, except for listed nonstorage instantaneous heaters having an inside diameter of not more than 3 inches (80 mm). Each such approved combination temperature and pressure-relief valve shall be installed on the water-heating device in an approved location based on its listing requirements and the manufacturer's installation instructions. Each such combination temperature and pressure-relief valve shall be provided with a drain in accordance with Section 608.5.

Exception: An expansion tank shall not be required for an instantaneous ~~non-storage~~ on-demand water heater.

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

(1) Not less than the size of the valve outlet and shall discharge full size to the flood level of the area receiving the discharge and pointing down.

(2) Materials shall be rated at not less than the operating temperature of the system and approved for such use or shall comply with ASME A112.4.1.

(3) Discharge pipe shall discharge independently by gravity through an air gap into the drainage system, onto an on-grade concrete garage floor, or outside of the building with the end of the pipe not exceeding 2 feet (610 mm) and not less than 6 inches (152 mm) above the ground and pointing downwards.

(4) Discharge in such a manner that does not cause personal injury or structural damage.

(5) No part of such discharge pipe shall be trapped or subject to freezing.

(6) The terminal end of the pipe shall not be threaded.

(7) Discharge from a relief valve into a water heater pan shall be prohibited.

(8) The discharge termination point shall be readily observable.

609.0 Installation, Testing, Unions, and Location.

Section 609.7 Abutting Lots—Significant Change

Summary: *Modified existing Oregon amendment and rescinded Oregon amendment*

Commentary: *Section 609.7 allows building supplies serving lots without direct access to a public right of way to pass through abutting or nearby lots to access those public utility connections. This section does not allow the building supply of one lot to connect into the private building supply of an abutting or nearby lot. If a public or private utility is available in a public right of way, on an abutting lot, or in a utility easement, the new lot utility shall connect to that.*

609.7 Abutting Lot(s). Nothing contained in this code shall be construed to prohibit the use of an abutting or nearby lot(s) for access to connect a building supply.

~~(1) Provide access to connect a building supply to an available public water service where proper cause and legal easement not in violation of other requirements have been first established to the satisfaction of the Authority Having Jurisdiction.~~

~~(2) Provide additional space for a building supply where the proper cause, transfer of ownership, or change of boundary not in violation of other requirements have been first established to the satisfaction of the Authority Having Jurisdiction. The instrument recording such action shall constitute an agreement with the Authority Having Jurisdiction, which shall clearly state and show that the areas so joined or used shall be maintained as a unit during the time they are so used. Such an agreement shall be recorded in the office of the County Recorder as a part of the conditions of ownership of said properties, and shall be binding on heirs, successors, and assigns to such properties. A copy of the instrument recording such proceedings shall be filed with the Authority Having Jurisdiction.~~

609.10 Disinfection of Potable Water System. New or repaired potable water systems shall be disinfected prior to use where required. ~~by the Authority Having Jurisdiction. The method to be followed shall be that prescribed by the Health Authority or, in case no method is prescribed by it,~~ The method shall comply with the following:

(1) The pipe system shall be flushed with clean, potable water until potable water appears at the points of the outlet.

(2) The system or parts thereof shall be filled with a waterchlorine solution containing not less than 50 parts per million of chlorine, and the system or part thereof shall be valved-off and allowed to stand for 24 hours; or, the system or part thereof shall be filled with a water-chlorine solution containing not less than 200 parts per million of chlorine and allowed to stand for 3 hours.

(3) Following the allowed standing time, the system shall be flushed with clean, potable water until the chlorine residual in the water coming from the system does not exceed the chlorine residual in the flushing water.

(4) The procedure shall be repeated where it is shown by a bacteriological examination made by an approved agency that contamination persists in the system.

609.11 Water Hammer. Building water supply systems where quick-acting valves are installed shall be provided with water hammer arrester(s) to absorb high pressures resulting from the quick closing of these valves. Water hammer arresters shall be approved mechanical devices that comply with ASSE 1010 or PDI-WH 201 and shall be installed as close as possible to quick-acting valves.

Exception: This section shall not apply to one- and two-family dwellings or townhouses.

609.12 Pipe Insulation. Insulation of domestic ~~hot~~ water piping shall be in accordance with the Building Code ~~Section 609.12.1 and Section 609.12.2~~.

UPC 609.12.1 and 609.12.2. *…Not adopted.*

610.0 Size of Potable Water Piping.

610.2 Pressure Loss. Where a water filter, water softener, backflow prevention device, tankless water heater, or similar device is installed in a water supply line, the pressure loss through such devices shall be included in the pressure loss calculations of the system, and the water supply pipe and meter shall be adequately sized to provide for such a pressure loss.

No water filter, water softener, backflow prevention device, or similar device regulated by this code shall be installed in a potable water supply piping where the installation of such device produces an excessive pressure drop in such water supply piping. In the absence of specific pressure drop information, the diameter of the inlet or outlet of such device or its connecting piping shall be not less than the diameter of such water distribution piping to the fixtures served by the device.

Such devices shall ~~be of a type approved by the Authority Having Jurisdiction and shall be tested for flow rating and pressure loss by an approved laboratory or recognized testing agency to standards consistent~~ comply with the intent of this ~~chapter~~ code.

TABLE 610.3
WATER SUPPLY FIXTURE UNITS (WSFU) AND MINIMUM FIXTURE BRANCH PIPE SIZES3

The rest of the table not shown remains unchanged.

APPLIANCES, APPURTENANCES OR FIXTURES[2]	MINIMUM FIXTURE BRANCH PIPE SIZE[1,4] (inches)	PRIVATE	PUBLIC	ASSEMBLY[6]
Urinal, ~~1.0~~ 0.5 GPF Flushometer Valve	3/4	See Footnote[7]		—
Urinal, greater than ~~1.0~~ 0.5 GPF Flushometer Valve	3/4	See Footnote[7]		—
Water Closet, ~~1.6~~ 1.28 GPF Gravity Tank	1/2	2.5	2.5	3.5

[6] Assembly [Public Use (See ~~Table 422.1)~~ Table 2902.1 of the Building Code)].

610.13 Exceptions. The provisions of this section relative to the size of water piping shall not apply to the following:

(1) Water supply piping systems designed in accordance with recognized engineering procedures ~~acceptable to the Authority Having Jurisdiction~~.

(2) Alteration of or minor additions to existing installations ~~provided the Authority Having Jurisdiction finds that there will be~~ that maintain an adequate supply of water to operate fixtures.

(3) Replacement of existing fixtures or appliances.

(4) Piping that is part of fixture equipment.

(5) Unusual conditions where~~, in the judgment of the Authority Having Jurisdiction,~~ an adequate supply of water is provided to operate fixtures and equipment.

(6) The size and material of irrigation water piping installed outside of a building or structure and separated from the potable water supply by means of an approved air gap or backflow prevention device are not regulated by this code. The potable water piping system supplying each such irrigation system shall be adequately sized as required elsewhere in this chapter to deliver the full connected demand of both the domestic use and the irrigation systems.

612.0 Residential Fire Sprinkler Systems.

612.1 Where Required. Where residential multipurpose sprinkler systems are required in one and two-family dwellings or townhouses, the systems shall be installed in accordance with NFPA 13D and Chapter 17. ~~by personnel, installer, or both, certified in accordance with ASSE/IAPMO/ANSI Series 7000 in accordance with this section or NFPA 13D. This section shall be considered equivalent to NFPA 13D. Partial residential sprinkler systems shall be permitted to be installed in buildings not required to be equipped with a residential sprinkler system.~~

The rest of UPC Chapter 6 is not adopted and is deleted.

CHAPTER 7—SANITARY DRAINAGE

701.0 General.

701.2 Drainage Piping. Materials for drainage piping shall be in accordance with one of the referenced standards in Table 701.2 except that:

(1) through (5) remain unchanged.

(6) Cast-iron soil pipe and fittings and the stainless steel couplings used to join these products shall be listed and tested in accordance with standards referenced in Table 701.2. ~~Such pipe and fittings shall be marked with the country of origin, manufacturer's name or registered trademark as defined in the product standards, the third party certifier's mark, and the class of the pipe or fitting.~~

702.0 Fixture Unit Equivalents.

TABLE 702.1
DRAINAGE FIXTURE UNIT VALUES (DFU)

The rest of the table not shown remains unchanged.

PLUMBING APPLIANCES, APPURTENANCES, OR FIXTURES	MINIMUM SIZE TRAP AND TRAP ARM[7] (inches)	PRIVATE	PUBLIC	ASSEMBLY[8]
Urinal, integral trap ~~1.0~~ 0.5 GPF[2]	2	2.0	2.0	5.0
Urinal, integral trap greater than ~~1.0~~ 0.5 GPF	2	2.0	2.0	6.0
Urinal, exposed trap[2]	1 1/2	2.0	2.0	5.0
Water Closet, ~~1.6~~ 1.28 GPF Gravity Tank[6]	3	3.0	4.0	6.0

For SI units: 1 inch = 25 mm

Notes:

[8] Assembly [Public Use (see ~~Table 422.1~~ Table 2902.1 of the Building Code)].

703.0 Size of Drainage Piping.

TABLE 703.2
MAXIMUM UNIT LOADING AND MAXIMUM LENGTH OF DRAINAGE AND VENT PIPING

The rest of the table not shown remains unchanged.

SIZE OF PIPE (inches)	1¼	1½	2	3	4	5	6	8	10	12
Drainage Piping[1]										
Vertical	1	2[2, 7]	16[3]	48[4]	256	600	1380	3600	5600	8400
Horizontal	1	~~1[7]~~ 2[2, 7]	83	35[4]	216[5]	428[5]	720[5]	2640[5]	4680[5]	8200[5]

For SI units: 1 inch = 25 mm, 1 foot = 304.8 mm

Notes:

[7] Up to 8 public lavatories are permitted to be installed on a 1 1/2 inch (40 mm) vertical branch or horizontal sanitary branch sloped at 1/4 inch per foot (20.8 mm/m). Up to 8 public lavatories shall not exceed a total of 2 drainage fixture units.

704.0 Fixture Connections (Drainage).

704.3 Commercial Sinks. Pot sinks, scullery sinks, dishwashing sinks, silverware sinks, and other similar fixtures shall be connected directly to the drainage system. A floor drain shall be provided adjacent to the fixture and shall be connected on the sewer side of the sink. No other drainage line shall be connected between the floor drain waste connection and the fixture drain. The fixture and floor drain shall be trapped and vented in accordance with this code.

Exception: The above listed fixtures shall be permitted to be drained indirectly without the requirement of the adjacent floor drain when provided with an approved air gap no less than 1 inch (25.4 mm).

705.0 Joints and Connections.

705.6.2 Solvent Cement Joints. Solvent cement joints for PVC pipe and fittings shall be clean from dirt and moisture. Pipe shall be cut square, and pipe shall be deburred. Where surfaces to be joined are cleaned and free of dirt, moisture, oil, and other foreign material, apply primer purple in color that complies with ASTM F656. Primer shall be applied to the surface of the pipe and fitting is softened. Solvent cement that comply with ASTM D2564 shall be applied to all joint surfaces. Joints shall be made while both the inside socket surface and outside surface of pipe are wet with solvent cement. Hold joint in place and undisturbed for 1 minute after assembly.

Exception: Listed solvent cements that do not require the use of primer with PVC/DWV non-pressure systems and installed per the manufacturer's installation instructions.

707.0 Cleanouts.

707.4 Location. Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal, and each run of piping, that is more than 100 feet (30 480 mm) in total developed length, shall be provided with a cleanout for each 100 feet (30 480 mm), or fraction thereof, in length of such piping. An additional cleanout shall be provided in a drainage line for each aggregate horizontal change in direction exceeding 135 degrees (2.36 rad). A cleanout shall be installed above the fixture connection fitting, serving each urinal, regardless of the location of the urinal in the building.

Exceptions: *(1) through (3) remain unchanged.*

(4) An approved type of two-way cleanout fitting, installed inside the building wall near the connection between the building drain and the building sewer or installed outside of a building at the lower end of a building drain and extended to grade, shall be permitted to be substituted for an upper terminal cleanout. A cleanout extension, where installed, shall not exceed 3 feet (914 mm) and shall have no offset or change in direction.

Section 707.9 Clearance—Significant Change

Summary: *Existing and new Oregon amendments*

Commentary: *The existing amendment deleting the UPC's 5-foot maximum distance an underfloor cleanout can be located from an access door, trap door, or crawl hole is retained. A new amendment is adopted to clarify the intent of "ducts, beams, and piping" as obstructions.*

The provisions of Section 707.9 aim to direct installers and designers to carefully select where cleanouts are placed so they will be of the most use. Where it is not possible to extend a cleanout to an easily accessible location, Section 707.9 permits cleanouts to be installed under the floor but only when specific requirements are met. Clear space needs to be provided in front of any cleanout. Where cleanouts need to be installed underfloors, the additional requirements in paragraph two will apply. The intent here is to provide an unobstructed path between crawlspace access and cleanouts. This means a clear path at least 18 inches tall and 30 inches wide with no obstructions shall be provided. No ducts, beams, piping, or other obstructions are permitted in that clear path unless they allow 18 inches clear space below and maintain the 30-inch-wide pathway. If this clear space cannot be maintained from the access to the cleanout, the cleanout will need to be extended to an accessible location under the floor or ideally above the floor or outside as discussed earlier. There is no limitation on distance from the crawlspace access to the cleanout where these clearances are met.

707.9 Clearance. Each cleanout in piping 2 inches (50 mm) or less in size shall be so installed that there is a clearance of not less than 18 inches (457 mm) by 18 inches (457 mm) in front of the cleanout. Cleanouts in piping exceeding 2 inches (50 mm) shall have a clearance of not less than 24 inches (610 mm) by 24 inches (610 mm) in front of the cleanout.

Cleanouts in under-floor piping shall be extended to or above the finished floor or shall be extended outside the building where vertical clearance, measured from the bottom of ~~there is less than 18 inches (457 mm) vertical overall, allowing for~~ obstructions such as ducts, beams, and piping, is less than 18 inches. Additionally, a clear horizontal path of not less than ~~and~~ 30 inches (762 mm) shall be maintained between ~~of horizontal clearance from~~ the means of access ~~to such~~ and the cleanout without obstructions. ~~No under-floor cleanout shall be located exceeding 5 feet (1524 mm) from an access door, trap door, or crawl hole.~~

710.0 Drainage of Fixtures Located Below the Next Upstream Manhole or …

710.4 Discharge Line. The discharge line from such ejector, pump, or another mechanical device shall be of approved pressure rated material and be provided with an accessible backwater or swing check valve and gate or ball valve. Fittings shall be a fullway type, shall not restrict flow, and be approved for use with the pressure discharge piping. Where the gravity drainage line to which such discharge line connects is horizontal, the method of connection shall be from the top through a wye branch fitting. The gate or ball valve shall be located on the discharge side of the backwater or check valve.

Gate or ball valves, where installed in drainage piping, shall be fullway type with working parts of corrosion-resistant metal. Sizes 4 inches (100 mm) or more in diameter shall have cast-iron bodies and sizes less than 4 inches (100 mm), cast-iron or copper alloy bodies.

710.10 Sump and Receiving Tank Covers and Vents. Sumps and receiving tanks shall be provided with substantial covers having a bolt-and-gasket-type manhole or equivalent opening with a minimum of 24-inch (610 mm) clearance above the lid to permit access for inspection, repairs, and cleaning. The top shall be provided with a vent pipe that shall extend separately through the roof or, where permitted, be combined with other vent pipes. Such vent shall be large enough to maintain atmospheric pressure within the sump under normal operating conditions and, in no case, shall be less in size than that required by Table 703.2 for the number and type of fixtures discharging into the sump, nor less than $1^1/_2$ inches (40 mm) in diameter. Where the preceding requirements are met and the vent, after leaving the sump, is combined with vents from fixtures discharging into the sump, the size of the combined vent need not exceed that required for the total number of fixtures discharging into the sump. No vent from an air-operating sewage ejector shall combine with other vents.

710.14 Elevator Pit Drains. Permanent means of drainage shall be provided for each elevator car. Gravity drains, when installed, shall be provided with an approved-type backwater valve to prevent drain line backup and the trap seal shall be protected with an automatic trap seal primer. Sumps and pumps shall be permitted to be installed where provided with the following:

(1) A check valve to prevent water, gases, and odors from entering the pit.

(2) A secured and level cover over the sump.

(3) An automatic activation switch.

(4) A minimum 50 gpm (3.15 L/s) pump per hoistway.

(5) A minimum 2-inch (51 mm) discharge pipe.

(6) Sump size as recommended by the pump manufacturer.

(7) The outlet pipe of the pump shall be directly or indirectly connected to the sanitary drainage system.

(8) Single pumps shall be permitted.

(9) A minimum 4-inch (100 mm) receiving gravity drain at $^1/_4$ inch per foot slope (20.8 mm/m) or 2 percent shall serve the branch connected through the trap.

(10) Dual pumps and oil water separator are not required.

712.0 Testing.

Section 712.1 Media—Significant Change

Summary: *Rescinded Oregon amendment*

Commentary: *The existing amendment deleting the provision that prohibits plastic pipe from being air tested is rescinded. Where water tests are proven to be impractical or impossible due to availability of water or adverse conditions, alternate methods of testing can be approved by local building officials.*

712.1 Media. The piping of the plumbing, drainage, and venting systems shall be tested with water or air except that plastic pipe shall not be tested with air. The Building Official 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.

713.0 Sewer Required.

713.1 Where Required. A building in which plumbing fixtures are installed and premises having drainage piping thereon shall have a connection to a public or private sewer~~, except as provided in Section 713.2, and Section 713.4~~ as required by ORS 447.140.

> **ORS 447.140** is not part of this code but is reprinted here for the reader's convenience:
> **447.140 Wastewater and sewage from plumbing fixtures; requirements; prohibitions.**
> (1) All wastewater and sewage from plumbing fixtures shall be discharged into a sewer system or alternate sewage disposal system approved by the Environmental Quality Commission or Department of Environmental Quality under ORS chapters 468, 468A and 468B.

UPC 713.2 through 713.6. *…Not adopted.*

~~**713.7**~~ **713.2 Installation.** In cities, counties, or both where the installation of building sewers is under the jurisdiction of a department other than the Building Official, the provisions of this code relating to building sewers need not apply.

~~**Exception:**~~ *…Not adopted.*

714.0 Damage to Public Sewer or Private Sewage Disposal System.

714.5 Tanks. An approved type, watertight sewage or wastewater holding tank, the contents of which, due to their character, shall be periodically removed and disposed of, where required, ~~at some approved off-site location, shall be installed where required by the Authority Having Jurisdiction or the Health Officer~~ to prevent anticipated surface or subsurface contamination or pollution, damage to the public sewer, or other hazardous or nuisance conditions.

715.0 Building Sewer Materials.

715.1 Materials. The building sewer, beginning ~~2~~5 feet (~~610~~1524 mm) from a building or structure, shall be of such materials as prescribed in this code.

716.0 Markings.

716.1 General. Pipe, brick, block, prefabricated septic tanks, prefabricated septic tank or seepage pit covers, or other parts or appurtenances incidental to the installation of building sewers ~~or private sewage disposal systems~~ shall be in accordance with the approval requirements of Chapter 3 of this code.

717.0 Size of Building Sewers.

718.3 Protection from Damage. No building sewer or other drainage piping or part thereof, which is constructed of materials other than those approved for use under or within a building, shall be installed under or within ~~2~~5 feet (~~610~~1524 mm) of a building or structure, or part thereof, nor less than 1 foot (305 mm) below the surface of the ground. The provisions of this subsection include structures such as porches and steps, whether covered or uncovered; breezeways; roofed porte cochere; roofed patios; carports; covered walks; covered driveways; and similar structures or appurtenances.

718.4 Tracer Wire. All nonmetallic yard building sewer piping shall have an electrically conductive tracer wire 14-gauge, insulated copper or heavier, green in color, or other approved materials installed in the trench for locating the pipe in the future. The tracer wire shall run along the developed length of the building sewer, with one end left above the finished grade at the building end of the pipe, or at a cleanout next to the building wall, and shall be clearly marked. The other end of the tracer wire shall be spliced into the serving utilities tracer wire, where present.

719.0 Cleanouts.

719.7 Labeling Downstream Backwater Valve. Cleanouts for building sewers with a downstream backwater valve shall be clearly identified with a weather resistant label, sign or markings on the outside building cleanout with the words: "backwater valve downstream."

721.0 Location.

TABLE 721.1
MINIMUM HORIZONTAL DISTANCE REQUIRED FROM BUILDING SEWER (feet)

The rest of the table not shown remains unchanged.

Buildings or structures[1]	~~2~~5

Notes:

[6] For crossings, approval by the Oregon Health Authority or the Building Official ~~Health Department or the Authority Having Jurisdiction~~ shall be required.

Section 721.2 Abutting Lot(s)—Significant Change

Summary: *Modified existing Oregon amendment*

Commentary: *Similar to Section 609.7, Section 721.2 allows building supplies serving lots without direct access to a public right of way to pass through abutting or nearby lots to access those public utility connections. This section does not allow the building supply of one lot to connect into the private building supply of an abutting or nearby lot. If a public or private utility is available in a public right of way, on an abutting lot, or in a utility easement, the new lot utility shall connect to that.*

The Oregon amendment requiring documentation of a legal easement is rescinded. Although recording a legal easement is typically required during site development or planning, it is a contractual agreement between two property owners and is not enforced by the OPSC. Building officials requesting documentation of legal easement prior to issuance of plumbing permits do so outside of the authority of the OPSC.

721.2 Abutting Lot(s). Nothing contained in this code shall be construed to prohibit the use of all or part of an abutting or nearby lot(s) for access to connect a building sewer~~, provided documentation of a legal easement for access to connect a building sewer is submitted to the Building Official~~.

722.0 Abandoned Sewers and Sewage Disposal Facilities.

722.2 Cesspools, Septic Tanks, and Seepage Pits. ~~A cesspool, septic tank, and seepage pit that has been abandoned or has been discontinued otherwise from further use, or to which no waste or soil pipe from a plumbing fixture is connected, shall have the sewage removed therefrom and be completely filled with earth, sand, gravel, concrete, or other approved material.~~ See applicable requirements for cesspools, septic tanks, and seepage pits as established by the Department of Environmental Quality.

UPC 722.3 through 722.5. *…Not adopted.*

723.0 Building Sewer Test.

Section 723.1 Building Sewer Testing—Significant Change

Summary: *Rescinded Oregon amendments*

Commentary: *The Oregon amendment deleting the provision that prohibits DWV piping from being tested with air is rescinded. Where water tests are proven to be impractical or impossible due to availability of water or adverse conditions, alternate methods of testing can be approved by local building officials.*

The Oregon amendment replacing "watertight" with "free from leaks" is rescinded and the UPC language is adopted without amendment.

723.1 General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection to the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to the highest point thereof, or by approved equivalent low-pressure air test. Plastic DWV piping systems shall not be tested by the air test method. The building sewer shall be watertight.

CHAPTER 8—INDIRECT WASTES

803.0 Indirect Waste Piping.

803.1 Materials. Pipe, tube, and fittings conveying indirect waste shall be of such materials and design as to perform their intended function ~~to the satisfaction of the Authority Having Jurisdiction~~ as approved by the Building Official.

804.0 Indirect Waste Receptors.

804.1 Standpipe Receptors. Plumbing fixtures or other receptors receiving the discharge of indirect waste pipes shall be approved for the use proposed and shall be of such shape and capacity as to prevent splashing or flooding and shall be located where they are readily accessible for inspection and cleaning. No standpipe receptor for a clothes washer shall extend more than 30 inches (762 mm), or not less than 18 inches (457 mm) above its trap weir. No trap for a clothes washer standpipe receptor shall be installed below the floor, but shall be roughed in not less than 6 inches (152 mm) and not more than 18 inches (457 mm) above the floor. No indirect waste receptor shall be installed in a toilet room, closet~~, cupboard~~, or storeroom, or in a portion of a building not in general use by the occupants thereof; except standpipes for clothes washers shall be permitted to be installed in toilet and bathroom areas where the clothes washer is installed in the same room.

Exception: Receptors placed in a cabinet that are accessible through an opening to allow for inspection and cleaning.

807.0 Appliances.

807.3 Domestic Dishwashing Machine. ~~No domestic dishwashing machine shall be directly connected to a drainage system or food waste disposer without the use of an approved dishwasher air gap fitting on the discharge side of the dishwashing machine. Listed dishwasher air gap fittings shall be installed with the flood-level (FL) marking at or above the flood level of the sink or drainboard, whichever is higher.~~ A domestic-type dishwasher having a pump for removing waste water shall discharge over the sink or shall connect to a fitting or other inlet between the sink and sink trap where the discharge pipe from the pump is extended to the underside of the cabinet top and securely anchored. The discharge pipe extending from the dishwasher pump outlet to a connection above and on the inlet side of a sink trap shall be of copper tube or other materials approved for such purposes.

810.0 Steam and Hot Water Drainage Condensers and Sumps.

810.4 Strainers. An indirect waste ~~interceptor is~~ receptor receiving discharge containing particles that would clog the receptor drain shall have a readily removable beehive strainer.

811.0 Chemical Wastes.

811.1 Pretreatment. Chemical or liquid industrial wastes that are likely to damage or increase maintenance costs on the sanitary sewer system, detrimentally affect sewage treatment or contaminate surface or subsurface waters shall be pretreated to render them innocuous before discharge into a drainage system. ~~Detailed~~ Chemical or industrial liquid waste systems require construction documents ~~of the pretreatment facilities shall be required by the Authority Having Jurisdiction~~ as specified in Section 104.3.1.

Piping conveying industrial, chemical, or process wastes from their point of origin to sewer-connected pretreatment facilities shall be of such material and design as to adequately perform its intended function ~~to the satisfaction of the Authority Having Jurisdiction~~ as approved by the Building Official. Drainage discharge piping from pretreatment facilities or interceptors shall be in accordance with standard drainage installation procedures.

Copper or copper alloy tube shall not be used for chemical or industrial wastes as defined in this section.

814.0 Condensate Waste and Control.

UPC 814.1 through 814.5 and Table 814.3. *…Not adopted.*
UPC 814.6 and 814.7. *…Renumbered.*

CHAPTER 9—VENTS

901.0 General.

902.3 Floor Drains and Similar Traps. Traps for floor drains, floor sinks, funnel drains, area drains, catch basins and receptors within a building shall not require vent piping in accordance with Section 1006.2.

905.0 Vent Pipe Grades and Connections.

905.2 Horizontal Drainage Pipe. Where vents connect to a horizontal drainage pipe, each vent pipe shall have its invert taken off above the drainage centerline of such pipe downstream of the trap being served. A sanitary tee shall be permitted for a change in direction from vertical to horizontal for a vertical dry vent connection to a horizontal drain.

906.0 Vent Termination.

906.1 Roof Termination. Each vent pipe or stack shall extend through its flashing and shall terminate vertically not less than 6 inches (152 mm) above the roof nor less than 1 foot (305 mm) from a vertical surface. ~~ABS and PVC piping exposed to sunlight shall be protected by water based synthetic latex paints.~~

906.7 Frost or Snow Closure. Where frost or snow closure is likely to occur in locations having minimum design temperature below 0°F (-17.8°C), vent terminals shall be not less than 3 inches (76 mm) in diameter, but in no event smaller than the required vent pipe. The change in diameter shall be made inside the building not less than 1 foot (305 mm) below the roof in an insulated space and terminate not less than 10 inches (254 mm) above the roof~~, or in accordance with the Authority Having Jurisdiction~~ as approved by the Building Official.

910.0 Combination Waste and Vent Systems.

UPC 910.2 Approval. *…Not adopted.*

UPC 910.3 and 910.7. *…Renumbered.*

CHAPTER 10—TRAPS AND INTERCEPTORS

1002.0 Traps Protected by Vent Pipes.

Table 1002.2 Horizontal Lengths of Trap Arms—Significant Change

Summary: *New UPC provisions*

Commentary: *The UPC added a note for Table 1002.2 allowing for longer trap arm lengths for certain fixtures connecting to a horizontal wet vent. Horizontally wet vented bathtubs, showers and similar fixtures shall be limited to a maximum of 6 feet for 1 1/2 inch fixture drains and 8 feet for 2 inch fixture drains, maintaining 1/4 inch per foot slope. Important note: these extended trap arm lengths only apply to fixtures served by a horizontal wet vent.*

TABLE 1002.2
HORIZONTAL LENGTHS OF TRAP ARMS (EXCEPT FOR WATER CLOSETS AND SIMILAR FIXTURES)[1, 2, 3]

TRAP ARM PIPE DIAMETER (inches)	DISTANCE TRAP TO VENT MINIMUM (inches)	LENGTH MAXIMUM (inches)
1 1/4	2 1/2	30
1 1/2	3	42
2	4	60
3	6	72
4	8	120
Exceeding 4	2 x Diameter	120

For SI units: 1 inch = 25.4 mm

Notes:

1 Maintain 1/4 inch per foot slope (20.8 mm/m).

2 The developed length between the trap of a water closet or similar fixture (measured from the face of the closet flange to the inner edge of the vent) and its vent shall not exceed 6 feet (1829 mm).

3 Horizontally wet vented bathtubs, showers and similar fixtures shall be limited to a maximum of 6 feet (1829 mm) for 1 1/2 inch (40 mm) fixture drains and 8 feet (2438 mm) for 2 inch (50 mm) fixture drains, maintaining 1/4 inch per foot slope (20.8 mm/m).

1005.0 Trap Seals.

1005.1 General. Each fixture trap shall have a liquid seal of not less than 2 inches (51 mm) and not more than 4 inches (102 mm)~~, except where a deeper seal is found necessary by the Authority Having Jurisdiction~~. Traps shall be set true with respect to their liquid seals and, where necessary, they shall be protected from freezing. Where a deeper seal is necessary it shall be approved by the Building Official.

1006.0 Floor Drain and Similar Traps.

1006.1 General. Floor drains, floor sinks, funnel drains, and similar fixtures shall connect into a trap so constructed that it can be readily cleaned and of a size to serve efficiently the purpose for which it is intended. The drain inlet shall be so located that it is in full view. ~~Where subject to the reverse flow of sewage or liquid waste, such drains shall be equipped with an approved backwater valve.~~

1006.2 Vents Not Required. Traps for floor drains, floor sinks, funnel drains, area drains, and low demand receptors within a building discharging to a vented horizontal soil or waste pipe are exempt from the provision requiring individual vents for each trap, provided that the trap arm, or distance from the trap to the vented horizontal soil or waste pipe to which it discharges, measuring the developed length, does not exceed the maximum distances as shown in Table 1006.2, and that the branch waste pipe from the trap connects to a soil or waste pipe which is vented with a pipe having a diameter not less than that which would be required to vent a floor drain, floor sink, funnel drain, area drain, and low demand receptors, computed on the units allowed in Table 702.1 and Table 703.2. Common vent sizing shall be the sum of fixture units served, but in no case smaller than the minimum vent size required for any fixture served or as determined from Table 703.2 whichever is larger.

Exception: Floor sinks installed to receive the discharge of waste from sinks shall be permitted to be individually vented and need not be primed.

TABLE 1006.2
FLOOR DRAINS

MAXIMUM HORIZONTAL DISTANCE TO VENT OR VENTED LINE		
TRAP SIZE I.D. (inches)	**WASTE BRANCH SIZE I.D. (inches)**	**MAXIMUM DIST. (feet)**
2	2	6
3	3	10
4	4	14
6	6	20

For SI units: 1 inch = 25.4 mm

Notes:

[1] Vents are not required for traps for exterior area drains and catch basins which discharge to a storm water drain system.

[2] Cleanouts required in Section 707.0 do not apply when utilizing Table 1006.2, except for catch basins.

1007.0 Trap Seal Protection.

1007.1 General. Floor drain or similar traps directly connected to the drainage system ~~and subject to infrequent use shall be protected with a trap seal primer, except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction. Trap seal primers shall be accessible for maintenance~~ shall be provided with an approved automatic means of maintaining their water seals.

1007.3 Non-Pressure-Activated Primer Valve. Each non-pressure-activated primer valve, similar operated device, or toilet flush primer connection shall serve no more than two traps, unless a specific non-pressure activated primer valve, similarly operated device, or toilet flush primer is approved for a limited number of traps by the Building Official. Pressure-activated primer valves shall be limited to the number of traps to be served as approved by the Building Official for that specific valve.

1007.4 Supply Piping. Supply piping between the priming device connection and the trap shall be at least $^{3}/_{8}$ inch (12 mm) I.D. The supply piping to priming devices shall be protected against a form of cross-connection and sized according to the primer device manufacturer's recommendation.

1007.5 Primer Valve. Primer valve bodies shall be installed at a minimum of 12 inches (305 mm) above the flood level rim of the fixture being served and in an accessible location.

1007.6 Primer Headers. Primer headers for three or more traps shall be the "inverted manifold" type (or other approved method) having equal water flow to all outlets, with each outlet provided with a threaded removable plug or cap inspection fitting. Approved flush tanks shall be permitted as an alternate supply source for primer headers.

1007.7 Primer Stop. When installed, a primer stop shall be an accessible screwdriver stop.

1007.8 Barrier Type Floor Drain Trap Seal Protection. Barrier type floor drain trap seal protection devices shall be in accordance with ASSE 1072. When installed, the device shall be installed according to the device manufacturer's installation instructions, and the device shall not be used in lieu of the requirements in Section 1007.1.

1009.0 Interceptors (Clarifiers) and Separators.

1009.1 Where Required. Interceptors (clarifiers) (including grease, oil, sand, solid interceptors, etc.) shall be required by the Building Official where they are necessary for the proper handling of liquid wastes containing grease, flammable wastes, sand, solids, acid or alkaline substances, or other ingredients harmful to the building drainage system, the public or private sewer, or to public or private sewage disposal. A list of acceptable interceptor standards is referenced in Table 1009.1.

Table 1009.1 Approved Interceptors—Significant Change

Summary: *New UPC provisions*

Commentary: *The UPC added a new table identifying the approved interceptors and their approved standards as a quick reference.*

TABLE 1009.1
APPROVED INTERCEPTORS (CLARIFIERS)

APPLICATION	STANDARD
Fats, Oil, Grease (FOG)	ASME A112.14.3, ASME A112.14.4, ASME A112.14.6, CSA B481, ANSI/CAN/IAPMO Z1001,PDI G-101, PDI G-102
Solid Waste	IAPMO IGC 167
Non-petroleum Oil	ASME A112.14.6, IAPMO PS 80, PDI G-102
Petroleum Oil	ASTM D6104, IAPMO IGC 183, IAPMO IGC 325

1009.5 Location. Each interceptor (clarifier) cover shall be readily accessible for servicing and maintaining the interceptor (clarifier) in working and operating condition. The use of ladders or the removal of bulky equipment to service interceptors (clarifiers) shall constitute a violation of accessibility. ~~Location of interceptors (clarifiers) shall be shown on the approved building plan.~~

UPC 1009.6 Maintenance of Interceptors. *…Not adopted and Section 1009.7 is renumbered.*

1014.0 Grease Interceptors.

1014.1 Where Required. Waste pretreatment is required in all Food Service Establishments. Waste pretreatment is also required in other establishments as determined by the Building Official, where grease is introduced into the drainage or sewer system. An approved type of grease interceptor(s) complying with the provisions of this section shall be correctly sized and properly installed.

All plumbing fixtures, garbage disposals, dishwashers, floor drains, and cooking equipment, with drain connections in food and/or beverage preparation areas of all Food Service Establishments shall be connected to the grease interceptor(s).

If a garbage disposal is installed on a system using a hydromechanical grease interceptor, a solids interceptor shall be installed upstream of the inlet of the grease interceptor.

When space or existing physical constraints of existing buildings necessitate such installations any combination of hydromechanical, gravity grease interceptors, and professionally engineered systems shall be permitted to meet this code and other applicable requirements of the Building Official. A grease interceptor shall not be required for individual dwelling units or for any private living quarters.

Exceptions:

(1) Ice wells and condensate drains shall be permitted to drain into or through the grease interceptor(s).

(2) Bathroom plumbing fixtures, including bathroom floor drains, shall not drain into or through the grease interceptor(s).

UPC 1014.1 General. *…Not adopted.*

UPC 1014.1.1. *…Renumbered to 1014.1.*

UPC 1014.1.2 Maintenance. *…Not adopted.*

UPC 1014.1.3 Food Waste Disposers and Dishwashers. *…Not adopted.*

Section 1014.2.1 Hydromechanical Grease Interceptor Capacity—Significant Change

Summary: *New Oregon amendment*

Commentary: *An Oregon amendment is added to allow for the flow rate of the interceptor to comply with the manufacturer's sizing recommendations.*

1014.2.1 Capacity. The total capacity in gallons (gal) (L) of fixtures discharging into a hydromechanical grease interceptor shall not exceed two and one-half times the certified gallon per minute (gpm) (L/s) flow rate of the interceptor in accordance with Table 1014.2.1 or the manufacturer's sizing recommendations.

For this section, the term "fixture" shall mean and include each plumbing fixture, appliance, apparatus, or other equipment required to be connected to or discharged into a grease interceptor by a provision of this section.

UPC Table 1014.2.1 Hydromechanical Grease Interceptor Sizing Using Gravity Flow Rates. *…Not adopted.*

TABLE 1014.2.1
HYDROMECHANICAL GREASE INTERCEPTOR (HGI) SIZING CHART[1]

DRAINAGE FIXTURE UNITS (DFUs)	HGI FLOW (gpm)
8	20
10	25
13	35
20	50
35	75
172	100
216	150
342	200
428	250
576	350
720	500

For SI units: 1 gallon = 3.785 L

Note: Sizing criteria specified in Section 1014.2.1 are based upon proper maintenance of the grease interceptor(s).

[1] Based on intermittent potentially full flow in drainage lines.

1014.3.2 Waste Discharge Requirements. Waste discharge ~~in establishments~~ from plumbing fixtures and equipment ~~which contain grease, including but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, and floor drains located in areas where grease-containing materials exist~~ as required in Section 1014.0, shall be permitted to be drained into the sanitary waste through the interceptor where approved by the Building Official.

1014.3.2.1 Toilets and Urinals. Bathroom fixtures, toilets, urinals, and other similar fixtures shall not drain through the interceptor.

1014.3.5 Construction Requirements. Gravity grease interceptors shall be designed to remove grease from effluent and shall be sized in accordance with this section. Gravity grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor. ~~When provided,~~ It is recommended that a sample box ~~shall~~ be located at the outlet end of gravity grease interceptors so that ~~the Authority Having Jurisdiction~~ effluent quality can be sampled periodically ~~sample effluent quality~~.

1014.3.7 Abandoned Gravity Grease Interceptors. ~~Abandoned grease interceptors shall be pumped and filled as required for abandoned sewers and sewage disposal facilities in Section 722.0.~~ Abandoned grease interceptors shall be pumped and filled with earth, sand, gravel, concrete, or other approved material. The cover shall be removed before filling, and the filling shall not extend above the top of the vertical portions of the sidewalls or above the level of the outlet pipe until inspection has been called and the grease interceptor has been inspected. After such inspection, the grease interceptor shall be filled to the level of the top of the ground.

1015.0 FOG (Fats, Oils, and Greases) Disposal System.

1015.1 Purpose. The purpose of this section is to provide the necessary criteria for the sizing, application, and installation of FOG disposal systems ~~designated as a pretreatment or discharge water quality compliance strategy~~.

1016.0 Sand Interceptors.

1016.2 ~~Authority Having Jurisdiction~~ Where Required. Sand interceptors are required where the ~~Authority Having Jurisdiction deems it advisable to have~~ Building Official determines that a sand interceptor is required to protect the drainage system.

1017.0 Oil and Flammable Liquid Interceptors.

1017.3 Interceptor Details. Oil and flammable liquid interceptors shall be in accordance with the following:

(1) The separation or vapor compartment shall be independently vented to the outer air. Where two or more separation or vapor compartments are used, each shall be vented to the outer air or shall be permitted to connect to a header that is installed at a minimum of 6 inches (152 mm) above the spill line of the lowest floor drain and vented independently to the outer air.

(2) The minimum size of a flammable vapor vent shall be not less than 2 inches (50 mm), and, where vented through a sidewall, the vent shall be not less than 10 feet (3048 mm) above the adjacent level at an approved location.

(3) The interceptor shall be vented on the sewer side and shall not connect to a flammable vapor vent. Oil and flammable interceptors shall be provided with gastight cleanout covers that shall be readily accessible.

(4) The waste line shall be not less than 3 inches (80 mm) in diameter with a full-size cleanout to grade.

(5) Where an interceptor is provided with an overflow, it shall be provided with an overflow line [not less than 2 inches (50 mm) in diameter] to an approved waste oil tank having a minimum capacity of 550 gallons (2082 L) ~~and meeting the requirements of the Authority Having Jurisdiction~~.

(a) The waste oil from the separator shall flow by gravity or shall be pumped to a higher elevation by an automatic pump.

(b) Pumps shall be adequately sized and accessible.

(c) Waste oil tanks shall have a 2 inch (50 mm) minimum pump-out connection at grade and an $1^1/_2$ inch (40 mm) minimum vent to atmosphere at an approved location not less than 10 feet (3048 mm) above grade.

CHAPTER 11—STORM DRAINAGE

1101.0 General.

1101.2 Where Required. Roofs, paved areas, yards, courts, courtyards, vent shafts, light wells, or similar areas having rainwater, shall be drained into a separate storm sewer system, or into a combined sewer system where a separate storm sewer system is not available, or to some other place of disposal satisfactory to the Building Official. ~~In the case of one- and two-family dwellings, storm water shall be permitted to be discharged on flat areas, such as streets or lawns, so long as the storm water shall flow away from the building and away from adjoining property, and shall not create a nuisance~~.

1101.4 Material Uses. Pipe, tube, and fittings conveying rainwater shall be of such materials and design as to perform their intended function in accordance with the requirements of this code ~~to the satisfaction of the Authority Having Jurisdiction~~. Conductors within a vent or shaft shall be of cast-iron, galvanized steel, wrought iron, copper, copper alloy, lead, Schedule 40 ABS DWV, Schedule 40 PVC DWV, 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 other approved materials~~, and changes in direction shall be in accordance with the requirements of Section 706.0~~. ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Chapter 17 and 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. ~~Plastic piping installed in plenums shall be tested in accordance with all requirements of ASTM E84 or UL 723. Mounting methods, supports and sample sizes of materials for testing that are not specified in ASTM E84 or UL 723 shall be prohibited.~~

1101.4.1 Installation. The installation of building storm sewers shall conform to all requirements applicable under this code.

1101.4.2 Location. Building storm sewers located 2 feet (610 mm) or more away from any building or property line, except roads, streets or alleys, shall be of cast iron, vitrified clay, concrete, asbestos cement, ABS, PVC, CPE, or other pipe meeting applicable standards in Table 701.2, Table 1101.4.9, and Chapter 17. Fittings shall be in accordance with Section 706.0.

1101.4.3 Cleanouts. Cleanouts shall be required and shall be installed in accordance with Section 719.0.

1101.4.4 ~~**1101.4.1**~~ **Copper and Copper Alloys.** Joints and connections in copper and copper alloy pipe and tube shall be installed in accordance with Section 705.3.

1101.4.5 ~~**1101.4.2**~~ **Conductors.** Conductors installed aboveground in buildings shall comply with the applicable standards referenced in Table 701.2 for aboveground drain, waste, and vent pipe. 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 hubless 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. Inside conductors shall connect to an approved roof or deck, or overflow drain.

1101.4.6 ~~**1101.4.3**~~ **Leaders.** Leaders installed outside shall comply with the applicable standards referenced in Table 701.2 for aboveground drain, waste, and vent pipe; aluminum sheet metal; galvanized steel sheet metal; or copper sheet metal.

Section 1101.4.7 Underground Building Storm Drains—Significant Change

Summary: *New Oregon amendment*

Commentary: *An exception is added to expand the allowable materials for exterior underground building storm drains.*

1101.4.7 ~~1101.4.4~~ Underground Building Storm Drains. Underground building storm drains shall comply with the applicable standards referenced in Table 701.2, and Chapter 17 for underground drain, waste, and vent pipe.

Exception: Exterior underground building storm drains shall comply with the applicable standards referenced in Table 701.2, and Chapter 17 for underground drain, waste, vent and sewer pipe. Corrugated Polyethylene (CPE) shall be permitted.

UPC 1101.4.5 Building Storm Sewers. *…Not adopted.*

1101.4.8 Fittings. Sanitary tee branch fittings and 90-degree quarter bends shall be permitted for interior and exterior storm drain and storm sewer piping.

Exception: Approved taps shall be permitted on storm sewers per manufacturer's listing.

1101.4.9 ~~1101.4.6~~ Subsoil Drains. Subsoil drains shall be open jointed, perforated, or both and constructed of materials in conformance with Table 1101.4.9 and Chapter 17.

Table 1101.4.9 ~~1101.4.6~~—Materials for Subsoil Drainpipe and Fittings. *…Renumbered.*

1101.5.1 Connections. Connections between inside conductors and roof, deck and overflow drains shall be made with approved adapter fittings as required by this code. Such connectors shall be provided with an expansion or approved swing joint.

UPC 1101.6 through 1101.6.5 Subsoil Drains. *…Not adopted.*

1101.6 Storm and Groundwater Drainage.

1101.6.1 Prohibited Use. No conductor pipe shall be used as a sanitary drain or vent; nor shall any sanitary drain or vent pipe be used as a conductor. Subsoil drains under and around buildings shall be used only to collect and drain groundwater.

1101.6.2 Subsoil, Foundation and Absorption Tile Drains. Groundwater collected or drained from under or around buildings shall be disposed of through approved pipe material, as follows:

(1) Disposal. When practical, such groundwater shall be drained by gravity to a natural surface drainage course or other approved disposal site.

(2) Sump. When groundwater is drained by gravity to a combination sewer or storm sewer system, the groundwater shall be drained into an accessible trapped sump or catch basin.

Exception: Subsoil drain lines covered with an approved filter fabric shall be permitted to connect to a combination sewer trapped in accordance with Section 1101.16.2. Subsoil drain lines covered with an approved filter material shall be permitted to directly connect to the storm sewer.

All drainage pipe on the discharge side of such sump, trap or catch basin shall be tested in accordance with Section 1106.0.

(3) Backwater Valves. Subsoil, foundation, and absorption drains that are subject to reverse flow shall be equipped with approved, accessible backwater valves as required by the Building Official.

(4) Ejectors. Subsoil drains which cannot remove groundwater by gravity shall have the storm water lifted by means of an approved ejector. The discharge shall be drained into the building storm sewer, or an open drainage course, or other suitable disposal facility at least 10 feet (3 m) beyond the exterior of the building.

(5) Valves and Connections. The discharge pipe from a pump or ejector used to lift groundwater shall be equipped with a swing check or backwater valve and a gate valve. If the gravity drainage line to which such discharge line connects is horizontal, the method of connection shall be from the top through wye branch fitting. The gate valve shall be located on the discharge side of the backwater or check valve.

(6) Venting. Gastight and watertight receiving tanks or sumps shall be vented by means of an approved pipe not less than 2 inches (5.8 cm) in size. All such vents shall be properly terminated as required by the applicable section of this code.

(7) Tracer Wire. All nonmetallic piping for yard, ground or storm water for building sewers shall have an electrically conductive tracer wire (14-gauge, insulated copper, or heavier, green in color or other approved materials) installed in the trench for locating the pipe in the future. The tracer wire shall run the full length of the installed pipe, with one end left above the finished grade at the building end of the pipe, or at a cleanout next to the building wall, and shall be clearly marked. The other end of the tracer wire shall be spliced into the serving utilities tracer wire, when present.

(8) Materials. Storm drainage, groundwater drainage, rainwater piping systems, exterior building drains, subsurface, foundation, footing, under-slab and absorption drains shall be of materials approved by and specified in Section 701.0, Table 701.2, Table 1101.4.9 and Chapter 17 of this code, except for corrugated metal storm sewers.

1101.6.3 Dry Wells; Construction, Use and Limitations.

Note: Sections 1101.6.3.1 through 1101.6.3.4 are not adopted as a part of this code. The following is provided as a guideline only. Please reference the requirements established by the Department of Environmental Quality.

1101.6.3.1 Construction. Where approved by the Building Official, a dry well shall be permitted to be used. The Building Official may require soil percolation tests. When authorized, dry wells may be of reinforced concrete rings with an inside diameter of not less than 28 inches (0.7 m) with a minimum depth of 5 feet (1.5 m), measured from the bottom to the top of the reinforced concrete cover and set on undisturbed soil. All dry wells shall be covered with at least 2 feet (0.6 m) of compacted earth when measured from the top of the lid to the finished grade. Where first approved by the Building Official, dry wells shall be constructed of brick or other approved material not less than 4 inches (0.1 m) in thickness.

Brick or block shall be assembled with or without openings, provided that the openings on the outside of the dry well are not greater than 3 inches (7.5 cm). This type of dry well shall have a brick arched top or an arched top of other approved materials.

1101.6.3.2 Location. No dry well shall be located closer than 5 feet (1.5 m) of a property line nor closer than 10 feet (3 m) to any building unless approved by the Building Official. Each drainage connection to a dry well shall be made at the top center of the lid by the use of an approved ninety (90) degree waste fitting. Support of piping shall be as required by Chapter 3 of this code. Special permission may be granted to enter the side of the dry well when grade and structural conditions make top entrance impractical.

1101.6.3.3 Backfill. The particle size of the backfill surrounding a dry well shall be of sufficient size to prevent its incursion into the interior of the dry well. The backfill shall form a continuous layer around the dry well not less than 6 inches (150 mm) in thickness and shall extend to the full height of the dry well.

Exception: Where the dry well is installed in sandy-type soil an approved filter material shall be placed around the exterior of the liner to prevent infiltration of sand. The backfill shall be of native soil properly compacted.

1101.6.3.4 Abandonment. Where required by the Building Official, every dry well that has been abandoned or has been otherwise discontinued from further use shall be completely filled with earth, sand, gravel, concrete, or other approved material.

1101.8 Areaway Drains. Open subsurface space adjacent to a building, serving as an entrance to the basement or cellar of a building, shall be provided with a drain or drains. The areaway drains shall be not less than 2 inches (50 mm) in diameter for areaways at a maximum of 100 square feet (9.29 m^2) in area, and shall be discharged in the manner provided for subsoil drains ~~not serving continuously flowing springs or groundwater (see Section 1101.6.1)~~. Areaways exceeding 100 square feet (9.29 m^2) shall not drain into subsoil drains. The drains for areaways exceeding 100 square feet (9.29 m^2) shall be sized in accordance with Table 1103.2.

UPC 1101.11 Paved Areas. *…Not adopted.*

1101.11 Catch Basin Specifications.

1101.11.1 General. Catch Basins shall be made of approved material and sized to carry the designed capacity. Catch basins shall have an inside dimension of not less than 24 inches (610 mm) and extend not less than 24 inches (610 mm) below the water line. The catch basin can be either square or round and shall be provided with a top turned out flange of not less than 2 inches (50 mm) and the outer edge raised to a height of the top edge of the grate.

Catch basins made of cast iron shall have a wall thickness of not less than ¼ of an inch (6.4 mm) with sleeves attached for connecting the storm drain line, or have other attachment means. Cast iron and steel catch basins shall be asphalt coated inside and outside.

Steel-plate catch basins shall not be less than ten gauge, joined with welded seams with sleeves attached for connecting the storm drain line or have other attachment means.

Concrete catch basins shall have a wall thickness of not less than 4 inches (102 mm) and be reinforced with number four steel rod installed at intervals not to exceed 6 inches (152 mm) on center. The inside surface shall have a trowel finish, constructed so as to be watertight. The size shall be the same as for cast-iron and steel catch basins.

Round PVC catch basins shall be constructed of approved PVC pipe material. Catch basins for traffic areas are required to meet AASHTO H-20 specifications. The size shall be the same as for cast-iron and steel catch basins.

1101.11.2 Trap. Catch basins shall be trapped by using an inverted one-quarter bend or welded baffle. Traps so constructed shall provide no less than 6 inches (152 mm) water seal. Where other than a turned down one-quarter bend is provided, a cleanout shall be required in accordance with Section 719.0.

1101.11.3 Outlets. Outlets installed in standard 24 inch (610 mm) catch basins shall be at least 3 inches (76 mm) and not larger than 6 inches (152 mm). Connections to catch basin outlets shall be made by approved methods.

1101.11.4 Catch Basin Grates. Grates for catch basins shall be made of approved materials and shall be capable of supporting the anticipated load. Grates shall be designed to prevent bicycle and wheelchair tires from entering or becoming entrapped.

1101.11.5 Protection of Piping; Structural Integrity. Where drainage piping from a catch basin is subject to heavy vehicular traffic or other excessive loads, such piping shall be structurally designed to withstand all anticipated loads and shall be installed on a firm bed throughout its entire length.

1101.12.1 Primary Roof Drainage. Roof areas of a building shall be drained by roof drains or gutters. The location and sizing of drains and gutters shall be coordinated with the structural design and pitch of the roof. ~~Unless otherwise required by the Authority Having Jurisdiction,~~ Roof drains, gutters, vertical conductors or leaders, and horizontal storm drains for primary drainage shall be sized based on a storm of 60 minutes duration and 100 year return period. Refer to Table D 101.1 (in Appendix D) for 100 years, 60-minute storms at various locations.

1101.13.1 Rain Leaders and Conductors. Permanently installed rain leaders and conductors connected to a building storm sewer shall have a cleanout installed at the base of the leader or conductor before it connects to the horizontal drain.

1101.14 Rainwater Sumps. Rainwater sumps serving “public use” occupancy buildings shall be provided with dual pumps arranged to function alternately in the case of overload or mechanical failure. ~~Pumps rated 600 V or less shall comply with UL 778 and shall be installed in accordance with the manufacturer’s installation instructions.~~

UPC 1101.16 Leaders, Conductors, and Connections. *…Not adopted.*

UPC 1101.16.1 Protection of Leaders. *…Not adopted.*

1101.16 ~~1101.16.2~~ Combining Storm with Sanitary Drainage. The sanitary and storm drainage system of a building shall be entirely separate, except where a combined sewer is used, in which case the building storm drain shall be connected in the same horizontal plane through a single wye fitting to the combined building sewer not less than 10 feet (3048 mm) downstream from a soil stack.

1101.16.1 Building Storm Sewers. Building storm sewers shall comply with the applicable standards referenced in Table 701.2 and Chapter 17 for building sewer pipes.

1101.16.2 Traps Required for Combined Sewers. Storm water from an exterior area drain, catch basin, or from a roof and discharging to a combined sewer shall be trapped.

1101.16.2.1 Design and Location. The trap shall be of approved design and located in the storm drain line between the sanitary sewer connection and the inlet opening into which storm water is discharged.

1101.16.2.2 Single Trap. A single trap serving more than one roof drain or other storm receptor drain shall be permitted when the trap is located to receive, through its inlet side, all drainage from roof drains and receptors.

1101.16.2.3 Accessible Cleanout. Storm water drainage traps shall be below the frost line or within the building. An accessibly cleanout not smaller than the size of the trap, shall extend to grade from the inlet side of each trap with approved piping and fittings. When the cleanout is installed on the exterior of the building, it shall extend at least 6 inches (150 mm) above grade and be within twenty-four (24) inches (609.6 mm) of the foundation unless otherwise approved by the Building Official.

1101.16.2.4 Where Not Required. Where a roof drain is located not less than 10 feet (3 m) from, or at least 3 feet (0.9 m) above any openable window, door, opening, air intake, or vent shaft; or not less than 3 feet (0.9 m) in every direction from any lot line, and road, (ally and street lines excepted), no trap is required.

1101.16.2.5 Exterior Area Drains and Catch Basins. Traps, trap primers and vents for exterior area drains and catch basins when located less than 10 feet (3 m) from any building, shall be the same as for floor drains and catch basins located within a building when such drains are connected to a combined sewer as required by this code.

1107.0 Testing.

1107.1 Testing Required. New building storm drainage systems and parts of existing systems that have been altered, extended, or repaired shall be tested in accordance with Section 1107.2.1 or Section 1107.2.2 to disclose leaks and defects.

Where required, building storm sewers shall be tested in accordance with Section 723.0 or a method acceptable to the Building Official, except that plastic pipe shall not be tested with air.

1107.3 Abandoned Storm Sewers. Every abandoned storm sewer system or any parts thereof, shall be plugged or capped in an approved manner.

CHAPTER 12—FUEL GAS PIPING

Chapter 12 is not adopted by the State of Oregon, Building Codes Division, as part of the State Building Code.

The rest of UPC Chapter 12 is not adopted and is deleted.

CHAPTER 13—HEALTH CARE FACILITIES AND MEDICAL GAS AND MEDICAL VACUUM SYSTEMS

1301.0 General Requirements.

1301.1 Applicability. This chapter applies to the special fixtures and systems in health care facilities; the special plumbing requirements for such facilities; and the installation, testing, and verification of Categories 1, 2, ~~and~~ 3, and 4 medical gas and medical vacuum piping systems, except as otherwise indicated in this chapter, from the central supply system to the station outlets or inlets in hospitals, clinics, and other health care facilities. Other plumbing in such facilities shall comply with other applicable sections of this code. For Category 3 medical gas systems, only oxygen and nitrous oxide shall be used.

1302.0 Design Requirements.

UPC 1302.1.1 through 1302.1.3. *…Not adopted.*

UPC 1302.3 and 1302.4. *…Not adopted.*

1303.0 Health Care Facilities.

UPC 1303.6 Drains. *…Not adopted.*

UPC 1303.8 Water Supply for Hospitals. *…Not adopted.*

UPC 1303.9 Work Performed in Occupied Healthcare Facilities. *…Not adopted.*

1304.0 Medical Gas and Medical Vacuum Piping Systems.

UPC 1304.2 Certification of Systems. *…Not adopted.*

UPC 1304.5 Record. *…Not adopted.*

1305.0 System Performance.

TABLE 1305.1
STANDARD DESIGNATION COLORS AND OPERATING PRESSURES FOR GAS AND VACUUM SYSTEMS

The rest of the table not shown remains unchanged.

GAS SERVICE	ABBREVIATED NAME	COLORS (BACKGROUND/ TEXT)	STANDARD GAUGE PRESSURE
Nitrogen	N2	Black/white	~~50–185 psi~~ 0 - 300 psi
Instrument air	—	Red/white	~~50–185 psi~~ 0 - 300 psi

1305.3 Minimum Station Outlets and Inlets. Station outlets and inlets for medical gas and vacuum systems shall be provided by the Oregon registered engineer's design in accordance with OAR 918-780-0045(3) ~~as listed in Table 1305.3~~.

UPC Table 1305.3 Minimum Outlets and Inlets Per Station. *…Not adopted.*

1306.0 System Certification.

UPC 1306.0 System Certification. *…Not adopted, is deleted in its entirety, and is noted as reserved.*

1307.0 Central Supply Systems.

UPC 1307.2 Nature of Hazards of Gas and Vacuum Systems. *…Not adopted and is noted as reserved.*

1307.4 Materials. Materials used in central supply systems shall meet the following requirements:

(1) In those portions of systems intended to handle oxygen at gauge pressures greater than 350 pounds-force per square inch (psi) (2413 kPa), interconnecting hose shall contain no polymeric materials.

(2) In those portions of systems intended to handle oxygen or nitrous oxide ~~material~~ at gauge pressures of less than 3000 kPa (435 psi), construction shall be compatible with oxygen under the temperatures and pressures to which the components can be exposed in the containment and use of oxygen, nitrous oxide, mixtures of these gases, or mixtures containing more than 23.5 percent oxygen.

(3) If potentially exposed to cryogenic temperatures, materials shall be designed for low temperature service.

(4) If intended for outdoor installation, materials shall be installed ~~per~~ in accordance with the manufacturer's requirements. [NFPA 99:5.1.3.5.4]

1308.0 Pressure-Regulating Equipment.

1308.2 Pressure Relief Valves. All pressure relief valves shall meet the following requirements:

(1) through (6) and (8) and (9) remain unchanged.

(7) They shall ~~not~~ discharge ~~into locations creating potential hazards~~ to open air such that escaping gas does not impinge on personnel, equipment, or adjacent structures or enter into enclosed spaces.

1309.0 Oxygen Concentrator Supply Units.

UPC 1309.7 Electrical Components. *…Not adopted and is noted as reserved.*

1309.13 Oxygen Concentration Monitor. The oxygen concentrator supply unit source shall be provided with an oxygen concentration monitor with the following characteristics:

(1) The monitor shall be capable of monitoring 99 percent oxygen concentration with 1 percent accuracy.

(2) The monitor shall continuously display the oxygen concentration and shall activate the local alarm and master alarms ~~per~~ in accordance with (see Section 1309.14) when a concentration lower than 91 percent is observed.

(3) The monitor shall continuously display the oxygen concentration.

(4) ~~It~~ The monitor shall be permitted to ~~insert~~ be inserted ~~the monitor~~ into the pipeline without a demand check. [NFPA 99:5.1.3.9.1.13]

1309.14 Emergency Oxygen Supply Connection (EOSC). Emergency oxygen supply connections (EOSCs) shall be installed to allow connection of a temporary auxiliary source of supply for emergency or maintenance situations where any of the following conditions exist:

(1) The liquid system or cryogenic fluid central supply system is outside of and remote from the building that the oxygen supply serves.

(2) There is no connected oxygen reserve sufficient for an average day's supply within the building. (see NFPA 99:5.1.3.5.13 for requirements for such reserves).

(3) Multiple freestanding buildings are served from a single oxygen source such that damage to the interconnecting oxygen line could result in one or more buildings losing oxygen supply, in which case each building is required to be provided with a separate emergency connection. {NFPA 99:5.1.3.5.12}

1309.14.1 Location. EOSCs shall be located as follows:

(1) Located on the exterior of the building being served in a location accessible by emergency supply vehicles at all times in all weather conditions.

(2) Connected to the main supply line immediately downstream of the main shutoff valve. [NFPA 99:5.1.3.5.12.1]

1309.14.2 Required Components and Clearance. EOSCs shall consist of the following:

(1) Physical protection to prevent unauthorized tampering.

(2) Female DN (NPS) inlet for connection of the emergency oxygen source that is sized for 100 percent of the system demand at the emergency source gas pressure.

(3) Manual shutoff valve to isolate the EOSC when not in use.

(4) Two check valves, one downstream of the EOSC and one downstream of the main line shutoff valve, with both upstream from the tee connection for the two pipelines.

(5) Relief valve sized to protect the downstream piping system and related equipment from exposure to pressures in excess of 50 percent higher than normal line pressure.

(6) Any valves necessary to allow connection of an emergency supply of oxygen and isolation of the piping to the normal source of supply.

(7) Minimum of 3 feet (1 m) of clearance around the EOSC for connection of temporary auxiliary source.

(8) Four alarm connection points installed to both master alarm panels to allow the temporary supply to be monitored while in use. [NFPA 99:5.1.3.5.12.2]

1309.15 Auxiliary Connections. All medical gas and vacuum systems shall be provided with a point of access for connection of a temporary or supplemental source of supply complying with the following:

(1) The auxiliary connection shall be located in the main line, on the patient side of the source valve, as determined by the responsible facility authority.

(2) The auxiliary connection shall be the same size as the main line but not required to be larger than DN50 (NPS 2 in.).

(3) The auxiliary connection shall consist of a tee, valve, and removable plugged or capped connection point.

(4) The valve and connection point shall be labeled in accordance with Section 1323.13.

(5) The valve shall be secured in accordance with Section 1314.2. {NFPA 99:5.1.3.5.14 through 5.1.3.5.14.5}

1310.0 Category 1 Medical Air Central Supply Systems.

1310.2 Uses of Medical Air. Medical air sources shall be connected to the medical air distribution system only and shall be used only for air in the application of human respiration and in the calibration of medical devices for respiratory application, and in simulation centers for the education, training, and assessment of health care professionals in accordance with Section 1307.3. [NFPA 99:5.1.3.6.2]

1311.0 Compressor Intake.

1311.5 Separate Compressors. Air intakes for separate compressors shall be permitted to be joined together to one common intake where the following conditions are met:

(1) The common intake is sized to minimize backpressure in accordance with the manufacturer's recommendations.

(2) Each compressor can be isolated by manual or check valve, blind flange, or tube cap to prevent open inlet piping when the compressor(s) is removed for service from the consequent backflow of room air into the other compressor(s). [NFPA 99:5.1.3.6.3.11(G)]

(3) Medical air intake shall be labeled in accordance with Section 1323.13 with any method that would distinguish it as a medical air intake. [NFPA 99:5.1.3.6.3.11(I)]

1312.0 Medical Surgical Vacuum Central Supply Systems.

1312.4 Vacuum Filtration. Central supply systems for vacuum other than liquid ring pumps shall be provided with inlet filtration with the following characteristics:

(1) Filtration shall be at least duplex to allow one filter to be exchanged without impairing the vacuum system.

(2) Filtration shall be located on the patient side of the vacuum producer.

(3) Filters shall be efficient to 0.3 µ and 99.97 percent HEPA or better in accordance with DOE-STD-3020.

(4) Filtration shall be sized for 100 percent of the peak calculated demand while one filter or filter bundle is isolated.

(5) ~~It shall be permitted to group~~ Grouping multiple filters ~~into bundles~~ to achieve the required capacities shall be permitted.

(6) The system shall be provided with isolation valves on the source side of each filter or filter bundle and isolation valves on the patient side of each filter or filter bundle, permitting the filters to be isolated without shutting off flow to the central supply system.

(7) A means shall be available to allow the user to observe any accumulations of liquids.

(8) A vacuum relief petcock shall be provided to allow vacuum to be relieved in the filter canister during filter replacement.

(9) Filter elements and canisters shall be permitted to be constructed of materials as deemed suitable by the manufacturer.

(10) In normal operation, one filter or filter bundle shall be isolated from the system to be available for service should a blockage in the operating filter occur or rotation of the filters be desired after filter element exchange. [NFPA 99:5.1.3.7.4]

1313.0 Medical-Surgical Vacuum Exhaust.

1313.4 Labeled. Vacuum exhaust shall be labeled in accordance with Section 1323.13 with any method that would distinguish it as a vacuum exhaust. [NFPA 99:5.1.3.7.7.4]

1313.5 ~~1313.4~~ Dips and Loops. *…Renumbered.*

1313.6 ~~1313.5~~ Multiple Pumps. *…Renumbered.*

1314.0 Valves.

1314.1 Gas and Vacuum Shutoff Valves. Shutoff valves shall be provided to isolate sections or portions of the piped distribution system for maintenance, repair, emergencies or planned future expansion need and to facilitate periodic testing. [NFPA 99:5.1.4.1.1]

1314.3.1 WAGD System Piping. Where vacuum systems are used to serve WAGD systems in accordance with Section 1320.2.1, valves that are on the source side of the connection to the WAGD system shall be labeled to indicate both systems. [NFPA 99:5.1.11.2.3]

1314.5 Valve Types. New or replacement valves shall be permitted to be of any type as long as they meet the following conditions:

(1) They have a minimum *Cv* factor in accordance with Table 1314.5(1) or Table 1314.5(2).

(2) They use a quarter turn to off.

(3) They are constructed of materials suitable for the service.

(4) They are provided with copper tube extensions by the manufacturer for brazing or with corrugated medical tubing (CMT) fittings.

(5) They indicate to the operator if the valve is open or closed.

(6) They permit in-line serviceability.

(7) They are cleaned for oxygen service by the manufacturer if used for any positive-pressure service.

(8) They have threaded purge ports on the patient side and the source side.

(9) They have a minimum working pressure equal to or greater than the relief valve protecting the piping system on which the valve is installed for any positive-pressure service.

(10) Seals necessary for the operation of the valve and prevention of leaks comply with Section 1307.4 and are replaceable. [NFPA 99:5.1.4.1.6]

1314.10.1 Readily Accessible. A zone valve in each medical gas ~~or~~ and vacuum line shall be provided for each Category 1 space and ~~anesthetizing location for moderate sedation, deep sedation, or general anesthesia specific for the occupancy, and~~ shall be located as follows:

(1) In patient care spaces that are not anesthetizing locations, they shall be installed immediately outside the area or zone being controlled.

(2) In anesthetizing locations, they shall be installed immediately outside each room ~~where they are visible and accessible at all times~~. [NFPA 99:5.1.4.6.2]

1317.0 Warning Systems.

1317.1 Category 1. All master, area, and local alarm systems used for medical gas and vacuum systems shall include the following:

(1) Separate visual indicators for each condition monitored, except as permitted in Section 1317.1.2 for local alarms that are displayed on master alarm panels.

~~(2) Visual indicators that remain in alarm until the situation that has caused the alarm is resolved.~~

~~(3) Cancelable audible indication of each alarm condition that produces a sound with a minimum level of 80 dBA at 3 feet (914 mm).~~

~~(4) Means to indicate a lamp or LED failure and audible failure.~~

~~(5) Visual and audible indication that the communication with an alarm initiating device is disconnected.~~

(2)~~(6)~~ Labeling of each indicator, indicating the condition monitored.

(3)~~(7)~~ Labeling of each alarm panel for its area of surveillance.

~~(8) Reinitiating of the audible signal if another alarm condition occurs while the audible alarm is silenced.~~

~~(9) Power for master alarms, area alarms, sensors, and switches from the life safety branch of the essential electrical system as described in NFPA 99.~~

~~(10) Power for local alarms, dew point sensors, and carbon monoxide sensors permitted to be from the same essential electrical branch as is used to power the air compressor system.~~

~~(11) Where used for communications, wiring from switches or sensors that is supervised or protected as required by NFPA 70 for life safety and critical branches circuits in which protection is any of the following types:~~

~~(a) Conduit~~
~~(b) Free air~~
~~(c) Wire~~
~~(d) Cable tray~~
~~(e) Raceways~~

~~(12) Communication devices that do not use electrical wiring for signal transmission and are supervised such that failure of communication initiates an alarm.~~

~~(13) Assurance by the responsible authority of the facility that the labeling of alarms, where room numbers or designations are used, is accurate and up-to-date.~~

~~(14) Provisions for automatic restart after a power loss of 10 seconds (e.g., during generator start-up) without giving false signals or requiring manual reset.~~

(4)~~(15)~~ Alarm switches/sensors installed so as to be removable and accessible for service and testing. {NFPA 99:5.1.9.1}

1317.1.2 Master Alarm Signal. The master alarm shall include at least one signal from the source equipment to indicate a problem with the source equipment at this location. This master alarm signal shall activate when any of the required local alarm signals for this source equipment activates. ~~[NFPA 99:5.1.9.5.2]~~

The alarm indications shall originate from sensors installed in the main lines immediately downstream (on the patient or use side) of the source valves. Where it is necessary to install a main line valve in addition to a source valve the sensors shall be located downstream (on the patient or use side) of the main valve. {NFPA 99:5.1.9.2.5}

1317.1.3 Area Alarms. Area alarm panels shall be provided to monitor all medical gas, medical–surgical vacuum, and piped WAGD systems supplying the following:

(1) Anesthetizing locations
(2) Category 1 spaces [NFPA 99:5.1.9.4]

1317.1.4 Area Alarm Locations. Area alarms shall be located at a nurse's station or other similar location that will provide for surveillance. [NFPA 99:5.1.9.4.1]

1317.1.5 Area Alarm Sensors. Alarm sensors for area alarms shall be located as follows:

(1) Category 1 spaces, other than anesthetizing locations addressed in Item 2, shall have the alarm sensors installed on the patient or use side of each of the individual zone valves.
(2) Anesthetizing locations, including those that are part of a group of anesthetizing locations, shall have the sensors installed in either of the following locations:
    (a) On the source side of each group of anesthetizing location zone valves on the same branch line.
    (b) On the patient or use side of each of the individual zone valves. [NFPA 99:5.1.9.4.4]

1318.0 Piping Materials for Field-Installed Positive Pressure Medical Gas Systems.

1318.4 Tubes for Medical Gas Systems. Tubes shall be one of the following:

(1) Hard-drawn seamless copper in accordance with ASTM B819, medical gas tube, Type L, except Type K shall be used where operating pressures are above a gauge pressure of 185 psi (1276 kPa) and the pipe sizes are larger than DN80 [(NPS 3) (3⅛ inches O.D.)].

(2) Listed corrugated medical tubing (CMT) fabricated from copper alloy No. 51000 strip, meeting ASTM B103/B103M with a design margin of 3.5, externally coated with a nonmetallic sheath marked with the manufacture's marking. ~~{~~[NFPA 99:5.1.10.1.4]~~}~~

1319.0 Piping Materials for Field-Installed Medical-Surgical Vacuum and WAGD Systems.

1319.1 Tubes for ~~Medical~~ Vacuum and WAGD Systems Vacuums Greater than 5 inches (127 mm) HgV. Piping for vacuum and WAGD systems at vacuums greater than 5 inches (127 mm) HgV shall be constructed of any of the following: *The rest of the section remains unchanged.*

1320.0 Joints and Connections.

1320.2 WAGD system piping.

1320.2.1 Connection point. WAGD system piping that is joined to the vacuum piping shall be connected at a minimum distance of 1.5 m (5 ft) from any vacuum inlet. [NFPA 99:5.1.10.2.3.1]

1320.2.2 Labeled. Systems complying with Section 1320.2.1 shall be labeled as indicated in Section 1323.13 for both WAGD and vacuum. [NFPA 99:5.1.10.2.3.2]

1320.3 ~~1320.2~~ Changes in Direction. …*Renumbered.*

1320.3.1 Hard-Drawn Seamless Copper or Stainless-Steel Tubing. Positive pressure patient gas systems, medical support gas systems, and vacuum systems constructed of hard-drawn seamless copper or stainless steel tubing shall have all turns, offsets, and other changes in direction made using fittings or techniques appropriate to any of the following acceptable joining methods:

(1) Brazing, as described in Section 1321.0.
(2) Welding, as described in Section 1322.1 through Section 1322.2.1.
(3) Memory metal fittings, as described in Section 1322.3.
(4) Axially swaged, elastic preload fittings, as described in Section 1322.4.
(5) Threaded, as described in Section 1322.5. [NFPA 99:5.1.10.3.1]

1320.3.2 Corrugated Medical Tubing (CMT). Positive pressure patient gas systems, medical support gas systems, vacuum systems, and WAGD systems constructed of CMT shall have turns, offsets, and other changes in direction made by bending the tubing up to the minimum bend radius or by fittings in accordance with Section 1320.2.1. {NFPA 99:5.1.10.3.2}

1320.3.3 ~~1320.2.1~~ Medical Vacuum Systems. Vacuum systems and WAGD systems fabricated from copper tubing shall be permitted to have branch connections made using mechanically formed, drilled, and extruded tee-branch connections that are formed in accordance with the tool manufacturer's instructions. Such branch connections shall be joined by brazing, as described in Section 1321.0. [NFPA 99:5.1.10.3.3]

1321.0 Brazed Joints.

UPC 1321.10.1 Source. …*Not adopted.*

UPC 1321.10.2 Flow Rate Control. …*Not adopted.*

UPC 1321.10.3 Oxygen Analyzer. …*Not adopted.*

1321.10.1 ~~1321.10.4~~ During Installation. …*Renumbered.*

1321.10.2 ~~1321.10.5~~ Discharge Opening. …*Renumbered.*

UPC 1321.10.6 Temperature of Joint. …*Not adopted.*

UPC 1321.10.7 Opening to Be Sealed. …*Not adopted.*

1321.10.3 ~~1321.10.8~~ Final Brazed Connection. …*Renumbered.*

1321.10.9 Final Tie-In Test. …*Not adopted.*

1321.10.4 ~~1321.10.10~~ Autogenous Orbital Welding Process. …*Renumbered.*

UPC 1321.11.1 Heating of Joint. …*Not adopted.*

UPC 1321.12.1 Where Flux Is Used. …*Not adopted.*

1321.12.1 ~~1321.12.2~~ Visually Inspected. …*Renumbered.*

1321.12.2 ~~1321.12.3~~ Prohibited Brazed Joints. …*Renumbered.*

1321.12.3 ~~1321.12.4~~ Defective Brazed Joints. …*Renumbered.*

1322.0 Welded Joints.

UPC 1322.1.1 Welder Qualification Procedure. …*Not adopted.*

UPC 1322.1.2 Welding Procedure Specification. …*Not adopted.*

1322.1.1 ~~1322.1.3~~ Purging of Joints. …*Renumbered.*

1322.1.2 ~~1322.1.4~~ Shield Gas. …*Renumbered.*

UPC 1322.1.5 Test Coupons. …*Not adopted.*

UPC 1322.6.1 Dielectric Fittings. …*Not adopted.*

1322.6.1 Fittings with Internal Seals. Fittings with internal seals shall be permitted where they meet all of the following requirements:

(1) The fittings shall be brass, bronze, or copper.

(2) All materials used shall comply with Section 1307.4.

(3) Internal seals, insulators, and other polymeric materials shall be limited only to those parts essential for sealing or creating the dielectric break.

(4) Internal seals, insulators, and other elastomeric materials shall be replaceable.

(5) The fittings shall be cleaned for oxygen when used for patient gases or medical support gases.

(6) The fittings shall be installed only where visible and accessible, allowing for testing and servicing. [NFPA 99:5.1.10.9.2]

1323.0 Installation of Piping and Equipment.

1323.1 Required Pipe Sizing. Piping systems shall be designed and sized to deliver the required flow rates at the

1323.1.1 Mains and Branches. The design and installation of piping shall meet the following requirements:

(1) Mains and branches supplying medical gas to more than a single terminal shall not be smaller than DN15 (NPS ½) (⅝ in. O.D.) size.

(2) Mains and branches supplying medical vacuum to more than a single terminal shall not be smaller than DN20 (NPS ¾) (⅞ in. O.D.) size.

(3) Mains and branches supplying WAGD or support gases to more than a single terminal shall not be smaller than DN15 (NPS ½) (⅝ in O.D.) size.

(4) Drops to individual terminals shall not be smaller than DN15 (NPS ½) (⅝ in. O.D.) size.

(5) Runouts to pressure sensing devices shall be permitted to be DN8 (NPS ¼) (⅜ in. O.D.) size. [NFPA 99:5.1.10.1.3]

~~Mains and branches in medical gas piping systems shall be not less than DN15 (NPS ½) (⅝ inch O.D.) size. Mains and branches in medical-surgical vacuum systems shall be not less than DN20 (NPS ¾) (⅞ inch O.D.) size. [NFPA 99:5.1.10.11.1.2, 5.1.10.11.1.3]~~

UPC 1323.1.2 Drops to Individual Stations. …*Not adopted.*

UPC 1323.1.3 Runouts and Connecting Tubing. *…Not adopted.*

1323.1.2 ~~1323.1.4~~ Maximum Demand. *…Renumbered.*

1323.1.3 ~~1323.1.5~~ Sizing Procedures. *…Renumbered.*

1323.1.4 ~~1323.1.6~~ Engineering Methods. *…Renumbered.*

TABLE 1323.4.4 MAXIMUM PIPE SUPPORT SPACING[1]

The table remains unchanged.

[1] For corrugated medical tubing (CMT), refer to the manufacturer's installation instructions. (See NFPA 99:5.1.10.11.4.4)

1323.5.1 Backfilling and Trenching. The installation procedure for exterior underground piping shall protect the piping from physical damage while being backfilled. [NFPA 99:5.1.10.11.5.2]

1323.5.2 Conduit, Cover, or Enclosure. If underground piping is protected by a conduit, cover, or other enclosure, the following requirements shall be met:

(1) Access shall be provided at the joints, prior to backfilling over them, for visual inspection and leak testing.

(2) The conduit, cover, or enclosure shall be self-draining and not retain groundwater in prolonged contact with the pipe. [NFPA 99:5.1.10.11.5.3]

1323.8 Manufacturer's Instructions. The installation of individual components shall be made in accordance with the instructions of the manufacturer. Manufacturer's instructions shall include directions and information deemed by the manufacturer to be adequate for attaining proper operation and~~,~~ testing~~, and maintenance~~ of the medical gas and vacuum systems. Copies of the manufacturer's instructions shall be left with the system owner. [NFPA 99:5.1.10.11.8.1 – 5.1.10.11.8.3]

UPC 1323.10 Qualifications of Installers. *…Not adopted and noted as reserved.*

UPC 1323.10.1 Brazing. *…Not adopted.*

UPC 1323.10.2 Documentation. *…Not adopted.*

UPC 1323.10.3 Health Care Organization Personnel. *…Not adopted.*

UPC 1323.11 Qualification of Brazing Procedures and Brazing. *…Not adopted and noted as reserved.*

UPC 1323.11.1 Examination. *…Not adopted.*

UPC 1323.11.2 Brazing Procedure Specification. *…Not adopted.*

UPC 1323.11.3 Documentation. *…Not adopted.*

UPC 1323.11.4 Procedures. *…Not adopted.*

UPC 1323.11.5 Conditions of Acceptance. *…Not adopted.*

UPC 1323.11.6 Qualifications. *…Not adopted.*

1323.13.3 WAGD System Piping Labeling. Where vacuum systems are used to serve WAGD systems in accordance with Section 1320.2.1, piping in the immediate area of the WAGD system shall be labeled to indicate both systems. [NFPA 99:5.1.11.1.3]

1323.13.4 ~~1323.13.3~~ Location of Pipe Labeling. *…Renumbered.*

1323.13.5 ~~1323.13.4~~ Paint. *…Renumbered.*

1323.13.6 Piping for Compressor Intakes, Vacuum Exhausts, and Relief Valve Vent Lines. Labeling of piping for compressor intakes, vacuum exhausts, and relief valve vent lines shall meet the requirements of Section 1323.13.1 and state the specific function to distinguish them from the patient supply piping. [NFPA 99:5.1.11.1.6]

1323.15 Identification. Station outlets and inlets shall be identified as to the name or chemical symbol for the specific medical gas or vacuum provided and shall include the following:

(1) Name of the gas or vacuum system or the chemical symbol in accordance with Table 1305.1.

(2) Gas or vacuum system color code in accordance with Table 1305.1.

In sleep labs, where the outlet is downstream of a flow control device, the station outlet identification shall include a warning not to use the outlet for ventilating patients.

Where medical gas systems operate at pressures other than the standard gauge pressure of 50 psi to 55 psi (345 kPa to 380 kPa) or a gauge pressure of 160 psi to ~~185~~ 300 psi (1103 kPa to ~~1275~~ 2068 kPa) for nitrogen and instrument air, the station outlet identification shall include the nonstandard operating pressure in addition to the name of the gas. [NFPA 99:5.1.11.3.1 – 5.1.11.3.2]

1324.0 Performance Criteria and Testing Category 1 (Gases, Medical Surgical Vacuum).

UPC 1324.2.1 Reports. *…Not adopted.*

1324.5.4 Standing Pressure Tests – for Positive Pressure Medical Gas Piping Systems. After successful completion of the initial pressure tests under Section 1324.5 through Section 1324.5.1.2, medical gas distribution piping shall be subjected to a standing pressure test. [NFPA 99:5.1.12.2.6]

The Building Official shall be permitted to accept proof of testing by an approved verifier or its designee.

UPC 1324.5.4.7 Proof of Testing. *…Not adopted.*

1324.5.5 Standing Pressure Tests – Medical Vacuum Piping Systems. After successful completion of the initial pressure tests under Section 1324.5 through Section 1324.5.1.2, vacuum distribution piping shall be subjected to a standing vacuum test. [NFPA 99:5.1.12.2.7]

The Building Official shall be permitted to accept proof of testing by an approved verifier or its designee.

UPC 1324.5.5.6 Proof of Testing. *…Not adopted.*

1324.5.5.6 ~~1324.5.5.7~~ Leaks. *…Renumbered.*

UPC 1324.5.6.2. Inspection Qualification. *…Not adopted and noted as reserved.*

UPC 1324.5.6.3 Inspection Personnel. *…Not adopted.*

UPC 1324.5.6.4 Qualifications. *…Not adopted.*

1324.5.6.3 ~~1324.5.6.5~~ Inspections. The initial pressure tests performed by the installing contractor shall be witnessed by the Building Official ~~an ASSE/IAPMO/ANSI 6020 inspector, an ASSE/IAPMO/ANSI 6030 verifier, or the Authority Having Jurisdiction or its designee. A form indicating that this test has been performed and witnessed shall be provided to the verifier at the start of the tests required in Section 1324.5.7 through Section 1324.5.11~~. The presence and correctness of labeling and valve tagging required by this code for all concealed components and piping distribution systems shall be inspected. [NFPA 99:5.1.12.3.2 – 5.1.12.3.2.2]

UPC 1324.5.7 System Verification. *…Not adopted and noted as reserved.*

UPC 1324.5.7.1 Test Gas. *…Not adopted.*

UPC 1324.5.7.2 Approved Tester. *…Not adopted.*

UPC 1324.5.7.3 Cryogenic Fluid Testing. *…Not adopted.*

1325.0 Category 2 Piped Gas and Vacuum Systems.

UPC 1325.2 Nature of Hazards of Gas and Vacuum Systems. *…Not adopted and noted as reserved.*

1326.0 Category 3 Piped Gas and Vacuum Systems.

UPC 1326.2 Nature of Hazards of Gas and Vacuum Systems. *…Not adopted and noted as reserved.*

1327.0 Dental Gas and Vacuum Systems.

1327.1 General. Dental gas and vacuum systems shall comply with this code and ~~the NFPA 99~~ referenced NFPA 99 section.

1327.2 Category Designation.

1327.2.1 Category 1. Category 1 dental piped gas and piped vacuum system requirements shall be applied in facilities where general anesthesia and deep sedation is performed. [NFPA 99:15.1.1]

1327.2.2 Category 2. Category 2 dental piped gas and piped vacuum system requirements shall be applied in facilities where only moderate and minimal sedation is performed. [NFPA 99:15.1.2]

1327.2.3 Category 3. Category 3 dental piped gas and piped vacuum system requirements shall be applied in facilities where minimal or no sedation is performed. [NFPA 99:15.1.3]

1327.2.4 One Category for a Single facility. A single facility shall be permitted to include dental gas and vacuum systems for more than one category of dental piped gas and vacuum systems. [NFPA 99:15.1.4]

1327.3 Category 1 Medical Gas Systems (Dental) Sources.

1327.3.1 Medical Air Supply Systems. Category 1 systems shall comply with Section 1310.0, except as follows:

(1) Medical air compressors, dryers, aftercoolers, filters, and regulators shall be permitted to be simplex.

(2) The facility staff shall develop an emergency plan to deal with the loss of medical air. [NFPA 99:15.3.2.1.5]

1327.3.2 Oxygen Supply Systems Using Concentrators. Oxygen supply systems using concentrators shall be permitted to consist of two sources, one of which being a cylinder header with sufficient cylinder connections for an average day's supply. [NFPA 99:15.3.2.1.6]

1327.3.3 Dental–Surgical Vacuum Systems. Category 1 systems shall comply with Section 1312.0, except as follows:

(1) Dental–surgical vacuum systems shall be permitted to be simplex.

(2) The facility staff shall develop an emergency plan to deal with the loss of dental–surgical vacuum. [NFPA 99:15.3.2.1.7]

1327.3.4 Support Gases. Category 1 systems shall comply with this code and Section 5.1.13 of NFPA 99, except as follows:

(1) Nitrogen source equipment shall be permitted to be installed in enclosures for Category 3 medical gases or in a mechanical room.

(2) Nitrogen source equipment shall include the following:

(a) One or more cylinders of nitrogen NF, sufficient for at least one average day's supply.

(b) A manifold, if primary and secondary cylinders are provided.

(c) A line pressure regulating valve.

(d) A check valve downstream from the pressure regulating valve.

(e) A pressure relief valve set at 50 percent above the normal line pressure and located downstream from the check valve.

(f) A pressure relief valve discharge piped to the outdoors at a point that will not create a probable hazard and that is turned down to prevent the entry of rain or snow. [NFPA 99:15.3.2.11]

1327.4 Dental Air Compressor Units.

1327.4.1 Air Compressors. Air compressors shall be scroll dental, reciprocating dental, or the oil-free dental types. [NFPA 99:15.3.3.4.2.2]

1327.4.2 Dental Air Sources. Dental air sources for compressors located inside the building shall meet the following requirements:

(1) Be located in a space where no chemical-based materials are stored or used.

(2) Be located in a space that is not used for patient treatment or dental procedures.

(3) Be taken from a room or space in which there is no open or semi-open discharge from a dental vacuum or dental scavenging system.

(4) Drawn from a remote location, such as the building return air system, when the compressor is located in a room with an open or semi-open discharge from a dental vacuum or dental scavenging system. [NFPA 99:15.3.3.4.2.3]

1327.5 Dental Vacuum Units.

1327.5.1 Dental Vacuum Exhaust. Dental vacuum exhaust shall comply with one of the following requirements:

(1) Be exhausted to the outdoors in accordance with the manufacturer's recommendations.

(2) Be filtered and diffused locally with a ULPA filter element capable of retaining 99.99 percent of particulates.

(3) Discharge outdoors if used for nitrous oxide scavenging. [NFPA 99:15.3.3.5.2.3]

1327.5.2 Dental Vacuum System Piping. Dental vacuum system piping shall comply with all of the following:

(1) Horizontal piping in dental vacuum systems shall be sloped a minimum of 7 mm per 3.05 m (¼ in. per 10 ft) toward the vacuum source equipment.

(2) Horizontal piping shall include no sags or low points that would permit fluid or debris to accumulate in the piping.

(3) Voids in the vacuum piping shall be avoided to prevent buildup and obstructions.

(4) Accessible cleanouts shall be permitted to be installed in the vertical downflow pipe to clear obstructions, where necessary.

(5) Dental vacuum cleanouts shall not to be installed on horizontal piping.

(6) Dental vacuum inlets shall be capable of 283 L/min (10 SCFM) or greater flow capacity. [NFPA 99:15.3.3.5.2.4]

1327.5.3 Piping for Oxygen and Nitrous Oxide Systems in Category 1 and 2.

1327.5.3.1 Pipe. Piping materials for oxygen and nitrous oxide shall be one of the following:

(1) Hard-drawn seamless copper in accordance with ASTM B819, Standard Specification for Seamless Copper Tube for Medical Gas Systems, medical gas tube, Type L or Type K.

(2) Listed corrugated medical tubing (CMT) fabricated from copper alloy No. 51000 strip, meeting ASTM B103/B103M, Standard Specification for Phosphor Bronze Plate, Sheet, Strip, and Rolled Bar, as follows:

(a) Having a design margin of 3.5.

(b) Externally coated with a nonmetallic sheath marked with the manufacturer's marking.

(c) Listing includes testing to demonstrate that CMT systems can be consistently gas-purged with results equivalent to comparable medical gas copper tubing. [NFPA 99:15.4.4.2.2]

1327.5.3.1.1 Corrugated Medical Tubing (CMT) Fire Protection. CMT shall have a flame spread index of 25 or less and a smoke-developed index of 50 or less as determined by ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials. [NFPA 99:15.4.4.2.2.1]

1327.5.3.1.2 Suitability. CMT shall be identified by the manufacturer as suitable for oxygen service at a minimum of every 0.92 m (3 ft). [NFPA 99:15.4.4.2.2.2]

1327.5.3.2 Fittings. Fittings shall be brazed, memory metal, or axially swaged. [NFPA 99:15.4.4.2.3.1]

1327.5.3.2.1 Brazed. Brazed fittings shall be the wrought copper capillary type complying with the following:

(1) ASME B16.22, Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.

(2) ANSI/ASME B16.50, Wrought Copper and Copper Alloy Braze-Joint Pressure Fittings.

(3) ASME B16.22 with socket depths equal to or greater than brazed joint pressure fittings in accordance with ANSI/ASME B16.50. [NFPA 99:15.4.4.2.3.2]

1327.5.3.2.2 Cast Copper Alloy. Cast copper alloy fittings shall not be used with field-brazed joints. [NFPA 99:15.4.4.2.3.3]

1327.5.3.2.3 Memory Metal. Memory metal fittings shall be rated for not less than 538°C (1000°F) and 2070 kPa (300 psi) and be installed by qualified technicians in accordance with the manufacturer's instructions. [NFPA 99:15.4.4.2.3.4]

1327.5.3.2.4 Axially Swaged Couplings. Axially swaged couplings shall include metal-to-metal seats, shall be rated for not less than 538°C (1000°F) and 2070 kPa (300 psi), and provide permanent, nonseparable joints. Fittings shall be installed by qualified technicians in accordance with the manufacturer's instructions. [NFPA 99:15.4.4.2.3.5]

1327.5.3.3 Joints.

1327.5.3.3.1 Brazed. Brazing of copper joints shall be in accordance with the applicable requirements of Section 1321. [NFPA 99:15.4.4.2.4.1]

1327.5.3.3.2 Threaded. Threaded joints shall be limited to connections to pressure indicators, alarm devices, and source equipment and shall comply with the following:

(1) Threads shall be tapered complying with ASME B1.20.1, Pipe Threads, General Purpose, Inch.

(2) Threads shall be made up with polytetrafluoroethylene (PTFE) tape or other thread sealant recommended for oxygen service, with the sealant applied to the male threads only. [NFPA 99:15.4.4.2.4.2]

1327.5.3.3.3 Prohibited Joints. The following joints shall be prohibited under Section 1327.5.3.3:

(1) Flared and compression connections, including connections to station outlets, alarm devices, and other components.

(2) Push-lock connections.

(3) Straight-threaded connections, including unions.

(4) Pipe crimping tools used to permanently stop the flow of medical gas and vacuum piping. [NFPA 99:15.4.4.2.4.3]

1327.5.3.4 Cleaning for Piping Materials for Field-Installed Positive Pressure Medical Gas Systems. Tubes, valves, fittings, station outlets, and other piping components in medical gas systems shall comply with Section 1318.

Where tube ends, fittings or other components become contaminated before installation they shall be recleaned in accordance with Section 1321.8.7 and Section 1321.8.8.

1327.6 Piping for Dental Air Systems.

1327.6.1 General. Pipe, fittings, and joints in piping for dental compressed air systems shall be in accordance with Section 1327.6.2 through 1327.6.5. [NFPA 99:15.3.3.7.2.1]

1327.6.2 Pipe. Piping materials for dental air systems shall comply with one of the following:

(1) ASTM B88, Standard Specification for Seamless Copper Water Tube, Type L or K.

(2) ASTM B819, Standard Specification for Seamless Copper Tube for Medical Gas Systems, Type L or K.

(3) ASTM B280, Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service, ACR tube (O.D. size).

(4) ASTM B103/B103M, Standard Specification for Phosphor Bronze Plate, Sheet, Strip, and Rolled Bar, listed corrugated medical tubing (CMT) fabricated from copper alloy No. 51000 strip, as follows:

(a) Having a design margin of 3.5.

(b) Externally coated with a nonmetallic sheath marked with the manufacturer's marking.

(c) Listing includes testing to demonstrate that CMT systems can be consistently gas-purged with results equivalent to comparable medical gas copper tubing. [NFPA 99:15.3.3.7.2.2]

1327.6.3 Copper Tube. Copper tube shall be hard tempered or annealed (soft temper). [NFPA 99:15.3.3.7.2.3]

1327.6.4 Fittings. Fittings for dental air piping systems shall be permitted to be any of the following acceptable joining methods:

(1) Brazed or soldered fittings complying with ASME B16.22, Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.

(2) Brazed fittings complying with ANSI/ASME B16.50, Wrought Copper and Copper Alloy Braze-Joint Pressure Fittings.

(3) Brazed fittings complying with ASME B16.22, with socket depths equal to or greater than braze-joint pressure fittings complying with ANSI/ASME B16.50.

(4) Flared fittings complying with ASME B16.26, Cast Copper Alloy Fittings for Flared Copper Tubes.

(5) Compression fittings (¾ in. maximum size).

(6) Axially swaged fittings complying with Section 1322.4. [NFPA 99:15.3.3.7.2.4]

1327.6.5 Joints. Joints for piping under Section 1327.6 shall comply with the following:

(1) Joints shall be brazed, soldered, threaded, flared, or the compression type.

(2) Where joints are brazed, they shall comply with the requirements of Section 1321.

(3) Soldered joints shall be made in accordance with ASTM B828, Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings, using a "lead-free" solder filler metal containing not more than 0.2 percent lead by volume that complies with ASTM B32, Standard Specification for Solder Metal. [NFPA 99:15.3.3.7.2.5]

1327.7 Piping for Dental Vacuum Systems and Scavenging Systems.

1327.7.1 PVC Plastic Piping. PVC plastic piping under Section 1327.7 shall comply with the following:

(1) PVC plastic pipe shall be Schedule 40 or Schedule 80, conforming to ASTM D1785, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

(2) PVC plastic fittings shall be Schedule 40 or Schedule 80 to match the pipe, conforming to ASTM D2466, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40, or ASTM D2467, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.

(3) Joints in PVC plastic piping shall be solvent cemented in accordance with ASTM D2672, Standard Specification for Joints for IPS PVC Pipe Using Solvent Cement. [NFPA 99:15.3.3.7.3.3]

1327.7.2 CPVC Plastic Piping. CPVC plastic piping under Section 1327.7 shall comply with the following:

(1) CPVC IPS plastic pipe shall be Schedule 40 or Schedule 80, conforming to ASTM F441/F441M, Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.

(2) CPVC IPS plastic fittings shall be Schedule 40 or Schedule 80 to match the pipe, conforming to ASTM F438, Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40, or ASTM F439, Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.

(3) CPVC CTS plastic pipe and fittings ½ in. through 2 in. nominal size shall be SDR 11, conforming to ASTM D2846/D2846M, Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems.

(4) Solvent cement for joints in CPVC plastic piping shall comply with ASTM F493, Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings. [NFPA 99:15.3.3.7.3.4]

1327.7.3 Piping Within Floor Slabs Prohibited. Dental gas and vacuum piping shall not be installed within floor slabs. [NFPA 99:15.3.3.7.3.5]

1327.8 Equipment Location.

1327.8.1 Equipment in Enclosures Prohibited. Air compressors, vacuum pumps, and other equipment shall not be located in enclosures for medical gas cylinders (oxygen and nitrous oxide source equipment). [NFPA 99: 15.4.2.4.6]

1327.8.2 Equipment Permitted in Enclosures. Enclosures shall serve no purpose other than to contain the medical gas source equipment (oxygen and nitrous oxide), except that nitrogen source equipment and compressed air cylinders shall be permitted in the enclosure. [NFPA 99:15.4.2.4.3]

1327.9 Underground Piping Outside of Buildings.

1327.9.1 Frost protection. Buried piping outside of buildings shall be installed below the local level of frost penetration. [NFPA 99:15.4.5.7.1]

1327.9.2 Backfilling and Trenching. The installation procedure for underground piping shall prevent physical damage to the piping while being backfilled. [NFPA 99:15.4.5.7.2]

1327.9.3 Conduit, Cover, or Enclosure. If the underground piping is protected by a conduit, cover, or other enclosure, the following requirements shall be met:

(1) Access during construction shall be provided at the joints for visual inspection and leak testing.

(2) The conduit, cover, or enclosure shall be self-draining and not retain groundwater in prolonged contact with copper tubing. [NFPA 99:15.4.5.7.3]

1327.9.4 Excessive Stresses. Buried piping that is subject to surface loads shall be buried at a depth that will protect the piping, its enclosure, or both, from excessive stresses. [NFPA 99:15.4.5.7.4]

1327.9.5 Minimum Backfill. The minimum backfill cover above the top of the piping or its enclosure shall be 900 mm (36 in.), except that the minimum cover shall be permitted to be reduced to 450 mm (18 in.) where there is no potential for damage from surface loads or surface conditions. [NFPA 99:15.4.5.7.5]

1327.9.6 Trenches. Trenches shall be excavated so that the piping or its enclosure has firm, substantially continuous bearing on the bottom of the trench. [NFPA 99:15.4.5.7.6]

1327.9.7 Composition of Backfill. Backfill shall be clean, free from material that can damage the pipe, and compacted. [NFPA 99:15.4.5.7.7]

1327.9.8 Marker. A continuous warning tape or marker shall be placed immediately above the piping or its enclosure to clearly identify the pipeline by specific name. [NFPA 99:15.4.5.7.8]

1327.9.9 Warning. A continuous warning means shall also be placed above the pipeline at approximately one-half the depth of burial. [NFPA 99:15.4.5.7.9]

1327.9.10 Wall Sleeve. Where buried piping is extended into a building through a wall sleeve, the outdoor end of the sleeve shall be sealed watertight to prevent the entrance of groundwater into the building. [NFPA 99:15.4.5.7.10]

1327.10 Underground Piping Within Buildings.

1327.10.1 Backfilling and Trenching. The installation procedure for underground piping shall prevent physical damage to the piping while being back-filled. [NFPA 99:15.4.5.8.1]

1327.10.2 Excessive Stresses. If the underground piping is protected by a conduit, cover, or other enclosure, access shall be provided at the joints during construction for visual inspection and leak testing. [NFPA 99:15.4.5.8.2]

1327.10.3 Composition of Backfill. The piping shall be backfilled with clean sand or gravel. [NFPA 99:15.4.5.8.3]

1327.11 Piping Within Floor Slabs Prohibited. Dental gas and vacuum piping shall not be installed within floor slabs. [NFPA 99:15.4.5.9]

UPC 1327.2 through 1327.6. *…Renumbered.*

1327.17 ~~1327.7~~ Standing Pressure Tests for Oxygen and Nitrous Oxide Piping. After successful completion of the initial pressure tests in Section 1327.14, the gas distribution piping shall be subject to a standing pressure test. [NFPA 99:15.4.7.4.6.1]

The Building Official shall be permitted to accept proof of testing by an approved verifier or its designee.

UPC 1327.7.1 through 1327.7.6. *…Renumbered.*

UPC 1327.8 Verifier Operational Pressure Test. *…Not adopted.*

UPC 1327.8.1 Test Gas. *…Not adopted.*

UPC 1327.8.2 Medical Gas Outlets. *…Not adopted.*

CHAPTER 15—ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS

1501.0 General.

UPC 1501.0 General. *…Not adopted and is deleted in its entirety.*

1502.0 Inspection and Testing.

UPC 1501.0 General. *…Not adopted and is deleted in its entirety.*

1503.0 Gray Water Systems.

UPC 1503.0 Gray Water Systems. *…Not adopted and is deleted in its entirety.*

1504.0 Subsurface Irrigation System Zones.

UPC 1504.0 Subsurface Irrigation System Zones. *…Not adopted and is deleted in its entirety.*

1505.0 Reclaimed (Recycled) Water Systems.

UPC 1503.0 Reclaimed (Recycled) Water Systems. *…Not adopted and is deleted in its entirety.*

1501.0 ~~1505.0~~ Reclaimed (Recycled) Water Systems.

1501.1 ~~1505.1~~ General. The provisions of this section shall apply to the installation, construction, alteration, and repair of reclaimed (recycled) commercial and industrial water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, aboveground and subsurface irrigation, industrial or commercial cooling or air conditioning and other uses approved by the Building Official.

1501.2 ~~1505.2~~ Permit. *…Renumbered.*

1501.2.1 ~~1505.2.1~~ Plumbing Plan Submission. No permit for a reclaimed (recycled) water system shall be issued until complete plumbing plans~~, with data satisfactory to the Authority Having Jurisdiction,~~ have been submitted and approved by the Building Official.

1501.3 ~~1505.3~~ System Changes. *…Renumbered.*

1501.4 ~~1505.4~~ Connections to Potable or Reclaimed (Recycled) Water Systems. *…Renumbered.*

1501.5 ~~1505.5~~ Water Pressure. *…Renumbered.*

1501.6 Supply System Inspection and Test. Reclaimed water source systems shall be inspected and tested in accordance with this code for the testing of potable water piping.

1501.7 ~~1505.6~~ Initial Cross-Connection Test. A cross-connection test is required in accordance with Section 1501.8.2. Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of the ~~Authority Having Jurisdiction and other authorities having jurisdiction~~ Building Official. The test shall be ruled successful by the Building Official before final approval is granted.

1501.8 Inspection and Testing. A test shall be performed on both the potable and reclaimed water source systems. The potable and reclaimed water source system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1501.8.1 through Section 1501.8.3.

1501.8.1 Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Building Official and other authorities having jurisdiction as follows:

(1) Meter locations of the reclaimed water source and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.

(2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.

(3) Valves shall be checked to ensure that the valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

1501.8.2 Cross-Connection Test. The procedure for determining cross-connection shall be followed by the applicant in the presence of the Building Official and other authorities having jurisdiction to determine whether a cross-connection has occurred as follows:

(1) The potable water system shall be activated and pressurized. The reclaimed water source system shall be shut down, depressurized, and drained.

(2) The potable water system shall remain pressurized for a minimum period of time specified by the Building Official while the reclaimed water source system is empty. The minimum period the reclaimed water source system is to remain depressurized shall be determined on a case-by-case basis, considering the size and complexity of the potable and the reclaimed water source distribution systems, but in no case shall that period be less than 1 hour.

(3) The drain on the reclaimed water source system shall be checked for flow during the test and fixtures, potable and reclaimed water source, shall be tested and inspected for flow. Flow from a reclaimed water source system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the reclaimed water source system.

(4) The potable water system shall then be depressurized and drained.

(5) The reclaimed water source system shall then be activated and pressurized.

(6) The reclaimed water source system shall remain pressurized for a minimum period of time specified by the Building Official while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.

(7) Fixtures, potable and reclaimed water source, shall be tested and inspected for flow. Flow from a potable water system outlet indicates a cross-connection. No flow from a reclaimed water source outlet will indicate that it is connected to the potable water system.

(8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.

(9) Where there is no flow detected in the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.

1501.8.3 Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the Building Official, shall be activated immediately:

(1) The reclaimed water source piping to the building shall be shut down at the meter, and the reclaimed water source riser shall be drained.

(2) Potable water piping to the building shall be shut down at the meter.

(3) The cross-connection shall be uncovered and disconnected.

(4) The building shall be retested in accordance with Section 1501.8.1 and Section 1501.8.2.

(5) The potable water system shall be chlorinated with 50 parts-per-million (ppm) chlorine for 24 hours.

(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.

1501.9 ~~1505.7~~ Reclaimed (Recycled) Water System Materials. *…Renumbered.*

1501.10 Sizing. Reclaimed (recycled) water supply piping shall be sized in accordance with Chapter 6 for sizing potable water piping.

1501.11 ~~1505.8~~ Reclaimed (Recycled) Water System Color and Marking Information. *…Renumbered.*

1501.12 ~~1505.9~~ Valves. *…Renumbered.*

1501.13 ~~1505.10~~ Hose Bibbs. *…Renumbered.*

Figure ~~1505.10~~ 1501.13 *…Renumbered.*

1501.14 ~~1505.11~~ Required Appurtenances. *…Renumbered.*

1501.15 ~~1505.12~~ Same Trench as Potable Water Pipes. *…Renumbered.*

UPC1505.13 Signs. *…Not adopted.*

UPC 1505.14 Inspection and Testing. *…Not adopted.*

1501.16 Commercial, Industrial, and Institutional Restroom Signs. A sign shall be installed in restrooms in commercial, industrial, and institutional occupancies using reclaimed (recycled) water for water closets, urinals, or both. Each sign shall contain ½ of an inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) are visible to users. The location of the sign(s) shall be approved by the Building Official and shall contain the following text:

TO CONSERVE WATER, THIS BUILDING USES RECLAIMED (RECYCLED) WATER TO FLUSH TOILETS AND URINALS.

1501.16.1 Equipment Room Signs. Each room containing reclaimed (recycled) water shall have a sign posted in a location that is visible to anyone working on or near nonpotable water equipment with the following wording in 1-inch (25.4 mm) letters:

CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

1506.0 On-Site Treated Nonpotable Water Systems.

UPC 1501.0 On-Site Treated Nonpotable Water Systems. *…Not adopted and is deleted in its entirety.*

CHAPTER 16—NONPOTABLE RAINWATER CATCHMENT SYSTEMS

1601.0 General.

1601.1.1 Allowable Use of Alternate Water. ~~Where approved or required by the Authority Having Jurisdiction,~~ Rainwater shall be permitted to be used instead of potable water for the applications identified in this chapter.

Section 1601.2 Allowable Use of Alternate Water—Significant Change

Summary: *Rescinded Oregon amendments and new Oregon amendments*

Commentary: *The existing Oregon amendments in Section 1601.2 deleting the exceptions are rescinded. An Oregon amendment is adding to include certified rainwater system designers in the list of approved rainwater catchment system designers.*

1601.2 System Design. Rainwater catchment systems shall be designed in accordance with this chapter by a licensed plumbing contractor, certified rainwater system designer or other registered design professional. Components, piping, and fittings used in a rainwater catchment system shall be listed.

Exceptions:

(1) A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems used for irrigation with a maximum storage capacity of 360 gallons (1363 L).

(2) A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems for single family dwellings where outlets, piping, and system components are located on the exterior of the building.

UPC 1601.5 through 1601.6, and Table 1601.5. *…Not adopted.*

1601.5 ~~1601.7~~ Minimum Water Quality Requirements. The minimum water quality for rainwater catchment systems shall comply with ~~the applicable water quality requirements for the intended application as determined by the Authority Having Jurisdiction. Water quality for nonpotable rainwater catchment systems shall comply with~~ Section 1603.4.

Exceptions:

(1) Water treatment is not required for rainwater catchment systems used for aboveground irrigation with a maximum storage capacity of 360 gallons (1363 L).

(2) Water treatment is not required for rainwater catchment systems used for subsurface or drip irrigation.

UPC 1601.8 through 1601.10. *…Renumbered.*

1601.9 ~~1601.11~~ Abandonment. Rainwater catchment systems that are no longer in use~~, or fail to be maintained in accordance with Section 1601.5,~~ shall be abandoned. Abandonment shall comply with Section 1601.9.1 and Section 1601.9.2.

1601.9.1 ~~1601.11.1~~ General. *…Renumbered.*

1601.9.2 ~~1601.11.2~~ Underground Tank. An underground water storage tank that has been abandoned or otherwise discontinued from use in a system covered under the scope of this chapter shall be completely drained and filled with earth, sand, gravel, concrete, or other approved material ~~or removed in a manner satisfactory to the Authority Having Jurisdiction~~.

1602.0 Nonpotable Rainwater Catchment Systems.

1602.1 General. The installation, construction, alteration, and repair of rainwater catchments systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, clothes washers, irrigation, industrial processes, water features, cooling tower makeup and other uses shall be approved by the Building Official. Rainwater catchment systems for collecting precipitation from rooftops shall comply with ARCSA/ASPE/ANSI 63.

1602.2 Plumbing Plan Submission. No permit for a rainwater catchment system shall be issued until complete plumbing plans~~, with data satisfactory to the Authority Having Jurisdiction,~~ have been submitted and approved by the Building Official.

1603.0 Design and Installation.

1603.3.1 Other Surfaces. Natural precipitation collected from surface water runoff, vehicular parking surfaces, or manmade surfaces at or below grade shall be in accordance with the stormwater requirements for on-site treated nonpotable water systems ~~in Section 1506.0~~.

1603.3.2 Prohibited Discharges. Overflows and bleed-off pipes from roof-mounted equipment and appliances shall not discharge onto roof surfaces that are intended to collect rainwater ~~without prior approval from the Authority Having Jurisdiction~~.

1603.4 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 Authority Having Jurisdiction. In the absence of water quality requirements determined by the Authority Having Jurisdiction, the minimum treatment and water quality shall~~ be in accordance with Table 1603.4, IAPMO IGC 324 or NSF/ANSI 350.

Exception: No treatment is required for rainwater used for subsurface or nonsprinkled surface irrigation where the maximum storage volume is less than 360 gallons (1363 L).

1603.15 Water Quality Devices and Equipment. Devices and equipment used to treat rainwater to maintain the minimum water quality requirements ~~determined by the Authority Having Jurisdiction~~ shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) and approved for the intended application.

1605.0 Inspection and Testing.

1605.3 ~~Annual~~ Cross-Connection Inspection and Testing. ~~An initial and subsequent annual inspection and~~ A test in accordance with Section 1602.5 shall be performed on both the potable and rainwater catchment water systems. The potable and rainwater catchment water systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1605.3.1 through Section 1605.3.3.

UPC 1605.3.4 Annual Inspection. *…Not adopted.*

CHAPTER 17 REFERENCED STANDARDS

Table 1701.1—Referenced Standards

All the adopted standards referenced sections are updated to the align with the Oregon amendments. The following standards are added to Table 1701.1 as Oregon amendments:

- AASHTO H-20—Loading specifications, 1101.11.1
- ASTM B103/B103M-23—Standard Specification for Phosphor Bronze Plate, Sheet, Strip, and Rolled Bar, 1318.4, 1327.5.3.1, 1327.6.2

The following standards from Table 1701.2 are not adopted:

- ~~ASME A112.18.8-2020~~
- ~~ASME A112.18.9-2011 (R2017)~~
- ~~ASME B16.1-2020~~
- ~~ASME B16.5-2020~~
- ~~ASME B16.20-2017~~
- ~~ASME B16.21-2021~~
- ~~ASME B16.24-2016~~
- ~~ASME B16.33-2012 (R2017)~~
- ~~ASME B16.42-2016~~
- ~~ASME B16.44-2012 (R2017)~~
- ~~ASME B16.47-2020~~
- ~~ASME B31.3-2020~~
- ~~ASME B36.10M-2018~~
- ~~ASSE 1064-2020~~
- ~~ASSE/IAPMO/ANSI Series 5000-2015~~
- ~~ASSE/IAPMO/ANSI 6010- 2021~~
- ~~ASSE/IAPMO/ANSI 6020-2021~~
- ~~ASSE/IAPMO/ANSI 6030-2021~~
- ~~ASSE/IAPMO/ANSI 6035- 2021~~
- ~~ASSE/IAPMO/ANSI Series 7000-2020~~
- ~~ASSE/IAPMO/ANSI 12010-2021~~
- ~~ASSP Z359.1-2020~~
- ~~ASTM A106/A106M-2019a~~
- ~~ASTM A254/A254M-2012 (R2019)~~
- ~~ASTM A268/A268M-2020~~
- ~~ASTM B210/B210M-2019a~~
- ~~ASTM B241/B241M-2016~~
- ~~ASTM C1822-2021~~
- ~~ASTM D2513-2020~~
- ~~ASTM F1973-2013 (R2018)~~
- ~~ASTM F2509-2015 (R2019)~~
- ~~ASTM F2945-2018~~
- ~~AWS B2.2/B2.2M-2016~~
- ~~AWWA C530-2017~~
- ~~49 CFR 192.281~~
- ~~49 CFR 192.283~~
- ~~CGA M-1-2018~~
- ~~CSA/ANSI LC 1-2019/CSA 6.26-2019~~
- ~~ANSI LC 4-2022/CSA 6.32- 2022~~
- ~~CSA/ANSI Z21.15-2021/CSA 9.1-2021~~
- ~~CSA/ANSI Z21.18-2019/CSA 6.3-2019~~
- ~~ANSI Z21.24-2015/CSA 6.10-2015 (R2020)~~
- ~~ANSI Z21.41-2014/CSA 6.9-2014 (R2019)~~
- ~~CSA/ANSI Z21.54-2019/CSA 8.4-2019~~
- ~~ANSI Z21.69-2015/CSA 6.16-2015 (R2020)~~
- ~~ANSI Z21.75-2016/CSA 6.27-2016~~
- ~~CSA/ANSI Z21.80-2019/CSA 6.22-2019~~
- ~~CSA/ANSI Z21.90-2019/CSA 6.24-2019~~
- ~~ANSI Z21.93-2017/CSA 6.30-2017~~
- ~~ASSE/IAPMO/ANSI Series 5000-2015~~
- ~~ASSE/IAPMO/ANSI 6010-2021~~
- ~~ASSE/IAPMO/ANSI 6020-2021~~
- ~~ASSE/IAPMO/ANSI 6030-2021~~
- ~~ASSE/IAPMO/ANSI 6035-2021~~
- ~~ASSE/IAPMO/ANSI Series 7000-2020~~
- ~~ASSE/IAPMO/ANSI 12010-2021~~
- ~~IAPMO IGC 196-2018~~
- ~~IAPMO IGC 324-2019~~
- ~~IAPMO IGC 352-2020e1~~
- ~~IAPMO PS 59-2016ae2~~
- ~~NFPA 30A-2021~~
- ~~NFPA 31-2020~~
- ~~NFPA 51-2018~~
- ~~NFPA 54/ANSI Z223.1-2021~~
- ~~NFPA 58-2020~~
- ~~NFPA 70-2020~~
- ~~NFPA 88A-2019~~
- ~~NFPA 211-2019~~
- ~~NFPA 780-2020~~
- ~~NFPA 1192-2021~~
- ~~NSF/ANSI 350-2020~~
- ~~UL 103-2010~~
- ~~UL 378-2006~~
- ~~UL 441-2016~~
- ~~UL 467-2013~~
- ~~UL 641-2010~~
- ~~UL 778-2016~~
- ~~UL 959-2010~~
- ~~UL 1738-2010~~
- ~~UL 1777-2015~~
- ~~UL 2561-2016~~

Table 1701.2—Standards, Publications, Practices, and Guides

The following standards are added to Table 1701.2 as Oregon amendments:

- AASHTO M36-2016 (2020)—Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains—Piping, Ferrous
- AASHTO M196-2016—Corrugated Aluminum Pipe for Sewers and Drains—Piping
- AASHTO M218-2003 (2020)—Steel Sheet, Zinc-Coated (Galvanized), for Corrugated Steel Pipe—Piping, Ferrous
- AASHTO M252-2021—Corrugated Polyethylene Drainage Pipe—Piping, Plastic
- AASHTO M274-1987 (2021)—Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe—Piping, Ferrous
- AASHTO M294-2021—Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter—Piping, Plastic
- ASME A112.4.7-2002*—Point of Use and Branch Water Submetering Systems—Miscellaneous
- ASME A112.18.7-1999 (R2004)*—Deck Mounted Bath/Shower Transfer Valves with Integral Backflow Protection—Valves
- ASME A112.14.3-2018—Hydromechanical Grease Interceptors—Fixtures
- ASME A112.19.9M-2002 (R2008)*—Non-Vitreous Ceramic Plumbing Fixtures—Fixtures
- ASME B16.1-2020—Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250—Fittings
- ASME B16.5-2020—Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch—Fittings
- ASME B16.21-2021—Nonmetallic Flat Gaskets for Pipe Flanges—Joints
- ASME B16.24-2016—Cast Copper Alloy Pipe Flanges, Flanged Fittings, and Valves: Classes 150, 300, 600, 900, 1500, and 2500—Fittings
- ASME B16.47-2020—Large Diameter Steel Flanges: NPS 26 through NPS 60 Metric/Inch—Fittings
- ASSE 1006–1986*—Residential Use Dishwashers—Appliances
- ASSE 1007–1986*—Home Laundry Equipment—Appliances
- ASSE 1009-1990*—Commercial Food Waste Grinder Units—Appliances
- ASSE 1021-2001—Drains Air Gaps for Domestic Dishwasher Applications—Backflow Protection
- ASSE 1050-2021*—Stack Air Admittance Valves for Sanitary Drainage Systems—Fittings
- ASSE 1051-2021—Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems—Fittings
- ASTM A760-2015(2020)—Corrugated Steel Pipe—Piping, Ferrous
- ASTM B209-2014—Corrugated Aluminum Pipe—Piping
- ASTM D3753-2020—Glass-Fiber Reinforced Polyester Manholes—Miscellaneous
- ASTM F1335-2004*—Pressure-Rated Composite Pipe and Fittings for Elevated Temperature Service—Piping, Plastic
- ASTM F2648-2022—CPE Storm Sewer Piping—Piping, Plastic
- ASTM F2649-14r23—HDPE Grease Interceptor—Fixtures
- ASTM F2736-2010—Specification for 6 to 30 in. Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe.—Piping, Plastic
- ASTM F2764-2018—Specification for 6 to 60 in. Polypropylene (PP) Corrugated Double and Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications—Piping and Fittings, Plastic
- AWWA C400-2003*—Asbestos-Cement Pressure Pipe, 4 in. through 16 in. for Water Distribution and Transmission—Piping, Non-Metallic
- CSA B45.3-2002—Porcelain-Enameled Steel Plumbing Fixtures—Fixtures
- CSA B45.9-2002 (R2008)—Macerating Systems and Related Components—DWV Components
- CSA B45.10-2001 (R2006)—Hydromassage Bathtubs—Fixtures
- FCI 74-1-1991—Spring Loaded Lift Disc Check Valve—Valves

- IAPMO IGC 109-2019—Water Distribution Manifolds—Valves
- IAPMO IGC 111-1999—Adjustable Position Sink, Or Elevating Sink, Lavatory and Shampoo Bowl—Fixtures
- IAPMO IGC 161-2014—Urinals with Mechanical Traps—Fixtures
- IAPMO IGC 172-2010—Glass Lavatories, Sinks and Counter Tops—Fixtures
- IAPMO IGC 188-2004—Removable and Non-Removable Push Fit Fittings—Fittings
- IAPMO IGC 194-2004a—Copper Alloy or Aluminum Alloy Sinks and Lavatories—Fixtures
- IAPMO IGC 195-2004—Shower Drains with Integrated Bonding Flange—Fixtures
- IAPMO IGC 217-2007—Metallic Bathtubs and Whirlpool Bathtubs—Fixtures
- IAPMO IGC 224-2018—ABS, PVC and Cast Iron DWV Test Fitting with Integral Cleanout—Fittings
- IAPMO IGC 237-2019—High Pressure Stainless Steel Shielded Couplings for Use with Hubless Cast Iron Soil Pine and Fittings—Joints
- IAPMO IGC 257-2009a—Hinge Type Couplings Used for Joining Hubless Cast Iron Soil Pipe and Fittings—Joints
- IAPMO PS 16-2004—Subdrains for Built-Up Shower Pans—Fixtures
- IAPMO PS 43-2007—Cushioned Bathtubs and Whirlpool Bathtub Appliances—Fixtures
- IAPMO PS 46-2010—Field-Fabricated Tiling Kits—Miscellaneous
- IAPMO PS 53-2021—Grooved Mechanical Pipe Couplings and Grooved Fittings—Joints
- IAPMO PS 55-1992—Bath Waste Strainer Drains—Fixtures
- IAPMO PS 57-2002—PVC Hydraulically Actuated Diaphragm Type Water Control Valves—Valves
- IAPMO PS 61-2006a—Fabricated Stainless Steel Water Closets or Urinals—Fixtures
- IAPMO PS 76-2021—Trap Primers for Fill Valves and Flushometer Valves—DWV Components
- IAPMO PS 80-2019—Clarifiers—DWV Components
- IAPMO PS 82-1995—Fiberglass (Glass Fiber Reinforced Thermosetting Resin) Fittings—Fittings
- IAPMO PS 89-1995—Soaking and Hydrotherapy (Whirlpool) Bathtubs with Hydraulic Seatlift—Fixtures
- IAPMO PS 90-2014—Elastomeric Test Caps, Cleanout Caps, and Combination Test Caps/Shielded Couplings—DWV Components
- IAPMO PS 98-1996—Prefabricated Fiberglass Church Baptisteries—Fixtures
- IAPMO PS 99-2007—Terrazzo, Marble, Concrete, Granite, and Slate Plumbing Fixtures—Fixtures
- IAPMO PS 100-1996—Porous Filter Protector for Sub-Drain Weep Holes—DWV Components
- IAPMO PS 104-2019—Pressure Relief Connection for Dispensing Equipment—Valves
- IAPMO PS 105-1997—Polyethylene Distribution Boxes—DWV Components
- IAPMO PS 113-2010—Hydraulically Powered Household Food Waste Disposers—Appliances
- IAPMO PS 114-1999^{e1}—Remote Floor Box Industrial Water Supply, Air Supply, Drainage—Miscellaneous
- IAPMO PS 116-1999—Hot Water Circulating Devices Which Do Not Use a Pump—Miscellaneous
- IAPMO/ANSI Z124.1.2-2005*—Plastic Bathtub and Shower Units—Fixtures
- IAPMO Z124.3-2005*—Plastic Lavatories—Fixtures
- IAPMO Z124.4-2006*—Plastic Water Closet Bowls and Tanks—Fixtures
- IAPMO Z124.6-2007—Plastic Sinks—Fixtures
- IAPMO/ANSI Z124.9-2004*—Plastic Urinal Fixtures—Fixtures
- MSS SP-69-2003*—Pipe Hangers and Supports -Selection and Application—Miscellaneous
- MSS SP-89-2003*—Pipe Hangers and Supports-Fabrication and Installation Practices—Miscellaneous
- NSF/ANSI 350-2022—Onsite Residential and Commercial Water Reuse Treatment Systems—Miscellaneous
- ANSI/PSAI Z4.1-2016—Sanitation in Places of Employment—Miscellaneous
- SRCC Standard OG100- 2006—Operating Guidelines for Certifying Solar Collectors—Solar Panels
- SRCC Standard OG300- 2008—Operating Guidelines and Minimum Standards for Certifying Solar Water Heating Systems—Solar Water Heating Systems
- UL 207-1993—Refrigerant Components and Accessories, Non-Electrical—Fitting

The following standards from UPC Table 1701.2 are not adopted:

- ~~ARCSA/ASPE 78-2015~~
- ~~ASCE 25-2016~~
- ~~ASHRAE/IES 90.1-2019~~
- ~~ASHRAE/IES 90.2-2018~~
- ~~ASME B16.40-2019~~
- ~~ASME B31.1-2020~~
- ~~ASME B36.19M-2018~~
- ~~ASME BPVC Section IV-2021~~
- ~~ASSE 1086-2020~~
- ~~ASSE/IAPMO/ANSI 5110-2015~~
- ~~ASSE/IAPMO/ANSI 5120-2015~~
- ~~ASSE/IAPMO/ANSI 5130-2015~~
- ~~ASSE/IAPMO/ANSI 5140-2015~~
- ~~ASSE/IAPMO/ANSI 5150-2015~~
- ~~ASSE/IAPMO/ANSI Series 6000-2021~~
- ~~ASSE/IAPMO/ANSI 6015-2021~~
- ~~ASSE/IAPMO/ANSI 6040-2021~~
- ~~ASSE/IAPMO/ANSI 7010-2020~~
- ~~ASSE/IAPMO/ANSI 7020-2020~~
- ~~ASSE/IAPMO/ANSI Series 12000-2021~~
- ~~ASSE/IAPMO/ANSI 12020-2021~~
- ~~ASSE/IAPMO/ANSI 12060-2021~~
- ~~ASSE/IAPMO/ANSI 12061-2021~~
- ~~ASSE/IAPMO/ANSI 12062-2021~~
- ~~ASSE/IAPMO/ANSI 12063-2021~~
- ~~ASSE/IAPMO/ANSI 12080-2021~~
- ~~ASSE/IAPMO/ANSI Series 13000-2015 (R2020)~~
- ~~ASSE/IAPMO/ANSI 13010-2015 (R2020)~~
- ~~ASSE/IAPMO/ANSI Series 16000-2019~~
- ~~ASSE/IAPMO/ANSI 16010-2019~~
- ~~ASSE/IAPMO/ANSI 16040-2019~~
- ~~ASSE/ARCSA/IAPMO/ ANSI Series 21000-2017~~
- ~~ASSE/IAPMO/ANSI 21110-2017~~
- ~~ASSE/IAPMO/ANSI 21120-2017~~
- ~~ASSE/IAPMO/ANSI 21130-2017~~
- ~~ASTM A479/A479M-2020~~
- ~~ASTM C1227-2020~~
- ~~ASTM D2517-2018~~
- ~~ASTM F1924-2019~~
- ~~ASTM F1948-2020~~
- ~~AWS B2.4-2012~~
- ~~10 CFR 430~~
- ~~10 CFR 431.106~~
- ~~CGA S-1.3-2020~~
- ~~CSA B66-2021~~
- ~~ANSI Z21.12b-1994 (R2020)~~
- ~~ANSI Z21.81a-2007/ CSA 6.25a-2007 (R2020)~~
- ~~CSA Z21.86-2016~~
- ~~ANSI Z83.11-2016 (R2021)/CSA 1.8-2016 (R2021)~~
- ~~ASSE/IAPMO/ANSI 5110-2015~~
- ~~ASSE/IAPMO/ANSI 5120-2015~~
- ~~ASSE/IAPMO/ANSI 5130-2015~~
- ~~ASSE/IAPMO/ANSI 5140-2015~~
- ~~ASSE/IAPMO/ANSI 5150-2015~~
- ~~ASSE/IAPMO/ANSI 6015-2021~~
- ~~ASSE/IAPMO/ANSI 6040-2021~~
- ~~ASSE/IAPMO/ANSI 7010-2020~~
- ~~ASSE/IAPMO/ANSI 7020-2020~~
- ~~ASSE/IAPMO/ANSI Series 12000-2021~~
- ~~ASSE/IAPMO/ANSI 12020-2021~~
- ~~ASSE/IAPMO/ANSI 12060-2021~~
- ~~ASSE/IAPMO/ANSI 12061-2021~~
- ~~ASSE/IAPMO/ANSI 12062-2021~~
- ~~ASSE/IAPMO/ANSI 12063-2021~~
- ~~ASSE/IAPMO/ANSI 12080-2021~~
- ~~ASSE/IAPMO/ANSI Series 13000-2015 (R2020)~~
- ~~ASSE/IAPMO/ANSI 13010-2015 (R2020)~~
- ~~ASSE/IAPMO/ANSI Series 16000-2019~~
- ~~ASSE/IAPMO/ANSI 16010-2019~~
- ~~ASSE/IAPMO/ANSI 16040-2019~~
- ~~ASSE/ARCSA/IAPMO/ ANSI Series 21000-2017~~
- ~~ASSE/IAPMO/ANSI 21110-2017~~
- ~~ASSE/IAPMO/ANSI 21120-2017~~
- ~~ASSE/IAPMO/ANSI 21130-2017~~
- ~~ANSI/CAN/IAPMO/ISO 30500-2019~~
- ~~IAPMO IGC 262-2020~~
- ~~IAPMO IGC 276-2019~~
- ~~IAPMO IS 26-2019e2~~
- ~~IAPMO/ANSI Z1000-2019~~
- ~~ASABE/ICC 802-2014~~
- ~~ANSI/CAN/IAPMO/ISO 30500-2019~~
- ~~NFPA 13R-2022~~
- ~~NFPA 80-2022~~
- ~~NFPA 501A-2021~~
- ~~NFPA 1981-2019~~
- ~~NFPA 1989-2019~~
- ~~NFPA 5000-2021~~
- ~~NSF/ANSI/CAN 60-2021~~
- ~~NSF/ANSI/CAN 372-2020~~
- ~~UL 70-2001~~
- ~~UL 80-2007~~
- ~~UL 144-2021~~
- ~~UL 252-2017~~
- ~~UL 296-2017~~
- ~~UL 404-2010~~
- ~~UL 536-2021~~
- ~~UL 569-2013~~
- ~~UL 726-1995~~

Appendix A—Recommended Rules for Sizing the Water Supply System

(Appendix A is adopted by the State of Oregon as part of the Plumbing Code)

TABLE A 103.1
WATER SUPPLY FIXTURE UNITS (WSFU) AND MINIMUM FIXTURE BRANCH PIPE SIZES[3]

The rest of the table not shown remains unchanged.

APPLIANCES, APPURTENANCES, OR FIXTURES[2]	MINIMUM FIXTURE BRANCH PIPE SIZE[1,4] (inches)	PRIVATE	PUBLIC	ASSEMBLY[6]
Urinal, ~~1.0~~ 0.5 GPF Flushometer Valve	3/4	3.0	4.0	5.0
Urinal, greater than ~~1.0~~ 0.5 GPF Flushometer Valve	3/4	4.0	5.0	6.0
Water Closet, ~~1.6~~ 1.28 GPF Gravity Tank	1/2	2.5	2.5	3.5

For SI units: 1 inch = 25 mm

Notes:

6 Assembly [Public Use (see ~~Table 422.1~~ Table 2902.1 of the Building Code)].

Appendix B—Explanatory Notes on Combination Waste and Vent Systems

(See Section 910.0 for specific limitations)

(Appendix B is adopted by the State of Oregon as part of the Plumbing Code)

Appendix C—Alternate Plumbing Systems

(Appendix C is adopted by the State of Oregon as part of the Plumbing Code)

C 301.0 Engineered Plumbing Systems.

C 301.1 Inspection and Installation. In other than one- and two-family dwellings, the designer of the system is to provide periodic inspection of the installation ~~on a schedule approved by the Authority Having Jurisdiction. Prior to the final approval, the designer shall verify to the Authority Having Jurisdiction that the installation is in accordance with the approved plans, specifications, and data and such amendments to it. The designer shall certify to the Authority Having Jurisdiction~~ to it and shall certify to the Building Official that the installation is in accordance with the applicable engineered design criteria.

C 303.0 Fixture Unit Values for Private or Private Use Bathroom Groups.

TABLE C 303.3
DRAINAGE FIXTURE UNIT VALUES (DFU) FOR BATHROOM GROUPS[1, 2]

The rest of the table not shown remains unchanged.

	PRIVATE USE BATHROOM GROUP	SERVING 3 OR MORE PRIVATE USE BATHROOM GROUP
Bathroom Groups having up to 1.6 GPF Gravity-Tank Water Closets		
Bathroom Groups having up to 1.6 GPF Pressure-Tank Water Closets		
Bathroom Groups having up to 3.5 GPF Gravity-Tank Water Closets		
Bathroom Group (up to 1.6 GPF Flushometer Valve)	3.0	3.0

C 501.0 Vacuum Drainage Systems.

C 501.9 Manufacturer's Instructions. Manufacturer's instructions shall be provided to provide information regarding safe and proper operating instructions whether or not as part of the condition of listing to determine compliance. ~~Such instructions shall be submitted and approved by the Authority Having Jurisdiction.~~

Appendix D—Sizing Storm Water Drainage Systems

(Appendix D is adopted by the State of Oregon as part of the Plumbing Code)

Table D 101.1 Maximum Rates of Rainfall for Various Cities* *…All rows are deleted except for the Oregon areas.*

The rest of Appendix D remains unchanged.

Appendix E—Manufactured/Mobile Home Parks and Recreational Vehicle Parks

(Appendix E is adopted by the State of Oregon as part of the Plumbing Code)

E 101.0 Manufactured/Mobile Home Park.

E 101.1 Applicability. The manufactured home park plumbing and drainage systems shall be designed and installed in accordance with the requirements of this appendix ~~and~~, the requirements of this code, OAR Chapter 918, Division 600, and the Manufactured Dwelling Code.

E 201.0 Definitions.

E 201.1 General. For the purpose of this appendix, the following definitions shall apply:

Manufactured/Mobile Home. ~~A structure transportable in one or more sections, which in the traveling mode is 8 feet (2438 mm) or more in width and 40 feet (12 192 mm) or more in length or, where erected on-site, is 320 square feet (29.73 m2) or more, and which is built on a permanent chassis, and designed to be used as a dwelling with or without a permanent foundation where connected to the required utilities. It includes the plumbing, heating, air-conditioning, and electrical systems contained therein. For further clarification of definition, see Federal Regulation 24 CFR.~~ See ORS 446.003 (23)(a), (b), and (27).

ORS 446.003 (23)(a), (b), and (27) is not a part of this code but is reprinted here for the reader's convenience:

ORS 446.003 Definitions.

(23) (a) "Manufactured home," except as provided in paragraph (b) of this subsection, means a structure constructed for movement on the public highways that has sleeping, cooking and plumbing facilities, that is intended for human occupancy, that is being used for residential purposes and that was constructed in accordance with federal manufactured housing construction and safety standards and regulations in effect at the time of construction.

(b) For purposes of implementing any contract pertaining to manufactured homes between the department and the federal government, "manufactured home" has the meaning given the term in the contract.

(27) "Mobile home" means a structure constructed for movement on the public highways that has sleeping, cooking and plumbing facilities, that is intended for human occupancy, that is being used for residential purposes and that was constructed between January 1, 1962, and June 15, 1976, and met the construction requirements of Oregon mobile home law in effect at the time of construction.

Manufactured/Mobile Home Accessory Building or Structure. ~~A building or structure that is an addition to or supplements the facilities provided to a manufactured home. It is not a self-contained, separate, habitable building or structure. Examples are awnings, cabanas, ramadas, storage structures, carports, fences, windbreaks, or porches.~~ See ORS 446.003(1).

ORS 446.003 (1) is not a part of this code but is reprinted here for the reader's convenience:

ORS 446.003 Definitions.

(1) "Accessory building or structure" means any portable, demountable or permanent structure established for use of the occupant of the manufactured structure and as further defined by rule by the Director of the Department of Consumer and Business Services.

Manufactured/Mobile Home Lot. ~~A portion of a manufactured home park designed for the accommodation of one manufactured home and its accessory buildings or structures for the exclusive use of the occupants.~~ See ORS 446.003(20).

> **ORS 446.003 (20)** is not a part of this code but is reprinted here for the reader's convenience:
> **ORS 446.003 Definitions.**
> (20) "Lot" means any space, area or tract of land, or portion of a manufactured dwelling park, mobile home park or recreation park that is designated or used for occupancy by one manufactured dwelling.

Manufactured/Mobile Home Park. ~~A parcel (or contiguous parcels) of land that has been so designated and improved that it contains two or more manufactured home lots available to the general public for the placement thereon of a manufactured home for occupancy.~~ See ORS 446.003(22) and (28).

> **ORS 446.003 (22) and (28)** is not a part of this code but is reprinted here for the reader's convenience:
> **ORS 446.003 Definitions.**
> (22) "Manufactured dwelling park" means any place where four or more manufactured dwellings are located within 500 feet of one another on a lot, tract or parcel of land under the same ownership, the primary purpose of which is to rent or lease space or keep space for rent or lease to any person for a charge or fee paid or to be paid for the rental or lease or use of facilities or to offer space free in connection with securing the trade or patronage of such person. "Manufactured dwelling park" does not include a lot or lots located within a subdivision being rented or leased for occupancy by no more than one manufactured dwelling per lot if the subdivision was approved by the local government unit having jurisdiction under an ordinance adopted pursuant to ORS 92.010 to 92.192.
> (28) "Mobile home park":
> (a) Means any place where four or more manufactured dwellings, recreational vehicles as defined in ORS 174.101, or a combination thereof, are located within 500 feet of one another on a lot, tract or parcel of land under the same ownership, the primary purpose of which is to rent space or keep space for rent to any person for a charge or fee paid or to be paid for the rental or use of facilities or to offer space free in connection with securing the trade or patronage of such person.
> (b) Does not include a lot or lots located within a subdivision being rented or leased for occupancy by no more than one manufactured dwelling per lot if the subdivision was approved by the municipality unit having jurisdiction under an ordinance adopted pursuant to ORS 92.010 to 92.192.

~~**Recreational Vehicle (RV).** A vehicular-type unit primarily designed as temporary living quarters for recreational, camping, travel, or seasonal use that either has its own motive power or is mounted on or towed by another vehicle. The basic entities are camping trailer, fifth-wheel trailer, motor home, park trailer, travel trailer, and truck camper.~~

Recreational Vehicle Park. ~~A plot of land upon which two or more recreational vehicle sites are located, established or maintained for occupancy by recreational vehicles of the general public as temporary living quarters for recreation or vacation purpose.~~ See OAR 918-650-0005(12)(c).

> **OAR 918-650-0005(12)(c)** is not a part of this code but is reprinted here for the reader's convenience:
> **OAR 918-650-0005 Definitions.**
> (12)(c) "Recreational Vehicle Park" means a plot of land upon which two or more recreational vehicle sites are located, established or maintained for occupancy by recreational vehicles of the general public as temporary living quarters for recreational or vacation purposes.

Recreational Vehicle Site. ~~Within a recreational vehicle park, a plot of ground intended for the accommodation of a recreational vehicle, a tent, or another individual camping unit on a temporary basis.~~ See OAR 918-650-0005(15).

> **OAR 918-650-0005(15)** is not a part of this code but is reprinted here for the reader's convenience:
> **OAR 918-650-0005 Definitions.**
> (15) "Space" means that portion of a park reserved for the location of a recreation vehicle, tent, tent vehicle or camping vehicle.

E 301.0 Manufactured/Mobile Home Park Drainage System Construction.

E 301.4 Drain Connector. A manufactured home shall be connected to the lot drainage inlet in accordance with the Manufactured Dwelling Code ~~using a drain connector consisting of approved pipe not less than Schedule 40, approved fittings and connectors, and not less in size than the Manufactured home drainage outlet. An approved cleanout shall be provided between the manufactured home and the lot drainage inlet. The fitting connected to the lot drainage inlet shall be a directional fitting to discharge the flow into the drainage inlet~~.

E 302.0 Manufactured/Mobile Home Park Water Supply.

UPC E 302.1 Potable Water Supply. *…Not adopted and is noted as Reserved.*

E 302.2.1 Connection. A manufactured home shall be connected to the park water service outlet in accordance with the Manufactured Dwelling Code ~~by a flexible connector, such as copper or copper alloy or other approved material not less than $^{3}/_{4}$ of an inch nominal (20 mm) interior diameter~~.

E 302.3 Shutoff Valve. A separate water shutoff valve shall be installed in each water service outlet at each manufactured home lot in accordance with the Manufactured Dwelling Code. Where a listed backflow protective device is installed, the service shutoff shall be located on the supply side of such device.

UPC E 302.7 Water-Conditioning Equipment. *…Not adopted and is noted as Reserved.*

E 401.0 Fuel Supply.

UPC E 401.0 Fuel Supply. *…Not adopted and is noted as Reserved. The rest of E 401.0 is deleted.*

E 403.0 Multiple Manufactured Home Site Fuel Distribution and Supply Systems.

UPC E 403.0. *…Not adopted and is deleted in its entirety.*

E 404.0 Fuel Supply Systems Installation.

UPC E 404.0. *…Not adopted and is deleted in its entirety.*

E 405.0 Manufactured Home Accessory Building Fuel Supply Systems.

UPC E 405.0. *…Not adopted and is deleted in its entirety.*

E 406.0 Community Building Fuel Supply Systems in Manufactured Home Communities.

UPC E 406.0. *…Not adopted and is deleted in its entirety.*

E 501.0 Recreational Vehicle Parks.

E 501.1 Plumbing Systems. Plumbing systems shall be installed in accordance with the ~~plumbing codes~~ requirements of ~~the Authority Having Jurisdiction and with~~ this code, appendix, and OAR Chapter 918, Division 650, where applicable.

E 501.2 Toilet Facilities. Water closets and urinals shall be provided in accordance with OAR Chapter 918, Division 650 ~~at one or more locations in a recreational vehicle park. They shall be of convenient access and shall be located within a 500 foot (152 m) radius from a recreational vehicle site not provided~~ with ~~an individual sewer connection~~.

E 501.3 Water Closets. ~~Not less than one water closet shall be provided for each sex up to the first 25 sites. For each additional 25 sites not provided with sewer connections, an additional water closet shall be provided.~~

UPC E 501.4 Lavatories. *…Not adopted and is noted as Reserved.*

UPC E 501.5 Urinals. *…Not adopted and is noted as Reserved.*

E 502.0 Recreational Vehicle Park Potable Water Supply and Distribution.

UPC E 502.2 Sources. *…Not adopted and is noted as Reserved.*

E 503.0 Recreational Vehicle Park Water Connections for Individual Recreational Vehicles.

E 503.1 Location. Where provided, the water connections for potable water to individual recreational vehicle sites shall be located on the left rear half of the site (left side of recreational vehicle) ~~within 4 feet (1219 mm) of the stand~~.

E 504.0 Recreational Vehicle Park Drainage System.

E 504.6.1 Location. Where provided, the sewer inlet to individual recreational vehicle sites shall be located on the left rear half of the site (left side of the recreational vehicle) ~~within 4 feet (1219 mm) of the stand~~.

E 505.0 Recreational Vehicle Park Sanitary Disposal Stations.

E 505.1 Where Required. *…Not adopted and is noted as Reserved.*

E 505.4 Flushing Device. *…Not adopted.*

Appendix F—Firefighter Breathing Air Replenishment Systems

(Appendix F is not adopted by the State of Oregon as part of the Plumbing Code, and may not be adopted by a local municipality)

The rest of Appendix F is deleted.

Appendix G—Sizing of Venting Systems

(Appendix G is not adopted by the State of Oregon as part of the Plumbing Code, and may not be adopted by a local municipality)

The rest of Appendix G is deleted.

Appendix H—Private Sewage Disposal Systems

(Appendix H is not adopted by the State of Oregon as part of the Plumbing Code, and may not be adopted by a local municipality)

The rest of Appendix H remains unchanged.

Appendix I—Installation Standards

(Appendix I is not adopted by the State of Oregon Building Codes Division)

The following IAPMO Installation Standards are included here for the convenience of the users of the Oregon Plumbing Specialty Code. They are not considered as a part of the Oregon Plumbing Specialty Code. Additional Installation Standards are available on the IAPMO website at https://iapmostandards.org/iapmo-industry-standards/current-iapmo-is-standards.

The rest of Appendix I remains unchanged.

Appendix I Installation Standards—Significant Change

Summary: *Modified publishing of the IAPMO Installation standards*

Commentary: *Although not adopted as part of the OPSC, Appendix I has historically been included in the OPSC for the convenience of code users. This also included adding IAPMO's Installation Standards that are not printed in the UPC. For the 2026 OPSC, Appendix I will be reduced to only those printed in the 2024 UPC and the remaining standards are available for reference on the IAPMO website.*

Current IAPMO Installation Standards

Appendix J—Combination of Indoor and Outdoor Combustion and Ventilation Opening Design

(Appendix J is not adopted by the State of Oregon as part of the Plumbing Code, and may not be adopted by a local municipality)

The rest of Appendix J remains unchanged.

Appendix K—Potable Rainwater Catchment Systems

(Appendix K is adopted by the State of Oregon as part of the Plumbing Code)

K 101.0 General.

K 101.1 Applicability. The provisions of this appendix shall apply to the installation, construction, alteration, and repair of potable rainwater catchment systems in single-family dwellings.

K 101.2 System Design. Potable rainwater catchment systems in accordance with this appendix shall be designed by a registered design professional ~~or person deemed competent by the Authority Having Jurisdiction to perform potable rainwater catchment system design work. Where required, rainwater catchment systems shall be seismically restrained against earthquakes in accordance with the building code~~.

UPC K 101.3.1 Plumbing Plan Submission. *…Not adopted.*

UPC K 101.3.2 System Changes. *…Not adopted.*

K 101.4.1 Plumbing Materials and Systems. Pipe, pipe fittings, traps, fixtures, material, and devices used in a potable rainwater system shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) and shall be in accordance with approved applicable recognized standards referenced within this code, and shall be free from defects. Unless otherwise provided for in this appendix, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof shall ~~be submitted to~~ comply with the ~~Authority Having Jurisdiction for approval~~ requirements of this code.

UPC K 101.5 through K 101.6, and Table K 101.5.1. *…Not adopted.*

K 101.5 ~~K 101.7~~ Minimum Water Quality Requirements. ~~The minimum water quality for potable rainwater catchment systems shall comply with the applicable water quality requirements as determined by the Authority Having Jurisdiction. In the absence of water quality requirements, the guidelines EPA/600/R- 12/618 contains recommended water reuse guidelines to assist regulatory agencies develop, revise, or expand alternate water source water quality standards.~~ It is the sole responsibility of the owner of the system to maintain potable water in a safe and responsible manner, therefore frequent testing is advised.

K 101.6 ~~K 101.8~~ Material Compatibility. *…Renumbered.*

K101.7 ~~K 101.9~~ System Controls. *…Renumbered.*

K 104.0 Design and Installation.

UPC K 104.3 through K 104.4, and Tables K 104.3.1 and K 104.3.3. *…Not adopted.*

K 104.3 ~~K 104.4.1~~ Filtration Devices. *…Renumbered.*

UPC K 104.4.2 Disinfection Devices. *…Not adopted.*

K 104.4 ~~K 104.4.3~~ Filtration and Disinfection Systems. *…Renumbered.*

UPC K 104.5 Overhanging Tree Branches and Vegetation. *…Not adopted.*

K 105.0 Rainwater Storage Tanks.

K 105.2 Construction. Rainwater storage tanks shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight. Storage tanks shall be ~~approved by the Authority Having Jurisdiction~~ for potable water applications~~, provided such tanks~~ are in accordance with approved applicable standards.

Appendix L—Sustainable Practices

Appendix L is not adopted by the State of Oregon as part of the Plumbing Code, but may be adopted by a local municipality.

Note: Such adoptions shall comply with the requirements specified in the adopted appendix unless otherwise approved under the provisions of ORS 455.040.

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

The rest of Appendix L remains unchanged other than the editorial changes from "AHJ" to "Building Official.".

Appendix M—Peak Water Demand Calculator

(Appendix M is adopted by the State of Oregon as part of the Plumbing Code)

The rest of Appendix M remains unchanged.

Appendix N—Impact of Water Temperature on the Potential for Scalding and Legionella Growth

Appendix N is not adopted by the State of Oregon as part of the Plumbing Code, but may be adopted by a local municipality.

Note: Such adoptions shall comply with the requirements specified in the adopted appendix unless otherwise approved under the provisions of ORS 455.040.

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

The rest of Appendix N remains unchanged.

Appendix O—Non-Sewered Sanitation Systems

(Appendix O is not adopted by the State of Oregon as part of the Plumbing Code and may not be adopted by a local municipality)

The rest of Appendix O is deleted.

Appendix P—Professional Qualifications

(Appendix J is not adopted by the State of Oregon as part of the Plumbing Code and may not be adopted by a local municipality)

The rest of Appendix P is deleted.

Appendix Q—Indoor Horticultural Facilities

(Appendix J is not adopted by the State of Oregon as part of the Plumbing Code and may not be adopted by a local municipality, but remains printed here for reference)

The rest of Appendix Q is deleted.

Appendix R—Tiny Houses

(Appendix R is not adopted by the State of Oregon as part of the Plumbing Code and may not be adopted by a local municipality)

The rest of Appendix R is deleted.

Appendix S—Onsite Stormwater Treatment Systems

(Appendix S is not adopted by the State of Oregon as part of the Plumbing Code and may not be adopted by a local municipality)

The rest of Appendix S is deleted.