

TITLE 28 FLOATING STRUCTURES

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Chapter 28.01

PURPOSE AND SCOPE

(Added by Ordinance No. 163535,
effective November 3, 1990.)

Sections:

- 28.01.010 Statement of Purpose and Intent.
- 28.01.020 Scope.

28.01.010 Statement of Purpose and Intent.

(Amended by Ordinance No. 181437, effective December 21, 2007.) It is the purpose of Title 28 to promote the public's health, safety and welfare through the regulation of floating structures and their appurtenances. The City of Portland recognizes the River Community as an important part of the City's overall vitality and livability, and that Floating Structures by their nature are a "Water Dependent Activity".

These regulations recognize that waterborne structures, by their very nature, confront different environmental factors than do structures located on land. Furthermore, it is recognized that waterborne structures have distinctive design requirements such that strict adherence or application of the land-oriented Specialty Codes is not always appropriate and that modifications or exceptions should be made in appropriate circumstances in the application of those codes.

28.01.020 Scope.

(Amended by Ordinance Nos. 178745 and 181437, effective December 21, 2007.) The Director may issue permits for the construction, reconstruction, relocation, alteration, repair, maintenance and siting of floating structures and related structures located within the City of Portland as provided by Title 28 and limited thereto.

Chapter 33.236 regulates the location, use and development of floating homes and floating home moorages. New, relocated or replacement floating structures on sites located within the Portland International Airport Noise Impact overlay zone, as identified in the City of Portland's zoning maps, are subject to the noise insulation, noise disclosure statement, and noise easement requirements of Chapter 33.470.

Title 28 does not apply to the construction, maintenance, or operation of boats, except as provided in Section 28.06.050.

Title 28 does not apply to any buildings or structures located on land above the mean high water mark. Such buildings or structures, including but not limited to parking lots, carports, club houses, sales or business offices, shall be constructed in compliance with the applicable State Specialty Codes and Portland City Code (PCC) Title 24 Building Regulations.

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Except as specifically provided in Title 28 the State Specialty Codes, PCC Title 24 Building Regulations, PCC Title 31 Fire Regulations and PCC Title 19 Harbors, are the base codes for the design and construction and maintenance of floating structures. Recognizing the unique history and traditions associated with floating structures, alternatives to the requirements of the base codes are included in Section 28.06.055 and elsewhere in Title 28. Due to the history and tradition, the Director shall give additional consideration to prior interpretations, rulings, permitting and appeals.

Should any conflicts arise between the requirements specified in the base codes and the requirements specified in Title 28, the requirements of Title 28 shall control. Where two requirements of Title 28 are in conflict the most restrictive requirement shall apply. If, after taking into consideration the nautical application of the codes, the application of the specific code requirement is deemed to be overly restrictive, the Director may refer the question to the Floating Structures Board of Appeal for interpretation.

Chapter 28.02

DEFINITIONS

Sections:

- 28.02.010 General.
- 28.02.020 Definitions.

28.02.010 General.

(Added by Ordinance No. 181437, effective December 21, 2007.) For the purpose of Title 28 certain words, phrases, terms and their derivatives shall be construed to have the meaning as specified in this Chapter and elsewhere in Title 28.

Where words, phrases, or terms are not defined in this Title, their meaning shall be as defined in the Specialty Codes. If not defined in the Specialty Codes, the words, phrases, or terms shall have their ordinarily accepted meanings within the context of their use.

28.02.020 Definitions.

(Amended by Ordinance No. 181437, effective December 21, 2007.)

- A. Addition:** An increase in the floor area or height of a floating structure or an expansion of walkways, piling or other similar structural portions of a moorage or marina.
- B. Alteration:** Any change or modification of existing construction.
- C. Barge-home:** A floating structure, without a means of self-propulsion, which is primarily for occupancy as a one or two family dwelling which is constructed on a

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floatation system that is designed and constructed as a boat and which is directly connected to electrical, sanitary sewer, and/or potable water supply. For the purposes of Title 28 a Barge-home shall be considered to be a Floating Home and shall be required to meet all design and construction requirements of a Floating Home as specified in Title 28. This requirement also applies to the floatation system and its connection to the moorage structure. (See Chapter 28.06)

- D. Berth:** A waterside area defined by floating walkways and fingerfloats, for the wet storage of a boat, or mooring of a floating home, combo-structure or boathouse; mooring site.
- E. Boarding Float:** A floating structure located on or adjacent to a boat ramp that provides pedestrian access to and from a boat in the water.
- F. Boat:** A vessel or watercraft, other than a Floating Home, Tender House, Boathouse, Combo-Structure or other Floating Structure as defined in Title 28 and ORS 830.005 (2005), that may or may not be equipped with a means for self propulsion and may or may not be licensed and titled by the State or documented by the U.S. Coast Guard for operation on inland, coastal or international waterways and whose intended primary use is as a means of transport on the water for the transport of passengers or cargo or to engage in commerce.
- G. Boathouse:** A covered floating structure used for the wet or dry storage of a private boat(s) or personal watercraft of the owner or lessee of the boathouse. A boathouse may contain a work area which is used for maintenance and repair of the boat(s) or personal watercraft stored in the boathouse. Sanitation facilities consisting of a toilet, lavatory and shower may be provided as part of the work area. A boathouse shall not contain a kitchen or any facilities, equipment or furnishing that allow for overnight sleeping.
- H. Boatwell:** A mooring site or berth contained within the structure of a boathouse or combo-structure for the storage of the private boat or personal watercraft of the owner of the boathouse or combo-structure.
- I. Certified Structural Inspector:** An inspector certified as a building inspector in the state where inspections of the floating structure are performed, by the authority having jurisdiction to grant such certifications; or an inspector who has been certified by a recognized national organization such as the International Code Council (ICC) as a building inspector. Such inspectors shall be knowledgeable in all aspects of City building codes, including Title 28 and shall be approved to:

 - 1.** Perform the required inspections on residential or commercial floating structures to insure compliance with all applicable codes

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2. Inspect floats for floating structures constructed in compliance with Section 28.06.030 A of Title 28 and the structures supported on those floats, or inspect any structure installed on an engineered float:
 - a. With the assistance of a Certified Floating Structure Inspector or
 - b. After training and approval as a Certified Floating Structure Inspector.

J. Certified Floating Structure Inspector (Experienced River Professional): An individual, who through training and experience, is knowledgeable about the design, construction and maintenance of floating structures and moorage facilities. BDS shall be responsible for certifying such inspectors through a process established by BDS in consultation with the River Community Advisory Committee. Such inspectors shall be approved to inspect floats and walkways for floating structures and their connections, as defined in this code, within the jurisdiction of the City of Portland. Such inspector shall have the following qualifications:

1. At least 10 years of verifiable experience in the construction industry, of which at least 5 years of verifiable experience may be from any combination of the following:
 - a. Experience as a hands-on craftsman doing building construction or repair
 - b. Experience as a supervisor for building construction or repair
 - c. Experience as a design professional (architect, structural or civil engineer) for building construction
 - d. Experience as an inspector for building construction.
2. Such inspector shall demonstrate at least 5 years of verifiable experience in the design, construction, inspection, maintenance and repair of floating structures including:
 - a. Log float construction, including stringers
 - b. Piling systems
 - c. Utility systems

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- d. Floating structure construction
- 3. Such inspector shall be either a contractor licensed through the State of Oregon Construction Contractors Board or shall be a State of Oregon licensed architect or engineer.
 - a. Contractors shall be bonded and insured in compliance with State Contractors Board requirements.
- K. **Combo-Structure:** A boathouse-dwelling unit combination.
- L. **Covered Moorage (covered marina):** Floating structure(s) used primarily for the moorage of boats in berths which are fully or partially covered by a roof structure to protect the boats from weather.
- M. **Dangerous Structure:** Any structure which has conditions or defects as described in Section 24.15.060, Section 24.15.065 or Section 19.16.250 to the extent that life, health, property, or safety of its occupants or the public are endangered.
- N. **Debris Boom:** A pile-supported floating structure, typically comprised of logs or foam filled pipe, located immediately upstream of a facility that provides protection from floating debris.
- O. **Director:** The director of the Bureau of Development Services as provided in Section 24.10.050.
- P. **Dwelling:** Structure containing one or two dwelling units used, intended or designed to be used, leased, let or hired out to be occupied for living purposes. See also "Multi-family dwelling".
- Q. **Dwelling Unit:** One or more habitable rooms that are occupied by, or designed or intended to be occupied by, one person or by a family or group of housemates living together as a single housekeeping unit that includes facilities for living, sleeping, cooking, eating, and sanitation.
- R. **Engineer of Record:** The term “engineer of record” shall mean either engineer or architect of record.
- S. **Existing Structure:** A floating structure built and secured in its current mooring site prior to January 1, 2008 or previously built and moored in its current mooring site under a valid permit in compliance with Title 28. If a floating structures is in violation of Title 33, it shall not be an "existing structure" within the meaning of Title 28.

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- T. Fire Apparatus Access Roads:** Roads providing the driving surface for fire department vehicles responding to an emergency, extending from a public right-of-way to a point nearest a moorage or marine gangway or pier.
- U. Floatation Device:** Logs, foam blocks, concrete floats or other similar devices which in combination form a floatation system for the support of a floating structure.
- V. Floatation System (Float):** A combination of floatation devices designed to provide the buoyancy required to support the loads imposed by a floating structure. The system may be either a prescriptive system or an engineered system, as provided under Title 28.
- W. Floating Home:** A floating structure used as a one or two family dwelling or sleeping unit which is supported by a floatation system.
- X. Floating Structure:** A structure supported by a floatation system constructed in compliance with Title 28 and held in place by piling and/or mooring devices.
- Y. Gangway:** A variable slope structure intended to provide pedestrian access between a fixed pier or shore and a floating structure.
- Z. Grandfathered:** The allowance for a floating structure, with conditions existing prior to the adoption of new or updated codes which regulate the construction of such structures, to remain without the requirement for retroactive improvement to the new or updated standards under Title 28, provided the existing structure is maintained in good repair and does not become a dangerous structure, or does not otherwise pose an imminent danger to the public health or safety or to adjoining property. "Grandfathered" does not include structures which violate Title 33.
- AA. Harbor Master:** That person assigned to carry out the duties of Harbor Master, as provided in Section 19.04.070.
- BB. Houseboat:** A watercraft, with a hull, capable of travel under its own power as part of its normal use which is registered by the State as a watercraft and which contains a dwelling or temporary dwelling structure. Houseboats are a category of boat.
- CC. Identifying Number Plate:** A registration plate issued by the State Marine Board with each Certificate of Registration for a Floating Home (FH), a Boathouse (BH) or Combo-structure (C).

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- DD. Improvement:** The addition of new or alteration of existing elements to an existing structure to improve or alter the functional character of the space or element.
- EE. Maintenance:** The work of keeping a structure or property in proper condition to prevent deterioration or unsafe conditions and to perpetuate its use.
- FF. Marina:** Floating structure(s) used primarily for the service, repair, sale or moorage of boats in berths, but may include other occupancies.
- GG. Moorage:** A site used primarily for the mooring of one or more floating structures or boats and includes the piling, mooring connectors, piers, ramps, gangways, walkways, and the land area used in conjunction therewith.
- HH. Moorage Map:** A plan of a moorage.
- II. Moored or Mooring:** The attachment of a boat or floating structure in one location temporarily or permanently to piles, walkways, gangways, piers or other structures.
- JJ. Mooring Connectors:** A connection between a floating structure, floating home, boathouse, berth, or marina, and a pile, pier, walkway, ramp, gangway or other structure, with the capability to hold the structure in place under reasonably expected conditions.
- KK. Mooring Site:** A site within a moorage designed or used for the mooring of a boat, boathouse, floating home, combo-structure or other floating structure; including berths or slips.
- LL. Multi-family Dwelling:** A structure containing three or more dwelling units used, intended or designed to be used, leased, let or hired out to be occupied for living purposes.
- MM. New Construction:** A new floating structure or an addition to an existing floating structure.
- NN. NFPA:** National Fire Protection Association.
- OO. Operator:** Any person who has charge, care or control of all or part of a moorage or marina, or a building or structure associated with a moorage or marina.

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- PP. Owner, Moorage:** Any person having a legal or equitable interest in a moorage or marina and any building or structure that is part of the equity of the moorage or marina.
- QQ. Owner, Floating Structure:** A person who has a legal or equitable interest other than a security interest in a floating structure, and the right of use or possession of the floating structure, but does not include a lessee.
- RR. Pier:** A non-floating fixed platform extending out over the water from shore to which gangways are usually attached. (Piers and wharves are regulated under the Oregon State Structural Specialty Code).
- SS. Pile or Piling:** A column or group of columns of timber, steel, or reinforced concrete bored or driven into the ground to carry vertical and lateral loads from a floating structure or pier, including those systems of piles described as dolphins or batter piles.
- TT. Plumbing, Plumbing System, or Plumbing Fixtures:** All potable water building supply and distribution pipes, all plumbing fixtures and traps, all drainage and vent pipes, and all drains, sewers, and sewage holding tanks including their respective joints and connections, devices, receptors, and appurtenances within the premises and shall include potable water piping, potable water treating or using equipment and water heaters.
- UU. Property:** The area of a moorage or marina within defined legal boundaries including all portions of the moorage or marina facility located on land and on water and all improvements, buildings or structures within that boundary that are part of the equity of the marina or moorage; or a floating structure under separate ownership from the moorage where it is located.
- VV. Public way:** Any sidewalk, planting strip, alley, street, or pathway, improved or unimproved, that is dedicated to public use.
- WW. Ramp:** A fixed, sloped structure providing pedestrian access between portions of a moorage that are at different elevations.
- XX. Reconstruction:** The disassembly and subsequent replacement of portions of a structure with like material in a manner consistent with the previous construction.
- YY. Repair:** The replacement or renewal of any part of an existing structure for the purpose of its maintenance.
- ZZ. River Community:** The group of persons who own and/or occupy floating structures and/or boats, who operate and maintain marinas and moorages or who

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are involved in the design, construction, maintenance and/or regulation of floating structures.

AAA. Site Map: A plan of a moorage or marina that includes related land-based structures.

BBB. Slip: See mooring site.

CCC. Specialty Codes: The regulations adopted under ORS 447.020(2) (2005), 455.020(2) (2005), 479.730(1) (2005) or 480.535 (2005) commonly referred to as the Structural Specialty Code, Residential Specialty Code, Mechanical Specialty Code, Plumbing Specialty Code, the Electrical Specialty Code and the Fire Code.

DDD. Swim or Ski Floats: A floating platform or ramp, without enclosed usable space, intended for the recreational use of swimmers and water skiers.

EEE. Tender House: An uninhabitable, floating, accessory structure whose use is incidental to the use of the main structure it is accessory to and which is located at the same mooring site as the main structure. Water, gas and electric utilities may be provided but the structure shall not contain a kitchen or any facilities, equipment or furnishing that will allow for overnight sleeping or maintenance of separate living. An accessory structure which contains a kitchen or any facilities, equipment or furnishing that will allow for overnight sleeping or separate living shall be regulated as a floating home and not as a Tender House and is required to be titled and registered with the State Marine Board as a Floating Home (FH).

FFF. Transient Tie-Up: A floating structure used exclusively for the open moorage of pleasure boats on a short term, maximum 72-hour stay or a floating structure used for passengers boarding or leaving commercial watercraft where the commercial watercraft remains moored to the floating structure for a maximum of twelve (12) hours within any twenty-four (24) hour period.

GGG. Vessel: Any vehicle at least 110 feet or more in length overall, used or capable of being used as a means of transportation on water.

HHH. Walk: A fixed portion of a floating structure providing a walking surface for access to and around a floating structure.

III. Walkway: A covered or open floating structure used for ingress to or egress from a mooring site. There are three types:

1. **Fingerfloat:** A fingerlike floating structure, usually attached perpendicular to a main walkway or marginal walkway, which physically defines a berth

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and provides direct pedestrian access to and from a berthed boat or floating structure to the main or marginal walkway.

2. Main Walkway: A floating structure to which one or more fingerfloats may be attached, which provides direct pedestrian access between the mooring site and marginal walkways or shore.
3. Marginal Walkway: A floating structure that provides pedestrian access between two or more main walkways and the shore or between two or more fingerfloats and the shore where no main walkways are used and fingerfloats attach directly to the marginal walkway.

JJJ. Water Dependent Activity: An activity that is dependent upon access to navigable or non-navigable waters, including but not limited to moorages and marinas.

KKK. Watercraft: Any vehicle less than 110 feet in length overall, used or capable of being used as a means of transportation on water.

Chapter 28.03

ADMINISTRATION AND ENFORCEMENT

Sections:

- 28.03.010 Responsibility.
- 28.03.015 River Community Advisory Committee.
- 28.03.020 Permits and Inspections.
- 28.03.030 Fees.
- 28.03.040 Appeals.
- 28.03.050 Enforcement.
- 28.03.060 Abatement of Dangerous Floating Structures.

28.03.010 Responsibility.

(Amended by Ordinance Nos. 176955 and 181437, effective December 21, 2007.) The Director shall administer and enforce the provisions of Title 28 except that the Harbor Master shall have the responsibility for the initial and periodic inspection of existing moorages as well as the permitting, testing and inspection of standpipes. In the event that the Harbor Master determines a violation of Title 28 has occurred at a moorage within the

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jurisdiction of the Harbor Master, such violation shall be reported to the Director who will then have the enforcement authority thereof.

The Director may render interpretations of Title 28 and adopt policies and procedures in conformance with the intent and purpose of this Title. The Director shall seek the advice and opinions of members of the River Community as represented by the Floating Structures Appeal Group during this process, but the Director shall have the final authority for rendering interpretations and adopting policies and procedures.

The State of Oregon Marine Board shall have responsibility for issuance of a certificate of title and identifying number plate for floating homes, combo-structures and boathouses. Issuance by the State of a title and identifying number plate does not certify that a floating home, combo-structure or boathouse is in compliance with the provisions of Title 28 or any other construction standard. Owners of floating structures are responsible for displaying the required identifying number plate on the floating structure, so that the plate is readily visible from the walkway providing access to the structure.

Nothing in this Title is intended to displace or conflict with any other applicable federal or state statute, rule or regulation nor grant any exemptions from such federal or state regulations.

28.03.015 River Community Advisory Committee.

(Added by Ordinance No. 181437, effective December 21, 2007.)

A. Purpose.

The River Community Advisory Committee is a citizen advisory body, representing those persons who own and/or occupy floating structures and/or boats, who operate and maintain marinas and moorages or who are involved in the design, construction, maintenance and/or regulation of floating structures. The purpose of the Committee is to obtain timely input from that community in regard to development of procedures and administrative guidelines for implementing the City's regulations of floating structures under Title 28. The Committee advocates for and supports consistent and fair application and implementation of these regulations. The Committee will provide public input to the Director by:

1. Providing leadership and expertise on issues affecting floating structures;
2. Providing feedback to the Director on the impact of potential regulations and administrative rules on floating structures, taking into consideration the full range of City goals and objectives;
3. Providing recommendations for regulatory, code, and administrative rule changes affecting floating structures;
4. Monitoring the application and enforcement of regulations for their effectiveness in achieving the City's goals;

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5. Recommending customer service, permitting, process, and compliance improvements to the Director; and,
 6. Serving as an advisory board to the Director on processes and procedures under Title 28.
- B. Membership.**
The River Community Advisory Committee shall consist of 6 members. The members shall be appointed by the Commissioner-in-Charge of the Bureau of Development Services and confirmed by the City Council. The members shall be selected to provide representation of those persons with knowledge or expertise on the unique construction conditions or the nautical history and traditions associated with floating structures. Members shall include, but not be limited to, a floating home resident, a marina operator, a floating structures contractor, a design professional, a yacht club member, and an on the water business owner.
- C. Appointments and Terms.**
Appointment to the River Community Advisory Committee shall be for a three-year term. If a position is vacated during a term, it shall be filled for the unexpired term. Members of the River Community Advisory Committee shall serve no more than two, complete three-year terms consecutively.
- D. Meetings, Officers, and Subcommittees.**
1. The River Community Advisory Committee shall meet at least five times yearly and as otherwise necessary to conduct its business. Meetings shall be conducted in accordance with adopted rules of procedure. Five members shall constitute a quorum. A quorum shall be necessary to make decisions that represent the position of the River Community Advisory Committee and to conduct any other Committee responsibilities. The election of officers shall take place at the first meeting of each calendar year.
 2. The officers of the Committee shall consist of a Chairperson and a Vice-chairperson. The chairperson shall be responsible for conducting the meetings of the committee. The Vice chairperson shall act as chair when the chairperson is not available.
 3. The River Community Advisory Committee may divide its members into subcommittees which are authorized to act on behalf of the committee for an assigned purpose. Subcommittee actions require the affirmative vote of at least three members.

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- E.** Attendance.
Members of the River Community Advisory Committee are expected to attend each meeting of the committee. The Commissioner-in-Charge may replace any member who accrues unexcused absences from three or more consecutive meetings or more than 50 percent (50%) of the meetings in any year.
- F.** Compensation.
River Community Advisory Committee members shall serve without compensation.

28.03.020 Permits and Inspections.

(Amended by Ordinance No. 181437, effective December 21, 2007.) It shall be unlawful for any person to erect, construct, enlarge, alter, repair, move, improve, or convert any structure regulated by Title 28, except as provided for in Title 28, or cause the same to be done without first obtaining a separate permit for each structure from the building official as required by Title 28.

Exemption from the permit requirements of Title 28 shall not authorize any person to do work in any manner in violation of the provisions of Title 28 or any other rules or regulations of the City of Portland, the State of Oregon, or the Federal government.

Unless otherwise exempted, separate plumbing, electrical and mechanical permits are required for any such work performed for floating structures regulated under Title 28.

- A.** Permits and inspections shall be required for the following:
- 1.** The new construction of floating homes, tender house structures, boathouses or combo structures, except as may otherwise be exempted elsewhere in Title 28.
 - 2.** The construction of:
 - a.** A new deck, walk, or porch not previously a part of a floating structure; or
 - b.** An addition of habitable space for a floating home or combo-structure; or
 - c.** An extension of an existing deck, walk, porch or the float for a floating home, or combo-structure.

EXCEPTION: A one time extension of not more than five percent (5%) in area or eight (8) inches in width or length, whichever is less, to the area of an existing deck, walk, porch or the float for a floating home or combo-structure shall be allowed without permit provided such extension does not cause an unbalanced or overloaded condition and provided such extension

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does not reduce the separation between floating structures below that is allowed by Title 28. As-built plans for such additions shall be provided to the Director upon completion of the work to allow for updating of permit information.

3. Alteration to or reconstruction of any element of a floating home, boathouse or combo-structure except as exempted by Section 28.03.020 C.
 4. Existing or new floating homes, boathouses, combo structures or commercial structures moved from a site outside the City to a mooring site within the City of Portland.
 5. Existing or new floating homes, combo-structures or commercial structures relocated from one mooring site to another mooring site either in the same moorage or to a separate moorage within the City of Portland.
 6. The new construction, addition, alteration, reconstruction, or improvement of public and private floating structures.
 7. Any new and/or alteration to any electrical, plumbing, heating/air conditioning installation on a floating structure, including wood stoves.
Exception: As provided in the Specialty Codes, minor repairs and maintenance of electrical, plumbing, heating/air conditioning installations do not require a permit.
 8. Temporary structural supports that will remain in place for not more than 180 days or relocation, replacement, reconstruction or repairs, that require a permit, that are performed to an existing structure due to an emergency condition may be undertaken without first obtaining a permit for the work. The owner of the structure on which the work is performed shall inform the Director within three (3) business days of the commencement of the work, the extent of work that is being performed and shall obtain the required permits for the work within ten (10) business days of the commencement of the work.
- B.** The permit and inspection process and requirements shall be as determined by the Director. The Director shall seek the advice and opinions of members of the River Community Advisory Committee during this process, but the Director shall have final authority in determining such processes and requirements. Such information shall be published by the Director in bureau policies and procedures that are made available to the public as provided in Chapter 1.07. Such policies and procedures shall not be altered or suspended until after consultation with the River Community Advisory Committee.

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C. Permits and inspections are not required for the following:

1. Repairs to a floating structure as specified in Section 28.05.020.
2. Replacement of piles as specified in Section 28.05.020.
3. Construction, alteration or repair of individual swim or ski floats.
4. The repair or reattachment of flexible water and sewer connections to individual floating homes, combo-structures, tender houses and boathouses, made in compliance with plumbing code requirements.
5. Construction, alteration or reconstruction of any portion of tender houses not greater than 200 square feet in area and with a height of not more than seventy-five (75%) of the width of the float or fifteen (15) feet from the level of the float deck, whichever is less, to the highest point of the structure and which are not meant or used for living purposes.
6. Relocation of boathouses or tender houses within a moorage or between separate moorages within the City as long as the unit moved is in good repair. The distance between units relocated within a moorage shall not be: less than the distance between units that pre-existed prior to the move if that distance is less than 6 feet between the nearest exterior walls and 4 feet between the nearest roof, deck, balcony or other architectural projection; or less than 6 feet between the nearest exterior walls and 4 feet between the nearest roof, deck, balcony or other architectural projection if the pre-existing distances are greater than or equal to 6 feet between the nearest exterior walls and 4 feet between the nearest roof, deck, balcony or other architectural projection. The distance between units when the relocation is to another moorage within the City shall either comply with the separation distance required by Section 28.05.010 B.4. or shall be the separation distance as determined acceptable by consultation with the Harbor Master in compliance with Section 28.05.010 B.4.
EXCEPTION: Electrical permits are required for the connection of a relocated boathouse or tender house structure to electrical service at the new location.
The owner/operator of the moorage shall provide an updated moorage map as required by Section 28.05.010 reflecting the new location of the relocated boathouse and the distance between the boathouse and adjacent structures and shall send a notice of the relocation, including separation distances after the relocation, to the Director.
7. Temporary relocation of an existing floating structure from its normal mooring site for dredging or other maintenance work to the moorage or to

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facilitate the permitted move of other floating structures, provided the floating structure is returned to its normal mooring site and provide the final distance between floating structures is the same as previously existed prior to the temporary move.

EXCEPTION: Electrical permits are required for the reconnection of floating structures moved under the provisions of this paragraph.

8. Other work as exempted by the Specialty Codes.
- D. When permits are required, the owner of the structure must obtain the required permits and inspections prior to proceeding with the next phase of work and obtain a final certificate of compliance prior to the occupancy of the structure. Instructions for requesting inspection are provided at permit issuance.
- E. It is the responsibility of the owner of the floating structure to obtain the required certificate of compliance under the following process:
 1. The owner of the structure or the owner's authorized agent shall call for final inspection within 10 business days of the completion of the work covered by a permit.
 2. A Certified Structural Inspector from the Bureau of Development Services shall respond to the call for final inspection within 2 business days of receipt of the call for final inspection.
 3. The area of work covered by the issued permit shall not be occupied until the certificate of compliance has been issued.
 4. Failure to call for final inspection and obtain a certificate of compliance and/or occupying the area of work prior to obtaining a certificate of compliance shall be cause for the Director to issue a notice to vacate the structure.

28.03.030 Fees.

(Amended by Ordinance No. 181437, effective December 21, 2007.) All fees for permits and special inspections are stated in the Fee Schedule adopted by City Council by ordinance. Fees will be updated annually or on an as needed basis. The approved Fee Schedule will be available at the Development Services Center. Fees shall be paid in advance for all plan review, permits and inspections.

28.03.040 Appeals.

(Amended by Ordinance No. 181437, effective December 21, 2007.)

- A.** Right of Appeal. Any person who may have been ordered by the Director to incur an expense for the alteration, repair or construction of any floating structure or any person whose application for a permit may have been refused by the Director may appeal to the Floating Structures Code Board of Appeal by sending written notice to the Appeals Board secretary within ten business days of notification of the applicability of the requirement, decision or determination. Appeals forms for that purpose shall be provided by the Bureau of Development Services. Professional engineering is not required by the appellant in order to make the appeal.
- The Director shall review the appeal within ten business days of its submission. The Director shall seek the advice and opinions of members of the River Community as represented by the Floating Structures Appeal Group prior to ruling on any appeal. After reviewing the appeal and any recommendations from the staff and the Floating Structures Appeal Group the Director shall, in writing affirm, annul, or modify the underlying requirement, decision or determination. Such rulings shall take into consideration the unique construction conditions and the nautical history and traditions associated with floating structures. If the appellant is dissatisfied with the decision of the Director, they can appeal that decision within 30 days to the Floating Structures Code Board of Appeal. A hearing date for the requested appeal shall be set as soon as practicable thereafter, but by not later than 45 days after the request is made. The Floating Structures Code Board of Appeal may, by a majority vote, affirm, annul, or modify the action of the Director.
- B.** The provisions of Title 28 are not intended to prevent the use of any material or method of construction not specifically prescribed by this Title, if the alternate has been approved and its use authorized by the Director or the Board of Appeal. Alternate materials and methods of construction may be approved providing that the proposed design, material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this Title in suitability, strength, effectiveness, fire resistance, durability, safety and sanitation.
- C.** Whenever the strict application of the Specialty Codes or this Title does not allow the use of traditional nautical design, the Director or the Board of Appeal may approve alternate materials or methods of construction for individual cases, providing that findings are first made that a special individual reason makes the strict letter of the codes impractical, that the alternate is in conformity with the purpose and intent of the codes and that such alternate does not lessen any fire protection or life safety requirements or any degree of structural integrity.

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- D.** Fee for appeal. There shall be a nonrefundable fee for each appeal. The fees for appeals are stated in the Fee Schedule adopted by City Council by ordinance. The approved Fee Schedule will be available at the Development Services Center.
- E.** Board of appeal. In order to determine the suitability of alternate materials and methods of construction and to provide for reasonable interpretation of the provisions of this Title, appeals for floating structures shall be heard by and ruled on by a Floating Structures Code Board of Appeal, consisting of six (6) members and six (6) alternates, as listed below, who are knowledgeable about construction as regulated by the base building codes and the construction and maintenance of floating structures and moorage facilities. Board members and alternates are to be appointed by the Mayor.
 - 1.** The Floating Structure Code Board of Appeal shall be composed of:
 - a.** Three (3) members or their respective alternates from the Building Code Board of Appeal as constituted by Section 24.10.080 and
 - b.** Three (3) members or their respective alternates from the Floating Structures Appeal Group.
 - 2.** The Floating Structures Appeal Group shall be composed of one primary member and one alternate, who will serve in the absence of the primary member, from each of the following:
 - a.** An architect or engineer member knowledgeable in the design of floating structures
 - b.** A constructor member knowledgeable in the construction, maintenance and repair of floating structures
 - c.** A member at large who is from one of the following interest groups:
 - (1)** A For Profit Moorage Representative
 - (2)** A Non-profit Moorage Representative
 - (3)** A Yacht Club Representative
 - (4)** A Floating Home Resident
 - 3.** A quorum shall consist of four (4) members with at least two of the members present being from the Floating Structures Appeal Group. Board

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members shall be appointed for three-year terms. The Director shall be an ex-officio member and shall act as Secretary of the Board. No Board member or alternate may participate in a case in which they have a personal or financial interest. If such a case comes before the Board, the member's alternate shall attend or the Mayor shall appoint a substitute. Any Board member or alternate may be removed from office by the Mayor for due cause, including malfeasance, incapacity, or neglect of duty.

The Board may use any or a combination of the following to resolve the appeal:

- a. Approve the appeal as submitted if a determination can be made that the alternate design will provide an equivalent level of fire and life safety.
- b. Disapprove the appeal with suggestions for resubmission.
- c. Require the project conform to appropriate State Specialty Codes and other applicable City regulations.
- d. Approve the appeal with modification or relief from specific requirements of the State Specialty Codes or applicable City regulations, if a determination can be made that the alternate design will provide an equivalent level of fire and life safety.
- e. If specific technical or engineering information is to be considered, the Board has the option of seeking expert advice.
- f. In the event of a tie vote, the appeal shall be considered denied.

The Board's decision shall be in writing, a copy of which shall be sent to the aggrieved, with a copy to be retained by the Bureau, and which shall thereafter constitute the criteria that, when satisfied, will mandate approval of the elements reviewed by the appeal as part of any required permit by the Bureau.

28.03.050 Enforcement.

(Amended by Ordinance No. 181437, effective December 21, 2007.) The Director may enforce the provisions of Title 28 using the authority provided in Section 3.30.015.

28.03.060 Abatement of Dangerous Floating Structures.

(Amended by Ordinance Nos. 171455 and 181437, effective December 21, 2007.) The Director may abate dangerous floating structures using the authority provided under Chapter 29.40.

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Chapter 28.04

**REGULATIONS FOR FLOATING
STRUCTURES**

Sections:

28.04.010 General.

28.04.020 Maintenance.

28.04.010 General.

(Amended by Ordinance No. 181437, effective December 21, 2007.) Other than the retroactive improvements required in Section 28.05.010 A. and Section 28.05.020 A., existing structures are grandfathered.

28.04.020 Maintenance.

(Amended by Ordinance No. 181437, effective December 21, 2007.) All floating structures and supporting structural systems, electrical, plumbing and mechanical installations and devices required by Title 28 shall be maintained in good serviceable condition. As provided in the Specialty Codes, minor repairs and maintenance of floating structures including the electrical, plumbing, heating/air conditioning systems do not require a permit.

Chapter 28.05

**REGULATIONS PERTAINING TO
EXISTING CONSTRUCTION**

Sections:

28.05.010 Floating Structures.

28.05.020 Moorages.

28.05.010 Floating Structures.

(Amended by Ordinance No. 181437, effective December 21, 2007.)

A. Retroactive improvements required of floating structures.

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1. Identification. All floating structures shall be identified by number or letter or combination thereof, corresponding to their location in a moorage.
2. All floating homes, boathouses and combo-structures shall have a state issued identifying number plate displayed in a location that is readily visible from the walkway providing access to the structure. Failure to properly display the required identifying number plate and/or produce the certificate of title issued by the State when requested to do so by the Harbor Master or a Certified Structural Inspector of the Bureau of Development Services shall be cause for the violator to be cited for the violation and for appropriate enforcement action to be taken as provided for in Section 28.03.050. The violation shall also be reported to the State Marine Board, the County Marine Patrol and the County Assessor.
3. Moorage owners/operators shall maintain a moorage map with each mooring site identified by number or letter or combination thereof and which identifies each floating structure by mooring site number or letter and by the identifying number. Such maps shall be updated as changes occur in the layout of the moorage or location of the floating structures in the moorage. Such map shall be available for Harbor Master review when requested.

B. Separation required between floating existing structures.

1. The separation existing on January 1, 2008 between one floating structure and another may be maintained provided such separation is:
 - a. Documented on the moorage map that is maintained by the owner/operator of the moorage facility; and
 - b. Provided that the Harbor Master determines that such spacing does not pose a high fire or life safety risk. A copy of the updated moorage map shall be provided to the Harbor Master by not later than January 1, 2008 which shows the conditions and uses in place as of January 1, 2008. The Director shall refer to this map in determining whether an existing structure is grandfathered under Title 28.
2. Floating homes and combo-structures relocated within a moorage shall meet the following separation requirements:
 - a. For moorages constructed prior to November 3, 1990, the distance between units relocated within a moorage shall not be: less than the distance between units that pre-existed prior to the move if the

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distance is less than 6 feet between the nearest exterior walls and 4 feet between the nearest roof, deck, balcony or other architectural projection; or less than 6 feet between the nearest exterior walls and 4 feet between the nearest roof, deck, balcony or other architectural projection if the pre-existing distance is greater than or equal to 6 feet between the nearest exterior walls and 4 feet between the nearest roof, deck, balcony or other architectural projection.

- b.** For moorages constructed after November 3, 1990, the distance between units relocated within a moorage shall not be: less than the distance between units that pre-existed prior to the move if that distance is less than 10 feet between the nearest exterior walls and 8 feet between the nearest roof, deck, balcony or other architectural projection; or less than 10 feet between the nearest exterior walls and 8 feet between the nearest roof, deck, balcony or other architectural projection if the pre-existing distance is greater than or equal to 10 feet between the nearest exterior walls and 8 feet between the nearest roof, deck, balcony or other architectural projection.

Where it is impractical to meet the separation specified in Section 28.05.010 B. due to structural limitations of the mooring site, the Harbor Master may approve a separation less than that specified. Such approval for reduced separation shall be clearly documented on the moorage map and on the notification for the relocation that is provided to the Director, as provided in Section 28.03.020.

- 3.** A floating structure used for other than a floating home, combo-structure, boathouse or tender house which is relocated from one mooring site to another within a moorage shall comply with the separation distances required for new construction as specified in Section 28.06.050.D. Where it is impractical to meet the separation specified in Section 28.06.050.D due to structural limitations of the mooring site, the Harbor Master may approve a separation less than that specified, but in no case shall the separation be less than that which existed prior to the relocation or less than specified in Section 28.06.050 D, whichever is smaller. In no case shall such reduction pose unacceptable levels of fire or life safety risk as determined by the Harbor Master. Such approval for reduced separation shall be clearly documented on the moorage plan and on the notification of the relocation which is provided to the Director, as provided in Section 28.03.020.

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4. Existing or new floating homes, combo-structures, boathouses and tender houses relocated from a mooring site in one moorage within or outside the City to a mooring site in a different moorage within the City shall be spaced a minimum of 6 feet apart between the nearest exterior walls and 4 feet apart at the nearest roof, deck (which is elevated above the level of the walking surface of the float), balcony or other architectural projections, unless the moorage in which the relocation takes place was constructed after November 3, 1990 with separations between floating structures required to be greater than six (6) feet wall to wall or four (4) feet projection to projection, in which case the separations as required when the moorage was constructed shall apply. In lieu of the required separations specified in this section the relocated structure may be provided with the alternative protection system as required by Section 28.05.010 C. A permit is required for any such move as provided in Section 28.03.020.
5. A floating structure, either new or existing, used for other than a floating home, combo-structure, boathouse or tender house which is relocated from one moorage within the City to another moorage within the City shall comply with the separation distances required for new construction as specified in Section 28.06.050 D. A permit must be obtained for any such move as provided in Section 28.03.020.
6. Projections such as but not necessarily limited to eaves, roof overhangs, decks, balconies or other architectural projections for newly constructed floating structures, for additions and alterations to existing floating structures and for moved or relocated floating structures shall not project beyond the edge of the float supporting the structure into the area above a main or marginal walkway, nor may such projections extend beyond the legally established boundaries of the mooring site.
7. New, main floor additions to existing floating homes, combo-structures, boathouses and tender houses of up to a total of twenty-five percent (25%) by area, may be built with the same separation between the floating structure being expanded and the next adjacent floating structure as exists on January 1, 2008 and which is documented on the moorage map. A permit is required for any such expansion as provided in Section 28.03.020. No further additions beyond the original twenty-five percent (25%) may be made without complying with the separation as specified in Section 28.05.010 B.7.
8. New, main floor additions to existing floating homes, in excess of twenty-five percent (25%) by area, and second floor additions of any size, shall be spaced a minimum of 6 feet apart between the nearest exterior walls and 4

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feet apart at the nearest roof, deck (which is elevated above the level of the walking surface of the float), balcony or other architectural projections, unless the moorage in which the relocation takes place was constructed after November 3, 1990 with separations between floating structures required to be greater than 6 feet wall to wall or 4 feet projection to projection, in which case the separations as required when the moorage was constructed shall apply. In lieu of the required separations specified in this section the relocated structure may be provided with the alternative protection system as required by Section 28.05.010 C. A permit is required for any such expansion as provided in Section 28.03.020.

9. Any addition to an existing floating structure other than a floating home, combo-structure, boathouse or tender house shall meet the separation requirements as required for new construction specified in Section 28.06.050 E. A permit is required for any such expansion as provided in Section 28.03.020.

C. Alternate protection systems to minimum separation between adjacent floating homes and combo-structures.

1. When the wall to wall separation is less than 6 feet but more than 3 feet, or the separation between roofs, decks (which are elevated above the level of the walking surface of the float), balconies or other architectural projections is less than 4 feet but more than 2 feet, the structure being moved or added to shall be equipped throughout with a complete automatic sprinkler system installed in compliance with NFPA 13R Standards (2007) or all of the following for fire life safety protection:
 - a. All windows in the affected wall or walls shall be 1/4 inch thick, fixed, wireglass in 16 gauge steel frames, or alternatives approved by the Harbor Master or the windows shall be listed 45 minute assembly. If this requirement negates natural ventilation requirements as specified in the building code, a manually activated mechanical ventilation system providing two air changes per hour with twenty percent (20%) outside air shall be provided.
 - b. All doors in the affected wall or walls shall be 1-3/4 inches thick, solid core, and be self closing. Door lights shall be limited to twenty-five percent (25%) of the door area and be 1/4 inch thick, fixed wireglass in 16 gauge steel frames or alternatives as approved by the Harbor Master.
 - c. A fire alarm system consisting of 110 volt rate of rise detectors placed on the outside of the exterior wall or walls in question and

110 volt, hard wired ionization type smoke detectors installed throughout the building interior shall be provided. All detectors are to be interconnected to an interior and exterior alarm. The number and placement of detectors shall be as determined by the Harbor Master. The exterior alarm shall be capable of being heard for a distance of 150 feet.

2. When the wall to wall separation is less than 3 feet or the roof separation is less than one foot, the structure being moved or added to, shall be equipped throughout with a complete automatic sprinkler system in compliance with NFPA 13R Standards (2007).

28.05.020 Moorages.

(Amended by Ordinance Nos. 180917 and 181437, effective December 21, 2007.)

A. Retroactive requirements required of existing moorages.

1. Identification. All moorages shall be provided with identification as specified in Section 28.06.070.
2. Fire protection standpipe. The following described fire protection standpipe system shall be required at all moorages having any portion of a floating structure more than 250 feet from the point of fire apparatus set up. The standpipe system shall be installed within one year of notification to the owner by the Harbor Master of the requirement for such system; or an agreement allowing for deferred installation of the fire protection system to a timeline acceptable to the Harbor Master shall be established within 90 days of the notification that such an installation is required. Prior to installation of any standpipe system, a permit shall be obtained from the Fire Marshal. Except where otherwise provided in this code, the design and installation of the standpipe system shall be in accordance with the latest edition of NFPA 14: "Installation of Standpipes and Hose Systems", as adopted by Title 31 Fire Regulations and the following:
 - a. Water for fire protection standpipes shall be supplied by one of the following methods:
 - (1) From FDC from a fire hydrant providing at least 500 GPM at 20 PSI and located within 300 feet from the closest point of fire department access to a moorage exit ramp.
 - (2) Pumped from the Willamette or Columbia Rivers or associated bodies of water with an on site pump or pumps capable of delivering 250 GPM at 100 PSI to the most

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hydraulically remote outlet on the standpipe system. Pumps are to be of a type approved by the Harbor Master and shall be listed for their intended use.

- b.** Fire protection standpipes shall have a fire department connection located within 150 feet of fire apparatus set up and not more than 150 feet from the top of the moorage access ramp. The fire department connection shall be of a double clapper design.
- c.** When required by the Harbor Master a fire department connection shall be located to provide reasonable access for a fire boat.
- d.** System capacity controlled by a fire department connection shall not exceed 750 gallons unless approved by the Harbor Master.
- e.** Fire protection standpipes shall have pipe sized to provide 250 gallons per minute at 100 PSI at the most hydraulically remote outlet on the standpipe system. The maximum input pressure at the fire department connection shall be 150 PSI.
- f.** Fire protection standpipes shall have adequate drain valves, or alternate systems as approved by the Harbor Master, installed to ensure complete drainage.
- g.** Fire protection standpipes shall have gate valve assemblies made of non-corroding metal, 2-1/2 inch I.D. with National Standard male threads and metal caps. Valve assemblies shall be spaced a distance apart as follows:

 - (1)** For moorages having marine service stations, floating homes or other type of structures having permanent living quarters, valves are to be located every 100 feet and within 50 feet of the end of walkways.
 - (2)** For moorages serving only boathouses and covered moorages housing personal watercraft and pleasure boats, valves are to be located every 150 feet and within 75 feet of the end of the walkways.
 - (3)** For moorages having only open moorage of pleasure boats, standpipes shall only be required along the marginal walkway with valves required only at intersecting main walkways, providing the main walkways do not exceed 100 feet in length from their intersection with the marginal

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walkways, or not less than every 200 feet and 100 feet from the end of marginal walkways not having intersecting main walkways. Main walkways in excess of 100 feet in length from their intersection with the marginal walkway shall have standpipes installed with valves located every 200 feet along the main walkway and not more than 100 feet from the end of the main walkway. Existing moorages not in compliance with the above requirements shall bring their standpipes systems into compliance at the time that fifty percent (50%) or more of a walkway is repaired or improved or as otherwise provided under agreement with the Harbor Master.

- (4) For moorages with sections of differing use, each section is required to have a standpipe system matching the requirements of a moorage having that use. Existing moorages not in compliance with the above requirements shall bring their standpipe systems into compliance at the time that fifty percent (50%) or more of a walkway(s) serving each type of use is repaired or improved or as otherwise provided under agreement with the Harbor Master.

- h. Piping materials, whether new or replacement, shall be protected against corrosion by hot dip galvanizing or by use of HDPE piping. If HDPE piping is used it must be installed underwater with a minimum of twelve (12) inches of water cover over the main runs and shall be supported so that the pipe will not broach the surface of the water when the pipe is not charged with water. Where flexible hose couplings are used they shall have swaged on fittings.
- i. Moorages used exclusively for loading and off loading of boats and transient tie-up moorages do not require the installation of a standpipe system when approved by the Harbor Master.
- j. Standpipe systems shall be inspected and tested annually in accordance with the current edition of NFPA 25, "Standards for the Testing of Water Based Fire Protection Systems" as adopted by Title 31 Fire Regulations. Tests and inspections shall be done in a manner prescribed by the Fire Marshal. If requested, the City may perform annual service tests upon the property owner/operator signing a waiver of liability and upon payment of a fee to the Fire Marshal, as provided in Title 31. If connection to the City water supply is necessary to facilitate any method of testing standpipes,

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Water Bureau Water Quality Inspections shall be contacted in each instance. Additionally, State approved backflow protection shall be provided.

3. Smoke/heat vents and Curtain Boards. All existing covered moorages shall be provided with smoke/heat vents and curtain boards as specified in Section 28.06.050, when required by the Harbor Master. Where existing moorages do not have the required vents and curtain boards, these elements shall be installed within two (2) years of notification to the owner by the Harbor Master of the requirement for the vents and curtain boards or an agreement allowing for deferred installation of the vents and curtain boards to a timeline acceptable to the Harbor Master shall be established within 90 days of the notification that such an installation is required. Building permits are required for the installation of vents and curtain boards.

B. Regulations pertaining to repairs to moorages and marinas.

1. Repairs requiring the replacement of fifty percent (50%) or more of the piling within any 12 month period shall be made in accordance with the provisions for new construction and shall require a building permit. Permits are also required from the Army Corps of Engineers.
2. Repairs requiring the replacement of less than fifty percent (50%) of the piling within any 12 month period may be made with like or better materials in a like manner without obtaining a building permit provided the design of the piling is certified by an Oregon registered engineer who is responsible for observing the installation. Upon completion of the installation of the replacement piling a plan of the marina or moorage showing the location of all replaced piles and a summary letter of compliance from the engineer responsible for the design shall be submitted to the Director for inclusion in the permanent records. Permits are required from the Army Corps of Engineers.

EXCEPTION: Up to a maximum of ten percent (10%) of the piling within a moorage or marina may be replaced within any 12 month period without an engineer being responsible for the design of the piling and the observation of installation provided an engineer does review the installation and provides a summary letter stating that the replacement piling will provide structural capacity equal to or greater than the replaced piling. The summary letter from the engineer shall be submitted to the Director for inclusion in the permanent records. Permits are required from the Army Corps of Engineers.

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3. Walks and walkways and their supporting structure: The following repairs of existing walks and walkways are allowed within any 12 month period without permit or inspection:
 - a. Replacement of the decking, stringers and floatation logs or other floatation material with like or better materials in a like manner.
 - b. Repair or replacement of less than fifty percent (50%) of the concrete portions of an individual concrete float with like or better materials in a like manner.
4. Other work not specifically exempted from permit requirements by Title 28 but which is exempted from permit under the Specialty Codes is also exempted from the requirement for permit.
All work exempt from permit shall be performed in compliance with the provisions of Title 28 and the Specialty Codes as applicable and shall not cause an unsafe or overloaded condition.

C. Alterations and Additions to Moorage and Marinas.

1. Walkways and supporting structure. Any alterations or improvements within any 12 month period which involve a total of less than fifty percent (50%) of the structural components, except piling as stated in Section 28.05.020 B., may be made with like or better materials in a like manner without requiring a permit provided the alteration or improvement does not increase the area of the walkway or cause an unsafe or overloaded condition. Increase in the area of a walkway shall be treated as an addition and shall comply with Section 28.05.020 C.2. Exemption from the permit requirements of Title 28 shall not authorize any person to do work in any manner in violation of the provisions of Title 28 or any other rules or regulations of the City of Portland, the State of Oregon, or the Federal government.
2. Additions shall be made in accordance with the provisions for new construction. Gangways and standpipes required as a result of any addition shall be provided in conjunction with such addition and shall be constructed and installed in accordance with the provisions for new construction as specified in Section 28.06.060.

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Chapter 28.06

NEW CONSTRUCTION

Sections:

- 28.06.010 Minimum Standards.
- 28.06.020 Materials and Installations.
- 28.06.030 Conventional Construction Methods and Materials for Floating Structures and Walkways Using Log Support Systems.
- 28.06.040 Engineered Construction.
- 28.06.050 Fire Safety.
- 28.06.055 Life Safety.
- 28.06.060 Gangways, Ramps, Walkways and Walks.
- 28.06.070 Identification

28.06.010 Minimum Standards.

(Amended by Ordinance No. 181437, effective December 21, 2007.) Moorages, marinas and floating structures are to be designed and built to the minimum standards specified in the Specialty Codes except as modified by Title 28.

28.06.020 Materials and Installations.

(Amended by Ordinance No. 181437, effective December 21, 2007.)

- A.** Structural materials. Structural members and connectors within 18 inches of the water, except logs used for floatation, steel stringers and steel piling, shall be fabricated of materials with natural resistance to decay or be coated or treated such that the materials will resist deterioration due to their proximity to the water. In general: framing lumber within 18 inches of the water and decking material which is exposed to the weather shall be pressure treated with an approved preservative. Framing connectors, anchoring chain, shackles and shackle pins or other anchoring devices shall be hot-dipped galvanized or non-corrosive metal except for the pins that connect stringers to the floatation logs. Plywood shall have exterior type adhesive; exposed plywood shall be exterior grade.
- B.** Preservative treated wood shall be treated using a waterborne preservative and is to be produced in accordance with the most current "Best Management Practices for Treated Wood in Aquatic Environments" issued by the Western Wood Preservers Institute and the Canadian Institute of Treated Wood. Preservative treated wood shall be identified by the quality assurance mark of an inspection accredited agency.
- C.** Energy Efficiency. The exterior building envelope of the floating structure including exterior walls, floors, roofs, doors, windows, and skylights as well as

the mechanical, electrical, and plumbing systems for the structure shall comply with the energy efficiency requirements of the State of Oregon Residential Specialty Code (2005) or the State of Oregon Structural Specialty Code (2004) as applicable based on the occupancy of the building. Thermal insulation which may be subject to moisture, such as main floor underfloor insulation, shall be of a type approved for damp locations.

- D.** Ventilation. Enclosed wood construction systems for floating structures shall be ventilated in accordance with the requirements of the State of Oregon Residential Specialty Code or the State of Oregon Structural Specialty Code (2005).

28.06.030 Conventional Construction Methods and Materials for Floating Structures and Walkways Using Log Support Systems.

(Amended by Ordinance No. 181437, effective December 21, 2007.)

- A.** Floating structures. The following methods and materials are approved without engineering provided the highest point of the roof structure measured from the top of the float does not exceed seventy-five percent (75%) of the minimum width of the float.
- 1.** The logs and stringers forming the floats under floating structure shall conform to these provisions:
- a.** The structure on the float cannot be larger than the float.
EXCEPTION: Decks raised above the level of the float deck and balconies shall be permitted to project a maximum of 3 feet 0 inches beyond the edge of the float provided such projections do not affect the stability of the float as detailed in Section 28.06.040, the projections do not extend beyond the legally established boundaries of the slip in which the floating structure is located and provided the required separations between structures is not reduced by the projection. Engineering calculations shall be provided to verify that any projections beyond the edge of the float will not affect the stability of the float and structure.
- b.** Floats supporting combo-structures and which have a boatwell that interrupts the continuity of the float shall be an engineered design or shall comply with prescriptive alternate methods of construction as adopted by the Director under Section 28.03.010.
- c.** Raft logs are to be 16-inch minimum diameter at the tip and shall be spaced no greater than 18" between tangent points.

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- d.** Bearing walls should align over stringers or center line of logs. When such alignment is not feasible, adequate support for bearing walls must be provided.
- e.** If the Certified Structural Inspector or Certified Floating Structure Inspector or an architect or engineer responsible for the design of the floating structure finds the completed log raft insufficiently stable for the intended structure, they may then require the stringer layout to compose a rigid frame by the addition of side chords and fixed joints or cross bracing or by an alternate engineered design.
- f.** Logs shall be Douglas Fir, Sugar Pine, Lodge Pole Pine, Western (Idaho) White Pine, Alaska Yellow Cedar or Sitka Spruce, sound and free of all bark above the water line.
- g.** In a floating structure foundation float at least fifty percent (50%) of all logs shall be full length. Segmented logs must be alternated between full-length logs. Joints in segmented logs shall be staggered a minimum of three (3) stringer spaces apart laterally on alternate segmented logs. Not more than one joint may be used per segmented log assembly. All outboard logs shall be full length.
- h.** Logs shall be notched so as to provide sufficient bearing for the stringers. The seat of the notch shall be a minimum of 4-1/2 inches above the water level when the float is fully loaded.
- i.** Wood stringers shall be nominally a minimum of 6 inches by 10 inches for one and two story structures and shall be preservative treated in compliance with Section 28.06.020 B. Steel stringers shall be of a size to provide equivalent bearing surface and load capacity as a wood stringer used for a similar conditions and shall have a minimum web thickness of 0.250 inches.
- j.** Stringers inside of perimeter bearing walls shall be placed on the logs not more than 4 feet on center and fixed to the logs with headed steel rods a minimum of 5/8 inches in diameter and a minimum of 20 inches long. These pins are to penetrate the log at least 10 inches. All log to stringer contact points must have two pins.
- k.** The wood construction below the joists is to be inspected for proper construction and soundness of logs, including dapped bearing connections, prior to installation of joists. Inspections shall be performed by a Certified Structural Inspector, a Certified

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Floating Structure Inspector, a licensed architect or a licensed engineer. The person performing the inspection shall prepare a report of the inspection. The inspection report shall be submitted to the Director for review and approval prior to continuing the construction of the float.

- B.** Walkways leading to floating structures. Floating walkway supports may consist of preservative treated 6 inch x 6 inch wood stringers not more than 6 feet-0 inches on center or preservative treated 4 inch x 6 inch wood stringers not more than 5 feet-0 inches on center. Steel stringers of a size to provide equivalent bearing surface and load capacity as a wood stringer may be used for similar conditions. Stringers shall be anchored to the logs with headed steel rods (pins) as described above. Single headed steel rods (pins) may be used at interior logs. Maximum joist spacing is 2 feet-0 inches on center.
- C.** Floatation. Floating structures shall have adequate floatation to maintain a clearance above the water of one foot zero inches (1'-0") minimum from water line to the top of the walking surface for walkways and walks and one foot eight inches (1'-8") minimum from the water line to the finished floor level for the lowest occupied floor of all other floating structures, under all applicable load conditions.
- D.** Mooring connections. Mooring connections shall be adequate to keep the moorage in place under all reasonable load conditions. The following minimum connection standards are deemed to provide adequate connection to resist average load conditions. Where a local condition imposes greater than average load conditions on a moorage, the builder shall provide adequate connection to resist such loads. Such connection shall be designed by an Oregon registered engineer to resist the actual loads expected.

 - 1.** Floating structures shall be anchored to the moorage structure with connections to the floatation system of the structures. Connectors shall be provided as indicated below. These points shall be a minimum of one foot from each end of the float.

 - a.** For floats where floatation logs are parallel to the current flow connectors shall be provided at each outside log and at not more than fifteen (15) feet apart at interior logs.
 - b.** For floats where floatation logs are not parallel to the current flow connectors shall be provided at each outside log and at not more than fifteen (15) feet apart at interior logs with one additional connector provided at the upstream outside log approximately midway along the length of the log.

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2. The connections shall consist of a steel bracket or other approved connection. The bracket is to be 3/8 inch thick and adequate in size to support the pins. Pins are to be a minimum of 4 inches apart. This bracket shall be fixed with a minimum of three, headed steel rods (pins) a minimum of 5/8 inch in diameter that penetrate the floatation log at least 10 inches. The connections from the bracket to the walkway or piling shall consist of chain with a minimum link wire diameter of 1/2 inch or other approved connection device. If attached to walkway logs, the boom chain shall be looped around the second log or most secure log of the walkway. Walkways shall be adequately secured to pilings.

28.06.040 Engineered Construction.

(Amended by Ordinance No. 181437, effective December 21, 2007.)

- A. General. The minimum structural design of floating structures and moorages, except those structures conforming to the conventional construction methods and materials as listed above, shall be in conformity with all applicable sections of the State Structural Specialty Code and the requirements of this section. The piling, mooring connectors, the gangway, and floatation system for all floating structures shall have an engineer of record who is registered in Oregon.

The Engineer of Record shall be responsible for establishing the design criteria and completing the design of the complete project. The Engineer of Record shall prepare and certify complete construction drawings and calculations for structural strength and floatation. The design criteria shall be substantiated by the Engineer of Record and noted on the first sheet of the construction drawings.

If an engineer or architect other than the Engineer of Record has been engaged to design an element of the project such as but not limited to piles or gangways, the Engineer of Record must:

1. Verify that the other engineer or architect has provided drawings and calculations certified by an Oregon engineer or architect.
2. Verify that the other engineer or architect has used design criteria that have been established by the Engineer of Record.
3. Verify the compatibility of the element's design with the design of the complete project.
4. Verify that the designs of structural connections between the elements of the project designed by other engineers and those elements designed by the Engineer of Record have been accomplished by an engineer or architect registered in Oregon.

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5. Place review approval stamp on all drawings and calculations prepared by the other engineers showing that 1. through 4. have been accomplished.
- B. Loading.** All floating structures, piling, mooring devices and gangways shall be designed and constructed to sustain, within the stress limitations specified in the Structural Specialty Code, all applicable loads specified in the State Structural Specialty Code and this Title.
1. Current loads shall be calculated on the basis of a minimum current speed of 1.5 knots unless the designer can provide documentation that the maximum current speed that can be anticipated at the location of the structure is less than 1.5 knots. If anticipated minimum current speeds of greater than 1.5 knots can be expected at the location of the structure the higher current speed shall be used for calculation of current loads.
 2. Wave and wake loads shall be calculated on the basis of the maximum possible wave and/or wake that can be expected at the location of the structure.
 3. Impact loads from boats, debris and other objects shall be considered with a minimum velocity as determined using a minimum current speed of 1.5 knots. If anticipated current speeds of greater than 1.5 knots can be expected at the location of the structure the higher current speed shall be used for calculation of impact loads.
 4. Earthquake loads shall be considered based on values specified in the State Structural Specialty Code.
 5. Gangways not more than 6 feet wide shall be designed to sustain a live load of 50 PSF unless they serve structures which contain an occupancy where more than 50 people may occupy a room at one time such as some dining establishments or meeting rooms. Gangways more than 6 feet wide and all those serving occupancies with a calculated occupant load of 50 or more shall be designed to sustain a live load of 100 PSF.
EXCEPTION: Gangways not more than 6 feet wide serving public recreational boat launching and transient tie-up facilities may be designed to sustain a live load of 40 PSF.
 6. All floating structures, piling, mooring connectors, gangways and ramps shall be designed and constructed to resist lateral forces produced by the reasonable combination of expected wind, current, wave, wake, earthquake and impact loads at the location.
- C. Mooring connectors.**

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1. Every floating structure shall be moored with connectors having the capacity to hold the structure in place under reasonably expected conditions. For engineered structures the number and locations for mooring connectors shall be as specified by the design engineer.
2. Whatever structure the mooring connectors are attached to shall be designed to withstand the loads from the mooring connectors. The engineer of record's design criteria for the project shall include the maximum dimensions of the floating structure(s) as these determine the loads on the mooring connectors and their supports.

D. Piling.

1. Floating structures shall be directly or indirectly attached to piling which is adequate to resist lateral forces produced by any normally expected combination of wind, current, wave, wake, earthquake and impact. The minimum height of the top of the piling shall be a minimum of two feet above the point of connection of the floating structure to the piling when the water rises to the 100 year flood elevation as shown on the Federal Insurance Rate Maps published by the Federal Emergency Management Agency. Batter piles shall not interfere with the ability of a floating structure to rise to an elevation at least two (2) feet above the level of the 100 year flood elevation that is used to determine the minimum height of piling.

E. Floatation.

1. Floating structures shall be constructed and maintained to provide a floatation system that complies with the requirements of this chapter. The floatation devices shall be structurally sound and securely attached to the framing for the superstructure, except that foam floatation blocks may be held in place by friction only.
The floatation systems shall provide support adequate to provide a level and safe walking surface under all reasonable load conditions. The following minimum standards apply to all floating structures.
2. Clearance Above Water. The minimum clearance above water as measured from the water line to the top of the lowest point on the floor or deck under usual dead load conditions, shall not be less than one foot zero inches (1'-0") from water line to the top of the walking surface for walkways and walks, and not less than one foot eight inches (1'-8") from the water line to the finished floor level of the lowest occupied floor for all other floating structures.

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EXCEPTION: Boathouses and the portion of combo-structures that house a personal watercraft need only have adequate floatation to maintain clearance above water under all applicable conditions.

3. Live Loads. In addition to dead loads, the floatation system shall be adequate to support the maximum condition of the following minimum live loads. Higher loads may be more appropriate if the design engineer determines the need for a higher load based on the intended use conditions.
 - a. 25 PSF applied to the gross area; or,
 - b. A concentrated load of 600 lbs.; or,
 - c. 25 PSF applied to the gross, main floor area plus 10 PSF on each upper floor or loft; or,
 - d. For floating structures that are occupied as other than a one or two family residence, the live load required by the State Structural Specialty Code for the specific occupancy shall apply.
 - e. Pedestrian walkways or ramps serving an occupant load of 10 or more; 40 PSF; all others 25 PSF.
 - f. Pedestrian walkways or structures serving boat launching or transient tie-up facilities only; 25 PSF.
 - g. At locations where live loads are transmitted from gangways to floating structures, the live load may be reduced fifty percent (50%) on the gangway for purposes of calculating the reaction only. Additional floatation may have to be provided to compensate for this reaction on the floating system to maintain the prescribed clearance above water.
4. Stability with short term, off-center loading or wind loading. The floating structure when subjected to either short-term off-center loading or wind loading shall not exceed the following limitations:
 - a. The maximum angle of list shall not exceed 4.0 degrees, or the clearance above water when measured from the water line to the top of the first floor or deck shall not be less than 1/3 of the normal clearance above water, whichever is the more restrictive.

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- b. The ratio of resisting moment (Mr) to applied moment (Ma) shall be equal or greater than unity:

$$\frac{Mr}{Ma} \geq 1$$

The resisting moment due to buoyancy (Mr) shall be computed about a longitudinal axis passing through the center of gravity at a list angle of not more than 4.0 degrees.

- c. The minimum off-center loading shall be considered as applicable to the completed structure and shall be considered in addition to all dead loads. It shall consist of a minimum live load of 100 pounds per lineal foot of floor length at the first floor and 50 pounds per lineal foot of floor length at each additional floor or loft. If the width of the floor or loft exceeds 20 feet then the load shall consist of 5 pounds times the width of the floor per lineal foot of floor length at the first floor and 2.5 pounds times the width of the floor per lineal foot of floor length at each additional floor or loft. These uniform live loads are to be applied halfway between the center of gravity and the outside edges of the floors. The overturning moments resulting from the off-center loadings (Ma) shall be computed about both sides of the center axis of gravity.
- d. Other appropriate eccentric or off-center loading due to wind, snow, live loads or combinations of these or other similar loads as may be determined to apply by the engineer of record, shall also be considered.

28.06.050 Fire Safety.

(Amended by Ordinance Nos. 180917 and 181437, effective December 21, 2007.)

- A. Fire apparatus access roads. Access to moorages shall be by fire apparatus access roads having all-weather driving surfaces capable of supporting a 23-ton load. Such roads shall be a minimum 20 feet wide with not less than 13 feet-6 inches overhead clearance. They shall be provided from the nearest public way to the head of the gangway. Fire apparatus turnarounds shall be required on any fire access road having a dead end exceeding 300 feet.
- B. Moorage exits. Two exit gangways are required whenever any one of the following conditions apply:
1. Except as noted in item 2, if a marginal walkway exceeds 250 feet in length or if any point on the marginal walkway would be more than 250 feet from a gangway, additional gangways must be provided. When two

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or more gangways are required or provided, there shall be a gangway located at the extreme ends of the marginal walkway unless an alternate location is approved by the Harbor Master based on site specific conditions.

2. Uncovered moorages for the moorage of pleasure boats (open moorage configuration) and having not more than two floating homes (for owner and caretaker, for instance) must have additional gangways if the marginal walkway exceeds 500 feet in length or if any point on the marginal walkway would be more than 500 feet from a gangway. When two or more gangways are required or provided, there shall be a gangway located at the extreme ends of the marginal walkway unless an alternate location is approved by the Harbor Master based on site specific conditions.
 3. Total distance from the nearest point of apparatus set-up (usually at the head of a gangway) to the most remote portion of the moorage exceeds 800 feet.
- C. Distance Between Moorages. A new moorage or the expansion/modification of an existing moorage shall not interfere with safe fireboat access to an existing neighboring moorage. The Harbor Master shall determine minimum separations necessary to maintain fireboat access to existing moorages.
- D. Distance between floating homes, tender houses, combo-structures and boathouses.
1. Floating homes, tender houses, combo-structures and boathouses at new moorages shall be spaced a minimum of 10 feet apart between the nearest exterior walls and 8 feet apart between the nearest roof, deck (which is elevated above the level of the walking surface of the float), balcony or other architectural projections.
 2. Projections such as but not necessarily limited to eaves, roof overhangs, decks, balconies or other architectural projections for newly constructed floating structures, for additions and alterations to existing floating structures and for moved or relocated floating structures shall not project beyond the edge of the float supporting the structure into the area above a main or marginal walkway or extend beyond the legally established boundaries of the slip in which the floating structure is located.
 3. Separation distances may be reduced to 6 feet apart between the nearest exterior walls and 4 feet apart between the nearest roof, deck (which is elevated above the level of the walking surface of the float), balcony or other architectural projections when one of the following is provided:

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- a.** A complete sprinkler system is installed in compliance with NFPA 13R Standards (2007) is installed in the structure(s) which create the reduce clearance conditions; or
 - b.** Exterior walls with a fire resistance rating of one-hour with protected openings (fixed 1/4 inch wire glass in 16 gauge steel frames and 45-minute door assemblies) are to be provided at the locations where the reduced clearances occur for the new or relocated structure(s) which causes or creates the reduced clearance.
- E.** Distance between floating structures other than floating homes, tender houses, combo-structures and boathouses:
 - 1.** Floating structures at new moorages that are used as other than floating homes, tender houses, combo-structures and boathouses shall be spaced a minimum of 20 feet apart between the nearest exterior walls and 16 feet apart between the nearest roof, deck (which is elevated above the level of the walking surface of the float), balcony or other architectural projections.
 - 2.** Projections such as but not necessarily limited to eaves, roof overhangs, decks, balconies or other architectural projections for newly constructed floating structures, for additions and alterations to existing floating structures and for moved or relocated floating structures shall not project beyond the edge of the float supporting the structure into the area above a main or marginal walkway or extend beyond the legally established boundaries of the slip in which the floating structure is located.
 - 3.** Separation distances may be reduced to 10 feet apart between the nearest exterior walls and 8 feet apart between the nearest roof, elevated deck, balcony or other architectural projections provided:
 - a.** Exterior walls where reduced clearance occurs are of one hour fire resistive construction for the new or relocated structure(s) which causes or creates the reduced clearance.
 - b.** Window openings in the exterior walls where reduced clearance occurs shall be not more than twenty-five percent (25%) of the wall area and shall be three-quarter-hour (3/4 hour) listed assemblies for the new or relocated structure(s) which causes or creates the reduced clearance.

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- c. Door openings on the exterior walls where reduced clearance occurs shall be protected with one hour listed assemblies for the new or relocated structure(s) which causes or creates the reduced clearance.
- 4. Separation distances may be reduced to 6 feet apart between the nearest exterior walls and 4 feet apart between the nearest roof, elevated deck, balcony or other architectural projections provided:
 - a. The building is fully sprinklered in compliance with NFPA 13 Standards (2007) including any exterior overhang or projection; and
 - b. Exterior walls where reduced clearance occurs are of one-hour fire resistive construction without openings for the new or relocated structure(s) which causes or creates the reduced clearance.
- F. Occupancy separation for combo-structures. A covered boatwell, in a combo-structure, enclosed on more than two sides shall be separated from the habitable space by a wall having 5/8 inch thick type 'X' water resistant gypsum board on the boatwell side.
- G. Occupancy separations for floating structures used as other than floating homes, tender houses, combo-structures and boathouses: An occupancy separation shall be provided between different occupancy groups in a floating structure used as other than floating homes, tender houses, combo-structures and boathouses when required by the Structural Specialty Code. Such occupancy separations shall meet the fire resistance as specified in the Structural Specialty Code.

EXCEPTION: A covered boatwell which serves only one dwelling unit in a floating structure containing three or more dwelling units shall be permitted to have a separation between the boatwell and the unit served which complies with Section 28.06.050 F., provided such boatwell is separated from other units in the structure as required by the Structural Specialty Code for unit separations.
- H. Fire protection standpipe. The following described fire protection standpipe system shall be required at all moorages having any portion of a floating structure more than 250 feet from the point of fire apparatus set up. Prior to the installation of any standpipe system a permit shall be obtained from the Fire Marshal. Except as otherwise provided in Title 28 the design and installation of the standpipe system shall be in accordance with the latest edition of NFPA 14: "Installation of Standpipe and Hose Systems", as adopted in Title 31 and the following:
 - 1. Water for fire protection standpipes shall be supplied by one of the following methods:

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- a.** From Fire Department connection from a fire hydrant providing at least 500 GPM at 20 PSI and located within 300 feet from the closest point of fire department access to a moorage exit ramp.
 - b.** Pumped from the Willamette or Columbia Rivers or associated bodies of water with on site pump or pumps capable of providing 250 GPM at 100 PSI to the most hydraulically remote outlet on the standpipe system. Pumps are to be of a type approved by the Harbor Master and shall be listed for their intended use.
- 2.** Fire protection standpipes shall have a fire department connection located within 150 feet of fire apparatus set up and not more than 150 feet from the top of the moorage access ramp. The fire department connections shall be of a double clapper design.
- 3.** When required by the Harbor Master a fire department connection shall be located to provide reasonable access for a fire boat.
- 4.** System capacity controlled by a fire department connection shall not exceed 750 gallons unless approved by the Harbor Master.
- 5.** Fire protection standpipes shall have pipe sized to provide 250 gallons per minute at 100 PSI pressure at the most hydraulically remote outlet on the standpipe system. The maximum input pressure at the fire department connection shall be 150 PSI.
- 6.** Fire protection standpipes shall have adequate drain valves, or alternate systems as approved by the Harbor Master, installed to ensure complete drainage.
- 7.** Fire protection standpipes shall have gate valve assemblies made of corrosion resistant metal, 2-1/2 inch I.D. with National Standard male threads and metal caps. Valve assemblies shall be spaced a distance apart as follows:
 - a.** For moorages having marine service stations, floating homes or other type of structures, having permanent living quarters, valves are to be located every 100 feet and within 50 feet of the end of walkways.
 - b.** For moorages serving only boathouses and covered moorages, valves are to be located every 150 feet and within 75 feet of the end of the walkways.

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- c. For moorages having only open moorage of pleasure boats, standpipes shall be required along the marginal walkway with valves required at intersecting main walkways, or not more than every 200 feet and 100 feet from the end of marginal walkways. Where main walkways extend more than 100 feet from their intersection with the marginal walkway, standpipes shall be provided along the main walkways with valves located every 200 feet and not more than 100 feet from the end of the main walkway.
 - d. For moorages with sections of differing use, each section is required to have a standpipe of differing use, each section is required to have a standpipe system matching the requirements of a moorage having that use.
- 8. Piping materials shall be protected against corrosion by hot dip galvanizing or by use of HDPE piping. If HDPE piping is used it must be installed underwater with a minimum of twelve (12) inches of water cover over the main runs. Adequate anchorage of HDPE piping shall be provided to prevent uncharged piping from broaching the water surface. Where flexible hose couplings are used they shall have swaged on fittings.
- 9. Moorages used exclusively for loading and off loading of boats and transient tie-up moorages do not require the installation of a standpipe system when approved by the Harbor Master.
- 10. Standpipe systems shall be inspected and tested annually in accordance with the current edition of NFPA 25, "Standards for the Testing of Water Based Fire Protection Systems" as adopted in City Title 31. Tests and inspections shall be done in a manner prescribed by the Fire Marshal, as provided. If requested, the City may perform annual service tests upon the property owner/operator signing a waiver of liability and upon payment of a fee to the Fire Marshal, as provided in Title 31. If connection to the City water supply is necessary to facilitate any method of testing standpipes, Water Bureau Water Quality Inspections shall be contacted in each instance. Additionally, State approved backflow protection shall be provided.
- I. Smoke/heat Vents and Curtain Boards. Covered moorages shall have smoke/heat vents and curtain boards installed as follows:
EXCEPTION: Smoke/heat vents and curtain boards will not be required if the Harbor Master determines that the roof configuration of the covered moorage (such as a shed roof without fascia boards) will not trap smoke and heat under the roof.

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- 1.** Curtain Boards. Curtain boards shall be installed to subdivide the enclosed roof areas of covered moorages not more than every 100 linear feet for moorages with slips of 45 feet or less in length and not more than every 75 linear feet for moorages with moorage slips of more than 45 feet in length.
 - a.** Curtain boards shall extend from eave to eave.
 - b.** Curtain boards shall be installed flush to the underside of the roof sheathing and shall extend down to the lowest point of the roof line, but shall be maintained no lower than eight (8) feet above any walkway.
 - c.** Curtain boards shall be of galvanized sheet metal, water resistant gypsum board or other similar approved material that will provide equivalent performance and moisture resistance.
 - d.** Curtain boards shall be sealed to resist the passage of smoke and fire.
 - 2.** Smoke/heat Vents. Smoke/heat vents shall be installed within each area of the roof of a covered moorage that is separated by curtain boards.
 - a.** Smoke/heat vents shall be centered between curtain boards and shall be installed with a minimum ratio of one (1) square foot of vent opening to every fifty (50) square feet of area under the roof.
 - b.** Smoke/heat vents shall be installed at the highest point of the roof or as approved by the Harbor Master.
 - c.** Smoke/heat vents shall be listed drop out or automatic opening assemblies with a minimum dimension of four (4) feet.
 - 3.** Smoke/heat vents and curtain boards shall be shown on the permit documents issued for construction of the moorage cover.
- J.** Covered Moorage - Limitations on service, repair and fueling.
- 1.** Except at duly authorized fuel docks, fueling of boats is prohibited under Section 19.16.135.
 - 2.** Storage of flammable or combustible liquids shall comply with Section 19.16.135.

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3. Only minor service, repair or exchange of parts for maintenance of a vessel, boat or watercraft is allowed under the roof structure at a covered moorage.
 - a. Minor service, repair or exchange of parts includes but is not necessarily limited to the following:
 - (1) Changing engine/motor oil, replacing hydraulic fluids, lubrication of engine or drive train.
 - (2) Replacement of running gear or safety equipment that does not require alteration or modification to the structure of the craft.
 - (3) Repairs to the fiberglass, steel, wood or composite hull, superstructure or other structural component of a boat up to an area not to exceed nine (9) square feet.
 - (4) Painting, varnishing or similarly finishing elements such as handrails, rubrails, toeboards, etc., or minor touch up of paint, varnish or other similar finish to an area not to exceed nine (9) square feet.
 - (5) Replacement of parts of the engine or drive train that does not require the disassembly of the engine or drive train.
 - b. Minor service, repair or exchange of parts does not include the following:
 - (1) Any operation that requires hot work, including but not limited to welding and cutting.
 - (2) The disassembly of motors, engines or drive trains for repair or overhaul.
 - (3) The replacement of structural components of a boat such as framing members, engine mounts, deck supports, etc.
 - (4) The application of paint, varnish or other similar finish to hulls, decks, or superstructure in excess of the area specified in subsection a. above.

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- (5) Repairs to the fiberglass, steel, wood or composite hull, superstructure or other structural component of a boat in excess of the area specified in subsection a. above.
- c. The Harbor Master shall have the authority to interpret if work being undertaken in a covered moorage is in compliance with these limitations.

28.06.055 Life Safety.

(Added by Ordinance No. 181437, effective December 21, 2007.)

- A.** One and Two Family floating homes. Floating homes, tender houses, combo-structures and boathouses shall be constructed and maintained in compliance with the requirements of the State Residential Specialty Code, and Title 24, Title 28, and Title 29.
- 1.** Foundation systems. Foundation systems as specified in State Residential Specialty Code are not applicable to the construction of floating homes. Floating Homes shall be supported on floatation systems designed in accordance with provisions specified in Section 28.06.030 and Section 28.06.040. Floating homes shall be securely anchored to the float on which they are constructed using an engineered connection system designed to prevent the home from being dislodged or overturned.
 - 2.** Framing. Framing lumber shall comply with the requirements of Section 28.06.020 A.
 - 3.** Allowable alternatives. Recognizing the unique history and traditions associated with floating homes the following alternatives to the requirements specified in the Residential Specialty Code are allowed without appeal:
 - a.** Exterior wall and opening protection shall be as described in Section 28.06.050 based on the separation between structures in a moorage.
 - b.** Sleeping Loft. In a floating home or combo-structure and within individual dwelling units in a floating structure containing three or more dwelling units, a sleeping loft or accessory living area such as a den, office, hobby room or similar area which is not more than 250 square feet in area that is located above the level of the main floor of a floating home may use the following standards:

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- (1) Access to the loft space may be by a "ship's ladder" type of stair having a rise not to exceed 12 inches and a run of not less than 6 inches or an alternating tread device as specified in the Structural Specialty Code. Width of stairs or alternating tread device shall be a minimum of 30 inches. Handrails shall be provided at both sides of stair or alternating tread device. Headroom at stair or alternating tread device shall be not less than 6 feet 6 inches at any point.
 - (2) A loft space need not be provided with exterior openings for natural light, ventilation or emergency escape and rescue provided the loft area is open and unobstructed to the floor below, except for columns and posts and railings not more than 42 inches high, and the floor below onto which the loft opens has exterior openings equal to the total required for the floor area served and the loft.
 - c. Porthole assemblies, whether new or salvaged, may be installed in a floating home to enhance the nautical character of the structure. Such assemblies need not comply with the energy conservation requirements of the specialty code provided the total area of all such assemblies installed does not constitute more than two percent (2%) of the total exterior wall area of the floating home. Such assemblies may be used to meet the required area for natural light and, if openable, to satisfy the required natural ventilation. Such assemblies may not be used to satisfy the required emergency escape and rescue requirements from sleeping areas.
- B. Floating structures for use and occupancy as other than floating homes, combo-structures, boathouses or tender houses accessory to a floating home shall be constructed and maintained in compliance with the requirements of the Structural Specialty Code and Title 24, Title 28, and Title 29.
 1. Foundation systems. Foundation systems as specified in the Structural Specialty Code are not applicable to the construction of floating structures. Floating structures shall be supported on floatation systems designed in accordance with provisions specified in Section 28.06.030 and Section 28.06.040. Floating structures shall be securely anchored to the float on which they are constructed using an engineered connection system designed to prevent the structure from being dislodged or overturned.
 2. Framing. Framing lumber shall comply with the requirements of Section 28.06.020 A.

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3. Allowable alternatives. Recognizing the unique history and traditions associated with floating structures the following alternatives to the requirements specified in the Structural Specialty Code are allowed outright without appeal.
 - a. Exterior wall and opening protection shall be as described in Section 28.06.050 based on the separation between structures in a moorage.
 - b. A loft, mezzanine or accessory area such as a private office, employee work room or similar area which is not more than 250 square feet in area, that is accessible to employees only and that is located above the level of the main floor of a floating structure may use the following standards:

EXCEPTION: Loft spaces within individual dwelling units in floating structures containing three or more dwelling units shall be permitted to comply with the provisions of Section 28.06.055 A.3.b.

 - (1) Access to the loft space shall be permitted to be a "ship's ladder" type of stair having a rise not to exceed 12 inches and a run of not less than 6 inches or an alternating tread device as specified in the Structural Specialty Code. Width of stairs or alternating tread device shall be a minimum of 30 inches. Handrails shall be provided at both sides of stair or alternating tread device. Headroom at stair or alternating tread device shall be not less than 6 feet 6 inches at any point.
 - (2) A loft space need not be provided with exterior openings for natural light or ventilation provided the loft area is open and unobstructed to the floor below, except for columns and posts and railings not more than 42 inches high, and the floor below onto which the loft opens has exterior openings equal to the total required for the floor area served and the loft.
 - c. Porthole assemblies, whether new or salvaged, may be installed in a floating structure to enhance the nautical character of the structure. Such assemblies need not comply with the energy conservation requirements of the specialty code provided the total area of all such assemblies installed do not constitute more than five percent (5%) of the total exterior wall area of the floating

structure. Such assemblies may be used to meet the required area for natural light and, if openable, to satisfy the required natural ventilation.

4. Where the Structural Specialty Code would require two exits be provided from a structure or occupancy within a structure, such exits shall be separated as required by the specialty code. The point of exit discharge for the exits shall comply with the following:
 - a. The exits shall discharge directly to a main walkway at two separate locations located as far apart as is practicable; or,
 - b. The exits shall discharge to two separate fingerfloats or walks located on opposite sides of the structure. Fingerfloats shall each have direct and independent access to a main walkway. Walks shall each have direct and independent access to a fingerfloat or main walkway. The point of exit discharge onto the walk shall not be more than fifty (50) feet travel distance from the point of access to the main walkway; or,
 - c. The exits shall discharge to a continuous walk that encircles the structure on at least three sides and which provides the capability for exiting in two directions along the walk to one of two separate and distinct locations where the walk accesses the main walkway.
 - d. Walks need not exceed the width specified in Section 28.60.060 unless the occupant load served by the walk exceeds 150 persons.

28.06.060 Gangways, Ramps, Walkways and Walks.

(Amended by Ordinance No. 181437, effective December 21, 2007.)

- A. All gangways, ramps, walkways, and walks serving as a means of egress for floating structures used for commercial occupancies shall be illuminated by lights designed, constructed and maintained to provide a minimum average of 1 foot candle of light per square foot at the walking surface.
EXCEPTION: Recreational boat launching and transient tie-up facilities.
- B. Gangways and ramps shall have a maximum slope of 1 vertical to 2.5 horizontal and shall have a non-slip walking surface or surface cleats securely fastened in place with a maximum spacing center to center of 1 foot 6 inches.
- C. Gangways shall have a minimum, unobstructed width of five (5) feet when a single gangway is required and four (4) feet when more than one gangway is

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required and shall be provided with guardrails and handrails as required by the building code. Intermediate landings shall not be required for gangways.

EXCEPTION: Gangways serving an occupant load less than 10 and gangways serving recreational boat launching and transient tie-up facilities need not be more than four (4) feet in width.

- D.** Walkways shall have a minimum width of six (6) feet, except for fingerfloats, which may be three (3) feet in width.
- E.** Mooring connectors and similar obstructions may project into the required width of main and marginal walkways not more than six (6) inches at either side. Cleats and bull rails shall not project more than four (4) inches into the required width along either side of a main or marginal walkway. Cleats or bull rails not more than four (4) inches in width may be provided along either side of a fingerfloat provided the width of the fingerfloat is of sufficient width to provide a minimum of thirty-six (36) inches of clear walking surface between the cleats or bull rails. Utility stands may project into the required width of main or marginal walkways provided they do not reduce the clear unobstructed width of the walkway to less than four (4) feet for a distance of three (3) feet measured in the direction of travel along the walkway.
- F.** A walk with a minimum width of twenty-four (24) inches shall be provided on at least two opposite sides of all floating homes, combo-structures, boathouses and tender house structures. These walks shall provide direct access from the floating home, combo-structure, boathouse or tender house structure to an adjacent fingerfloat or main walkway.
- G.** A walk with a minimum width of thirty-six (36) inches shall be provided on at least two opposite sides of any floating structure that is used or occupied as other than a floating home, combo-structure, boathouse or tender house structure accessory to a floating home. These walks shall provide direct access from the floating structure to an adjacent fingerfloat or main walkway.

28.06.070 Identification.

(Amended by Ordinance No. 181437, effective December 21, 2007.) All moorages shall be provided with identification as follows:

- A.** All moorages shall be identifiable by name and address from the street on which they front at or near the point of emergency vehicle access.
- B.** The head of each gangway providing access to the moorage shall be obviously identifiable from the point of emergency vehicle access; or in those cases having a secondary access road, from the shore end of the access road; or the facility shall be signed as required to provide such identification.

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- C.** The location and identification of all floating structures shall be obvious from the head of each gangway by placement of a site map indicating the layout of the moorage and the walkways and which identifies each structure and/or slip individually by number or letter or combination thereof. For the purposes of this subsection, “site map” means a plan of a moorage or marina that shows the layout of the moorage or marina including all gangways, walkways, mooring sites and land based structures and identifies the moorage by address and each moorage site/slip or land based building by number or letter or a combination thereof or by address if separate from that one of the moorage or marina.
- D.** The walkway, structure and mooring site identification shall be logical and obvious. Identification work shall be subject to the Harbor Master’s approval.
- E.** All floating homes, boathouses, combo-structures and tender houses that have provision for sleeping shall have a state issued identifying number plate displayed in a location that is readily visible from the walkway providing access to the structure.
- F.** Moorage owners/operators shall maintain a moorage map with each mooring site identified by number or letter or combination thereof and which lists the state identifying number, if applicable, of the structure occupying each mooring site or identifies the structure occupying the mooring site by use and tenant name if no state number plate is required for the structure. Such plan shall be available for Harbor Master review when requested.

Chapter 28.07

ELECTRICAL INSTALLATIONS

Sections:

- 28.07.010 General.
- 28.07.020 Specific Requirements.

28.07.010 General.

(Amended by Ordinance No. 181437, effective December 21, 2007.) All electrical work shall be designed and installed in accordance with the State of Oregon Electrical Specialty Safety Code, the State of Oregon Residential Specialty Code, Title 26 and this Chapter. Permits and inspections are required for all work except as specifically exempted by Title 28.

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Existing electrical work which was lawfully in place in the City of Portland on January 1, 2008 or which was constructed or relocated under a valid permit after that date, shall be grandfathered as provided in Title 28.

28.07.020 Specific Requirements.

(Amended by Ordinance No. 181437, effective December 21, 2007.) In addition to the requirements specified in the Electrical Specialty Code and Title 26, the following specific requirements apply to electrical installations for moorages, marinas and floating structures.

- A.** Transformer pads shall not be located closer than either (8) feet to combustible surfaces and two (2) feet to noncombustible surfaces.
- B.** Overhead power drops shall be installed and maintained a minimum of 14 feet above walking surfaces and/or the ordinary high water line.
- C.** Electrical installations within two (2) feet of the water shall be considered to be in a wet environment, except that installations inside a structure and not exposed to the water may be considered to be in a dry environment.

Chapter 28.08

PLUMBING INSTALLATIONS

Sections:

- 28.08.010 General.
- 28.08.020 Specific Requirements.

28.08.010 General.

(Amended by Ordinance No. 181437, effective December 21, 2007.) All plumbing installations shall be designed and installed in accordance with the Oregon State Plumbing Specialty Code, the State of Oregon Residential Specialty Code, Title 25 and this Chapter. Permits and inspections shall be required for all plumbing work except as specifically exempted by Title 28.

Existing plumbing which was lawfully in place in the City of Portland as of January 1, 2008 or which was constructed or relocated under a valid permit after that date, shall be grandfathered as provided in Title 28.

28.08.020 Specific Requirements.

(Amended by Ordinance No. 181437, effective December 21, 2007.) In addition to the requirements of the Plumbing Specialty Code and Title 25, the following specific

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requirements apply to plumbing installations for moorages, marinas and floating structures.

- A. Sewage ejectors shall be installed in accordance with the manufacturer's instructions and the Oregon State Plumbing Specialty Code., except that the head pressure required by Section 318 K (6)(3) for testing drainage systems is reduced from 10 feet to 5 feet for ejectors installed at individual floating homes.
- B. Flexible connectors for water lines shall be approved by the National Sanitation Foundation and be of the type approved for mobile home installations or marine use.
- C. Piping materials must comply with the requirements of the Oregon State Plumbing Specialty Code and Title 25.
- D. Continuously running water through the moorage supply line is an acceptable alternate to pipe insulation to avoid pipe freezing.
- E. All flexible pressure sanitary sewer connections to and in the moorage dock pressure sanitary sewer system shall be, as a minimum, helically reinforced PVC, ultraviolet resistant, smooth inside and outside hose which shall remain flexible down to a temperature of minus four degrees Fahrenheit (- 4° F). Insert adapters from flex hose to rigid piping used in the pressure sanitary sewer system shall be plated steel, stainless steel, brass or aluminum with stainless steel hose clamps.
- F. Backflow Protection. All water service connections regardless of size or type supplying water from the city distribution system to any type of floating structure, whether permanent or temporary, shall be equipped with an approved backflow prevention assembly. The type of backflow assembly required for service connections to facilities as described in Title 28 shall be a Reduced Pressure Backflow Assembly (RPBA). The backflow assembly shall be installed at the termination of the City distribution system and at the start of the private distribution system.

Services that supply water to fire sprinkler systems typically are not fully metered. The type of backflow assembly required for fire sprinkler applications shall be a Reduced Pressure Detector Assembly (RPDA).

Only State of Oregon Department of Human Services and Portland Bureau of Water Works approved assemblies may be installed. Applicable backflow assembly installation requirements shall comply with both the Oregon Administrative Rules Chapter 333 and City of Portland Bureau of Water Works Title 21.

All plumbing work and materials used in association with the installation of a required backflow assembly on a potable water service line, shall be installed in accordance with the Oregon State Plumbing Specialty Code, Title 25 and this

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Chapter. All applicable permits and inspections shall apply except as exempted by other provisions of Title 28.

All backflow assembly installations whether installed on potable or non-potable water service lines shall be subject to inspection and approval by the Bureau of Water Works.

Backflow assemblies installed on service connections to floating structures that were installed before January 1, 2008 and are not on the State of Oregon Department on Human Services approved list of assemblies shall be allowed to remain in service as long as:

1. The type of assembly is commensurate with the degree of hazard as outlined in OAR 333-061-0070(6) (2007) and Bureau of Water Works backflow assembly installation requirements under Title 21.
2. The assembly is being properly maintained, tested at least annually and performs satisfactorily.

Assemblies of this type that need to be relocated, require more than minimum maintenance or are on services that are modified, changed size or remodeled shall be replaced with an approved assembly. Additionally, as outlined in Title 21 section 21.12.320 of the City code, approved assemblies may be required to be installed for new construction, where buildings or structures are remodeled, or where tenant improvements are made.

Chapter 28.09

MECHANICAL INSTALLATIONS

(Amended by Ordinance No. 181437, effective December 21, 2007.) All mechanical work, including but not limited to heating, air conditioning, ventilating, gas piping and woodstoves, shall be designed and installed in accordance with the State of Oregon Mechanical Specialty Code, the State of Oregon Residential Specialty Code, Title 27 and this Chapter. Permits and inspections shall be required for all work except as specifically exempted by Title 28.

Existing mechanical which was lawfully in place in the City of Portland on January 1, 2008 or which was constructed or relocated under a valid permit after that date, shall be grandfathered as provided in Title 28.