

Oregon
Local Amendment ruling No. 03-01
CITY OF PORTLAND

Requested by: RAY KERRIDGE, Director, Bureau of Development Services, City of Portland

QUESTION:

As provided for in ORS 455.040, may the City of Portland revise "Local Amendment 95-25" as previously approved by the Oregon Building Codes Division in consultation with the Building Codes Structures Board, whereby providing additional clarification and scope?

APPLICABLE CODE SECTIONS:

1998 Oregon Structural Specialty Code (OSSC), Chapter 5, Section 506 which regulates the "maximum height of buildings and increases" and the 2002 Oregon Mechanical Specialty Code.

BACKGROUND:

On September 23, 2003, Ray Kerridge, Director, Bureau of Development Services, City of Portland, wrote to the Administrator requesting revisions to "Local Amendment 95-25" as previously approved. The Administrator in turn, requested a review and recommendation from the Building Codes Structures Board (BCSB) at their November 5, 2003 meeting. Upon review, the BCSB recommended approval of the revision package to the Administrator.

ORIGINAL AMENDMENT AND REQUESTED REVISIONS:

NOTE: Underlined text denotes new provisions, strike through text denotes that which has been deleted from "Local Amendment 95-25."

SPECIAL DESIGN STANDARDS FOR FIVE STORY APARTMENT BUILDINGS

Sections:

24.95.010	General
24.95.020	Construction
24.95.030	Occupancy
<u>24.95.035</u>	<u>Commercial Kitchens Grease Ducts and Exhaust Equipment</u>
24.95.040	Sprinkler Protection
24.95.050	Height
<u>24.95.055</u>	<u>Opening Protection</u>
24.95.060	Fire Fighting Access
24.95.070	Permit Application
24.95.080	Construction and Inspection

24.95.010 General.

The provisions of this chapter may be used to design and construct five story, wood frame apartment buildings in addition to complying with the Oregon Structural Specialty Code as adopted in Section 24.10.040. Buildings designed and constructed under this chapter shall comply with all provisions of this chapter. Where a provision in this chapter is in conflict with the Structural Specialty Code, the provision of this chapter shall take precedence, as authorized by the Director of the Department of Consumer and Business Services pursuant to Oregon Revised Statute 455.040.

24.95.020 Construction.

- A. Single Construction. Single construction buildings complying with this chapter may be a maximum of five stories of Type V-1 Hour construction.
- B. Mixed Construction. Six story buildings complying with this chapter may be designed and constructed where ~~the~~ any basement or first story is constructed of Type I construction and a maximum of the top five stories are of Type V-1 Hour construction. The Type I construction shall be separated from the Type V-1 Hour construction above with a three-hour occupancy separation.
- C. Construction Types. Type I and Type V-1 Hour construction shall be as specified in the Structural Specialty Code.

24.95.030 Occupancy.

- ~~A. Single Construction. In five story wood frame buildings of single construction as specified in Section 24.95.020.A, the occupancy of the top four stories of buildings shall be limited to Group R, Division 1 apartment occupancies. Occupancies located in the first story and basement shall be limited to those listed in subsection C. on other stories shall be limited to:~~
 - ~~1. Group A, Division 3 and Group B drinking and dining establishments and assembly areas for the common use of residents;~~
 - ~~2. Group B offices;~~
 - ~~3. Group M retail stories;~~
 - ~~4. Group E, Division 3 day care occupancies;~~
 - ~~5. Group S, Division 3 parking occupancies; and~~
 - ~~6. Group R, Division 1, apartment houses.~~
 - ~~7. Occupancies shall be as defined in the 1994 Uniform Building Code, which may be further modified in the Structural Specialty Code.~~
 - ~~8. In mixed construction buildings, Group S, Division 3 parking occupancies shall be limited to the portion of the building constructed to Type I standards.~~
- ~~B. Mixed Construction. In six story buildings of mixed construction, as specified in Section 24.95.020.B, the occupancy of the wood frame stories of the building shall be limited to Group R, Division 1 apartment occupancy. Occupancies located in the Type I portion of the building shall be limited to those listed in subsection C.~~

C. Other Occupancies.

1. General. Occupancies located in the basement or first story of single construction buildings and in the Type I portion of a mixed construction building shall be limited to:

- a) Group A, Division 3**
- b) Group B offices**
- c) Group B dining and drinking establishments;**
- d) Group E, Division 3 day care occupancies;**
- e) Group M retail stores;**
- f) Group S, Division 3 parking occupancies; and**
- g) Group R, Division 1, apartment houses.**

Occupancies shall be as defined in the Oregon Structural Specialty Code.

2. Limitations. The following limitations apply to the occupancy categories listed in sub-section 1.

- a) Group E, Division 3 day care occupancies.** For either single or mixed construction buildings, Group E, Division 3 day care occupancies are restricted to the first story.
- b) Group S, Division 3 parking occupancies.** In mixed construction buildings, Group S, Division 3 parking occupancies shall be limited to the portion of the building constructed to Type I standards.

24.95.035 Commercial Kitchen Grease Ducts and Exhaust Equipment.

Commercial kitchen grease ducts and exhaust equipment shall comply with the requirements of the Oregon Mechanical Specialty Code and the provisions of NFPA 96, 2001 edition.

Ducts that serve Type I hoods and penetrate a floor shall be in a shaft enclosure of not less than 2 hour fire resistive construction.

24.95.040 Sprinkler Protection.

All portions of the building shall be protected throughout by an automatic sprinkler system complying with U.B.C. Standard No. 9-1 (NFPA 13) as contained in the 1994 Uniform Building Code as may be further modified in the Structural Specialty Code Oregon Structural Specialty Code. The automatic sprinkler system shall not substitute for one-hour fire-resistive construction and cannot be used for building area increases.

24.95.050 Height.

Regardless of construction, the maximum height of either a single or mixed construction building the building shall be 65 feet. The height shall be measured from the apparatus set up point to the lowest level of fire department vehicle access to the highest point of any of the following:

- A. top of parapet;
- B. the highest point of coping of a flat roof;
- C. the deck of a mansard roof; or
- D. the average height of the highest gable of a pitched or hipped roof associated with the building facade.

~~The height of building sections with no fire apparatus access shall not exceed the height of adjacent sections. Each portion of the building created by an area separation wall shall comply with this section. Where a portion of the building created by an area separation wall is not directly adjacent to approved fire department vehicle access locations, the roof of that portion of the building shall be no higher than the roof of the adjoining portion of the building which is adjacent to fire department vehicle access.~~

Exception: Mechanical, elevator and stairway penthouses may project up to 15 feet above the height limits determined in this section.

24.95.055 Opening Protection

Exterior walls and opening protection in exterior walls shall comply with the provisions of Section 503.2 and Table 5-A of the Structural Specialty Code based on the occupancy and the type of construction of that portion of the building under consideration.

24.95.060 Fire Fighting Access.

Access to the building for fire fighting, rescue and related purposes shall be provided as follows:

- A. Fire fighting access required. Subject to the approval of the ~~Bureau of Buildings and the Fire Bureau, a minimum of two of the exterior facades of the building shall be accessible by a ladder truck, according to the fire department vehicle access shall be provided that meets the~~ following standards:
 1. Location. ~~The design shall minimize the number of apparatus set up points and shall maximize the number of apartments within the ladder reach; Fire department vehicle access locations shall be on an access road.~~
 2. Access to apartment units. ~~For each accessible facade of the building, one apparatus set up point shall be provided for each 200 feet of building facade, or fraction thereof; At least 50 percent of all apartments living units which have with windows on the exterior façades shall be reachable by a ladder truck provided with a 100 foot aerial ladder and located on an access road. of the building must be within ladder reach of apparatus located at approved set points. Living units which only have windows on exterior courtyards are not included in this determination.~~
 3. Design standards for access road. An access road shall be provided as follows:

- a. Classification. Access roads shall be either:
 - 1) A public street; or
 - 2) An area of the property set aside for access road purposes.
- b. Location.
 - 1) Access roads shall be located along at least 2 sides of the building.
 - 2) The edge of access roads at the access location shall be no closer than 10 feet and no farther than 21 feet from the building.
- c. Width. Minimum width for access roads shall be not less than one of the following:
 - 1) 20 feet wide where no parking is allowed; or
 - 2) 28 feet wide where parking is allowed on one side of the road; or
 - 3) 32 feet wide where parking is allowed on 2 sides of the road.
- d. Paving. All access roads shall be paved.
- e. Design load. The minimum design load of an access road shall support the weight of an ASHTO HS25 design vehicle.
- f. Policy compliance. The access road shall also comply with Fire Bureau Code Enforcement policy B-1.

4. Location of planted trees. Any trees planted between the edge of an access road and an accessible building façades with apartments having reachable windows as described in sub-section 24.95.050 A 2 above, shall be subject to the approval of the Fire Bureau and Director; Building Bureaus; and, Set up points shall be on an access road which may be either a public street or an area of the property set aside for access road purposes. The access road shall be paved and support the weight of the apparatus. The access road shall comply with Fire Bureau standards and shall be off sufficient width to provide access to, and around apparatus set up points;

5. Location of overhead wires. Each accessible building facade shall be within 21 feet of the closest edge or curb of the access road; The location of overhead wires along accessible building façades adjacent to fire department vehicle access shall be subject to the approval of the Fire Bureau.

~~6.—~~

~~7.—~~

B. Interior courtyards. Interior courtyards shall be not less than 30 feet in any interior dimension.

C. Stairways to the roof. Unless the roof has a slope greater than 4 vertical in 12 horizontal, all stairways shall extend to the roof surface. at least fifty percent, but not less than two stairways, in the building shall provide access to the roof.

1. Priority. The following stairways shall be included in those providing access to the roof. Access to the roof shall be provided by the stairways in the locations described below, in the following order of priority:

- a.** Stairways that are the most remote from fire department access.
- b.** Where corridors within the building are not continuous or looped, stairways located at each end of a corridor.

2. Design.

a. Ladder access to most units. Where all the apartments above 80% of the building perimeter have windows within reach of a 100 foot aerial ladder positioned at an approved fire department vehicle access location, stairway roof access may be provided by ships ladders and roof hatch devices as follows:

1) Ladder design.

- a)** The ladder shall be constructed of steel.
- b)** The minimum width of the ladder shall be 30 inches between handrails.
- c)** The rise and run of the ladder shall be 12 inches maximum and 5 inches minimum respectively.
- d)** Handrails shall be provided on both sides of the ladder and shall extend to the underside of the roof. Handrails shall not reduce the clear width of the ladder to less than 30 inches.

2) Roof hatch design.

- a)** The scuttle opening shall be at least 30 inches wide.
- b)** The scuttle opening shall be at least 8 feet long.
- c)** The maximum scuttle threshold shall be 12 inches.
- d)** Covers shall open to a minimum of 90 degrees measured from the scuttle opening.
- e)** The cover shall have an automatic raising mechanism and an automatic hold open arm and cover release.
- f)** The cover shall have lever handles on both the interior and the exterior.
- g)** The cover latch shall be spring activated.
- h)** Scuttles may be locked on the inside only with a brass-shackle (marine) padlock.
- i)** Scuttles shall be designed to support and open under all required roof loads including any applicable snow drift conditions.

b. Restricted ladder access. Where less than 100% of apartments on 80% of the building perimeter have windows as specified in subsection 24.95.060 C 2 a above, all of the following requirements shall apply:

- 1) Roof loads. The roof shall be designed to support loads as if it were an occupied roof.
- 2) Stairway construction. All stairways shall comply with Section 1003.3.3 of the Structural Specialty Code.
- 3) Roof access. Access onto the roof for 50 percent of the stairways providing roof access, but not less than one, shall be provided by way of a door complying with Section 1003.3.1 of the Structural Specialty Code. Roof access for all remaining stairways may be provided by way of a roof hatch meeting the design requirements of 24.95.060 C 2 a 2) and the requirements in a) through c) below:
 - a) Hardware for the hatch or door shall meet the requirements of Chapter 10 and Chapter 11 of the Structural Specialty Code.
 - b) Door or hatch thresholds at roof opening.
 - (1) Door thresholds shall be not more than six inches (152 mm) in height.
 - (2) Hatch thresholds shall be not more than 12 inches (304 mm) in height or another height approved by the Director.
 - c) A sign shall be posted at a clearly visible location either on the door or on the wall adjacent to the door or hatch stating, "Watch Step - High Threshold."
- 4) Rescue area. At least one rescue area shall be provided on the building roof. Where the building has been divided using area separation walls, a rescue area shall be provided for each separate building area. The Fire Bureau shall approve the location of all rescue areas. In addition:
 - a) The rescue area shall be located so that the area is available from all egress stairways serving the roof.
 - b) Where more than one rescue area is provided for a roof or portion thereof, a pedestrian path shall be provided between the areas.
 - c) Where only one area is provided, the area shall be large enough to contain the occupant load of the upper two floors located between the area separation walls. Where more than one area is provided, the required rescue area size may be divided equally amongst the number of areas provided.

- d) The size of the rescue area shall be calculated using an occupant load factor of three square feet (.028 m²) per person.
- e) Where the roof is not surrounded by a parapet at least 30 inches in height, all rescue areas shall be provided with guardrails complying with Section 509 of the Structural Specialty Code.
- f) The slope of the rescue area, including the pedestrian path to or between areas, shall not be more than 1 to 48.
- g) The rescue area shall be designed to support concentrated loads of 100 psf.

D. Each stairway shall include a Class I or III standpipe complying with the Structural Specialty Code.

24.95.070 Permit Application

- A.** Plans and Specifications. Permit applications submitted pursuant to this chapter shall include the plans and specifications as ~~specified~~ required by the Bureau of ~~Buildings~~ Development Services and the ~~Fire Bureau of Fire.~~
- B.** Pre-application Conference. ~~Prior to application~~ As early as practicable in the design process, the applicant shall have a pre-application design conference with the ~~Bureau's~~ Director and the Fire Bureau.
- C.** Design considerations. As part of the permit application, the engineer of record shall document consideration of issues critical to the design of tall wood structures. Considerations shall include, but are not limited, to the following:
 1. Splitting of wood members from shear wall nailing;
 2. Differential shrinkage of wood, steel and concrete members;
 3. Differential shrinkage of load bearing walls with and without wood panels;
 4. Axial and flexural capacity of lower floor studs; and
 5. Compression of lower floor wood plates.

24.95.080 Construction and Inspection.

In addition to inspections and special inspections specified in the Structural Specialty Code and Chapter 24.20 of this ~~Title code,~~ the ~~Director Bureau of Buildings~~ shall require the following for buildings constructed pursuant to this chapter:

- A.** Structural Observation. Structural observation shall be provided by the engineer ~~or architect~~ of record. Reports of the structural observation shall be provided to the Director periodically during framing.
- B.** Special Inspection. Special inspection shall be provided to enhance attention on the key elements of the lateral force resisting systems of the building, including, but not limited to, the following: ~~Either a Focused Inspection or a Special Inspection as follows.~~

~~Focused Inspection: Inspection provided by the inspection staff of the Bureau which enhances attention on the key elements of the lateral force resisting systems of the building, including, but not limited to, the following:~~

- ~~1. a. The grade of structural wood panels used in the sheer walls vertical and horizontal diaphragms;~~
- ~~2. b. The nail size and pattern of the sheer walls and horizontal diaphragms;~~
- ~~3. c. The framing, location and length of all shear walls;~~
- ~~4. d. The hold down installations at all shear wall locations;~~
- ~~5. e. The diaphragm chord, drag strut and related details;~~
- ~~6. f. The base plate bolting; and~~
- ~~7. g. The blocking to top plate nailing.~~

The special inspector shall be employed by the owner or shall be employed by the engineer of record acting as the owner's agent, and shall comply with the standards of Chapter 24.20 of the City Code.

- ~~2. —Special Inspection: Special inspection which focuses on the lateral force resisting systems, including, but not limited to, shear walls the items listed in B.1. above, provided by a special inspector employed by the owner, or the engineer or architect of record acting as the owner's agent.~~

FINDINGS:

ORS 455.040 authorizes the Administrator to approve local amendments to the OSSC.

This amendment shall be identified by the following designation; ***Local Amendment 03-01.***

The original BCD findings as noted within "Local Amendment 95-25" remain valid except as revised herein. The Administrator finds that the City of Portland's proposed revisions to "Local Amendment 95-25" shall be adopted as a local ordinance and not as a statewide code change.

The revisions to "Local Amendment 95-25" address the concerns for:

1. Clarification of original "Local Amendment 95-25" intent,
2. Addition of new requirements to assist the document user and,
3. Changes reflecting seven years of experience in the construction oversight of tall wood structures.

