

State of Oregon
Building Codes Division

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Statewide Alternate Method No. OSSC 08-05
(Ref.: ORS 455.060)

Issued October 1, 2008

2006 International Existing Building Code
Oregon Structural Specialty Code, Chapter 34

Statewide Alternate Methods are approved by the Division administrator in consultation with the appropriate advisory board. The advisory board's review is limited to the technical and scientific facts of the proposal. In addition:

- *building officials shall approve the use of any material, design or method of construction addressed in a statewide alternate method,*
- *the decision to use a statewide alternate method is at the discretion of the designer,*
- *statewide alternate methods do not limit the authority of the building official to consider other proposed alternate methods encompassing the same subject matter*

Requested by: Oregon Building Codes Division (BCD)

Purpose:

To allow the use of the 2006 International Existing Building Code (IEBC) as an alternate method to the provisions contained in Chapter 34 of the 2007 Oregon Structural Specialty Code (OSSC).

Background:

Chapter 34 of the OSSC (based on the 2006 International Building Code) regulates the repair, alteration, change of occupancy, and addition of existing buildings. It principally provides two paths for compliance; a “*prescriptive compliance method*” and a “*performance compliance method*.”

The IEBC, as promulgated by the International Codes Council, expands the provisions of OSSC chapter 34 and adds a third approach known as the “*work area compliance method*” which is based on the level of work performed. The intent of the IEBC is to provide increased flexibility in the use of alternative approaches to achieve compliance with minimum requirements to safeguard the public health, safety and welfare. Designers may not mix and match compliance paths.

Seismic Rehabilitation: The IEBC provides 2 options for the seismic retrofit of existing buildings; 1) Appendix A and 2) ASCE 31 (*Seismic Evaluation of Existing Buildings*) in conjunction with ASCE 41 (*Seismic Rehabilitation of Existing Structures*). These standards are adopted insofar as they relate to the repair, alteration, change of occupancy, and addition to existing buildings.

The division has amended the 2006 IEBC to include increased seismic requirements that are similar to the provisions adopted by the City of Portland for nearly a decade. Other amendments include early adoption of certain provisions of the 2009 IEBC. These amendments are based on the division's determination that the seismic provisions of the 2006 IEBC were not adequate for Oregon. (See attached amendments for chapter 1 and chapters 5 through 9).

Local adoption of a Seismic Rehabilitation Plan (ORS 455.020 {4}): This statute states in part: *"Pursuant to the regulation of dangerous buildings, a municipality may adopt seismic rehabilitation plans that provide for phased completion of repairs that are designed to provide improved life safety but that may be less than the standards for new buildings."* (emphasis added). When a local municipality adopts a seismic rehabilitation plan as noted in statute, it is a separate requirement from those seismic rehabilitation upgrades that are required as part of an alteration, repair, change of occupancy or addition. In brief, municipalities may adopt **additional triggers** requiring compliance with the local seismic rehabilitation plan. Examples would include:

1. re-roofing,
2. cost threshold of remodel,
3. change of occupancy to a different relative hazard classification, essential facilities.

In addition, the locally adopted seismic rehabilitation plan may specify a specific seismic rehabilitation standard (i.e., ASCE 41, Appendix A of the IEBC, etc).

It is important to note that adoption of this statewide alternate method does not trigger upgrades unless the building is altered.

The IEBC also contains "Resource A" entitled ; ***Guidelines on Fire Ratings of Archaic Materials and Assemblies.*** Resource A is only a guideline and is not intended to be a document for adoption. Accordingly, it is not part of this alternate method.

The scientific and technical merits of this alternate method have been reviewed by the Building Codes Structures Board.

Applicable Code Citation:

2007 Oregon Structural Specialty Code, Chapter 34

Statewide Alternate Method:

This alternate method is applicable to the occupancy categories covered in the Oregon Structural Specialty Code and administered through chapter 1 of the same.

Alterations, repairs, additions and changes of occupancy to existing structures shall be permitted to comply with the 2006 International Existing Building Code as amended herein. All 2006 International Existing Building Code references to other codes are as defined in Chapter 2, of the Oregon Structural Specialty Code.

The following portions of the International Existing Building Code **are not adopted** by the State of Oregon. Subject matter contained therein shall comply with applicable sections of the Oregon Structural Specialty Code, the Oregon Mechanical Specialty Code, the Oregon Electrical

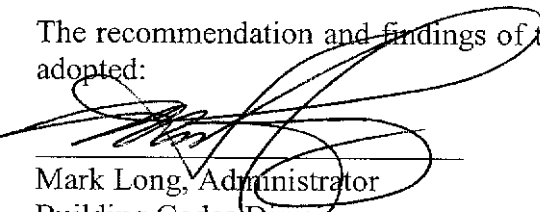
Specialty Code, the Oregon Boiler and Pressure Vessel Safety Code and the Oregon Plumbing Specialty Code:

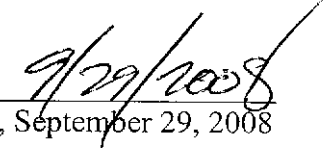
1. All portions of Chapter 1, Administration, except Section 101.2, 101.4, 101.5 and 101.7.
2. Section 115 - Unsafe structures and equipment. (*May be adopted by local ordinance*).
3. Section 116 - Emergency Measures (*May be adopted by local ordinance*).
4. Section 117 - Demolition (*May be adopted by local ordinance*).
5. All references to R-3 Occupancies.
6. All references to The International Property Maintenance Code (*May be adopted by local ordinance*).
7. All references to accessibility. See OSSC section 1113.
8. All References to Type A and B dwellings.
9. All references to historic buildings. See OSSC section 3407.
10. All references to relocated buildings. See OSSC section 3408.1.
11. All references to Flood Hazard Areas. Section OSSC section 3403.1.1.
12. Sections 507, 708, 908 - Electrical Provisions.
13. Section 508, 709 and 909 – Mechanical.
14. Section 509, 710 and 910 – Plumbing.
15. Sections 302.5, 305.5, 607, 711 and 808 - Energy. See OSSC section 1301.1.
16. Section 802.2.1 - Boiler controls.
17. Section 704.4 - Fire alarm and detection. See Oregon Fire Code section 907.3.
18. Chapter 14 - Construction Safeguards.
19. Chapter 15 - Reference Standards. See OSSC chapter 35.
20. Elevator standards for existing buildings.
21. Platform lifts for existing buildings.
22. Appendix B.
23. Resource A.

The following sections of the IEBC are amended as indicated:

1. All references to FEMA 356 shall mean ASCE 41.
2. Section 1301.2, **Applicability**. Structures existing prior to **April 1, 2007**, in which there is work involving additions, alterations or changes or occupancy shall be made to conform to the requirements of this chapter or the provisions of Chapters 4 through 12. The provisions of Sections 1301.2.1 through 1301.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S **and U**. These provisions shall not apply to buildings with occupancies in Group H or I.
3. Chapter 1, section 101.5: See attached Structural/Seismic Revision.
4. Chapter 5, section 506: See attached Structural/Seismic Revision.
5. Chapter 6, section 606: See attached Structural/Seismic Revision.
6. Chapter 7, section 707: See attached Structural/Seismic Revision.
7. Chapter 8, section 807: See attached Structural/Seismic Revision.
8. Chapter 9, section 901 & 907: See attached Structural/Seismic Revision.

The recommendation and findings of the Building Codes Structures Board are accepted and are adopted:


Mark Long, Administrator
Building Codes Division


Date, September 29, 2008

***Oregon Building Codes Division
Alternate Method 08-05
2006 International Existing Building Code
Oregon Revisions***

Chapter 1

Section 101.5

Summary of Revisions:

1. Clarify that all new structural members must meet the current IBC.
2. Remove loophole that allows structural design to previous editions of code.

Oregon Revisions:

101.5 Compliance Methods. The repair, alteration, change of occupancy, addition or relocation of all existing buildings shall comply with one of the methods listed in Sections 101.5.1 through 101.5.3 as selected by the applicant. Application of a method shall be the sole basis for assessing the compliance of work performed under a single permit unless otherwise approved by the code official. Sections 101.5.1 through 101.5.3 shall not be applied in combination with each other. New structural members added to a building or structure as part of the addition, rehabilitation, repair or alteration shall comply with the International Building Code. Repairs and alterations of existing buildings in flood hazard areas shall comply with Sections 501.4 and 601.3, respectively.

Exception: Nonstructural alterations complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building has sustained substantial nonstructural damage.

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Chapter 5

Section 506.1

Summary of Revisions:

1. Changing reference to ASCE 41 (from FEMA 356).
2. Clarify the evaluation and design procedures (i.e. IBC, ASCE 41 and ASCE 31).
3. Removal of reference to the Appendices to meet reduced IBC forces.
4. Clarifying that ASCE 31 can only be used for evaluation to meet reduced IBC forces.
5. Clarifying what is required for repair.

Oregon Revisions:

506.1 General. Structural repairs shall be in compliance with this section and Section 506.2. Regardless of the extent of structural or nonstructural damage, dangerous conditions shall be eliminated. Regardless of the scope of repair, new structural members and connections used for repair or rehabilitation shall comply with the detailing provisions of the International Building Code for new buildings of similar structure, purpose and location.

506.1.1 Seismic evaluation and design. Seismic evaluation and design of an existing building and its components shall be based on the following criteria.

506.1.1.1 Evaluation and design procedures. The seismic evaluation and design shall be based on the procedures specified in the *International Building Code* or ASCE 41. When allowed, seismic evaluation can be based on ASCE 31.

506.1.1.2 Compliance with IBC level seismic forces. Where compliance with the seismic design provisions of the *International Building Code* is required, the procedures shall be in accordance with one of the following:

1. The *International Building Code* using one-hundred percent of the prescribed forces. The C_d , Ω and R-factor used for analysis in accordance with ASCE 7 shall be the factors specified for structural systems classified as “Ordinary” in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system satisfies the proportioning and detailing requirements for systems classified as “Intermediate” or “Special.”
2. Compliance with ASCE 41 using both the BSE-1 and BSE-2 Earthquake Hazard Levels and the corresponding performance levels shall be those shown in Table 506.1.1.2.

**TABLE 506.1.1.2
ASCE 41 AND ASCE 31 PERFORMANCE LEVELS**

OCCUPANCY CATEGORY (BASED ON IBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 31 AND WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Collapse Prevention (CP)
II	Life Safety (LS)	Collapse Prevention (CP)
III	Note a, Note b	Note a
IV	Immediate Occupancy (IO)	Life Safety (LS)

- a) Acceptance criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category II performance levels, but need not be less than the acceptance criteria specified for Occupancy Category IV performance levels.
- b) For Occupancy Category III, the ASCE 31 Screening Phase checklists shall be based on the Life Safety performance level.

506.1.1.3 Compliance with Reduced IBC level seismic forces. Where seismic evaluation and design is permitted to meet reduced *International Building Code* seismic force levels, the procedures used shall be in accordance with one of the following:

1. The *International Building Code* using *seventy-five percent of the prescribed forces*. The C_d , Ω and R-factor used for analysis in accordance with ASCE 7 shall be the factors as specified in Section 506.1.1.2 of this code.
2. Compliance with ASCE 41 using the BSE-1 Earthquake Hazard Level and the performance level as shown in Table 506.1.1.2. The design spectral response acceleration parameters S_{XS} and S_{X1} specified in ASCE 41 shall not be taken less than 75 percent of the respective design spectral response acceleration parameters S_{DS} and S_{D1} defined by the *International Building Code*.

A building that is evaluated and determined to meet ASCE 31 based on the applicable performance level as shown in Table 506.1.1.2 is considered to be compliant with reduced IBC level forces.

506.2 Repairs to damaged buildings. Repairs to damaged buildings shall comply with this section.

506.2.1 Repairs for less than substantial structural damage. For damage less than substantial structural damage, the damaged elements shall comply with the *International Building Code*.

506.2.2 Repairs for substantial structural damage to vertical elements of the lateral-force-resisting system. A building that has sustained substantial structural damage to the vertical elements of the lateral-force-resisting system shall be evaluated in accordance with Section 506.2.2.1, and either repaired in accordance with Section 506.2.2.2 or repaired and rehabilitated in accordance with Section 506.2.2.3 depending on the results of the evaluation.

506.2.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the code official. The evaluations shall establish whether the damaged building, if repaired to its predamaged state, would comply with the provisions of the *International Building Code*, except that the seismic design criteria shall be the reduced level seismic forces specified in Section 506.1.1.3.

506.2.2.2 Extent of repair for compliant buildings. If the evaluation establishes that the building in its pre-damage condition complies with the provisions of Section 506.2.2.1, then the damaged elements shall be repaired such that they comply with the *International Building Code*.

506.2.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the building in its pre-damage condition complies with the provisions of Section 506.2.2.1, then the building shall be rehabilitated to comply with the provisions of this section. The wind loads for the repair and rehabilitation shall be those required by the building code in effect at the time of the original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the *International Building Code*. The seismic loads for this rehabilitation shall be those in effect at the time of original construction, but not less than IBC level forces specified in Section 506.1.1.2.

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Chapter 6

Section 606.1

Summary of Revisions:

1. Deleting redundant text in section 606.1 and 606.2 regarding structural work and the applicability of this section.
2. Section 606.2 is revised to ensure that new equipment is anchored/braced in accordance with current code.
3. Clarifying in 606.3.1 and 606.3.2 that bracing and anchorage for walls and parapets is required only where construction does not meet reduced level code forces. Where the existing bracing/anchorage system does not meet the reduced level forces then installation of new anchors must be to current code. Allowing installation of new anchorage that does not meet current code is in direct violation of several code sections. All new work must meet current code.
4. Revising the language of the parapet bracing provisions in 606.3.1 to ensure that all URM parapets are braced, not just the URM parapets that are components of URM bearing wall buildings. Many concrete frame buildings, for example, contain URM parapets that pose equal life-safety risk.
5. Revising scope of section 606.3.2 regarding wall anchorage requirements. New language includes anchorage of flexible roof diaphragms for reinforced masonry and concrete buildings, not just URM bearing wall construction. This mitigates the substantial risk demonstrated in past earthquakes, posed by older concrete tilt-up and other heavy wall construction that rely upon inadequate anchorage to flexible roof diaphragms. Requiring installation of anchorage during re-roofing is a cost-effective way of updating these buildings to provide enhanced performance for seismic loads.
6. Revise scope of roof diaphragm upgrades to only include buildings in high wind regions.

Oregon Revisions:

606.1 General Where alteration work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.

606.2. Addition or replacement of roofing or replacement of equipment. Where addition or replacement of roofing or replacement of equipment results in additional dead loads, structural components supporting such reroofing or equipment shall comply with the gravity loading requirements of the *International Building Code*. Replacement equipment shall be anchored and braced in accordance with the requirements of the *International Building Code*.

Exceptions:

1. Structural elements where the additional dead load from the roofing or equipment does not increase the force in the element by more than 5%.
2. Buildings constructed in accordance with the *International Residential Code* or the conventional light-frame construction methods of *the International Building Code* and where the additional dead load from the roofing or equipment is not increased by more than 5 percent.
3. Addition of a second layer of roof covering weighing 3 pounds per square footing (0.1437 kN/m²) or less over an existing, single layer of roof covering.

606.3 Additional requirements for re-roof permits. The requirements of this section shall apply to alteration work requiring re-roof permits.

606.3.1 Bracing for unreinforced masonry parapets. Where a permit is issued for re-roofing where roofing materials on more than 25% of the roof area of a building assigned to Seismic Design Category D, E or F are removed and which has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing to resist the *International Building Code* seismic forces as specified in Section 506.1.1.2 .unless an evaluation demonstrates compliance of such items using the reduced *International Building Code* seismic forces as specified in Section 506.1.1.3.

606.3.2 Wall anchors for concrete and masonry buildings. Where a permit is issued for re-roofing where roofing materials on more than 25% of the roof area of a building assigned to Seismic Design Category D, E or F are removed from a building with a structural system consisting of concrete or reinforced masonry walls with a flexible roof diaphragm or unreinforced masonry walls with any type of roof diaphragm, the work shall include installation of wall anchors at the roof line to resist the *International Building Code* seismic forces as specified in Section 506.1.1.2, unless an evaluation demonstrates compliance of the existing wall anchorage to resist the reduced *International Building Code* level seismic forces as specified in Section 506.1.1.3.

606.3.3 Roof diaphragms resisting wind loads in high wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm of a building or section of a building located where the basic wind speed is greater than 90 mph or in a special wind region, as defined in Section 1609 of the *International Building Code*, roof diaphragms and connections that are part of the main wind-force resisting system shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition do not comply with those wind provisions, they shall be replaced or strengthened.

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Chapter 7

Section 707

Summary of Revisions:

1. Clarify the applicability of structural provision sections. The current language of section 707.1 does not invoke the structural requirements unless the live loading (per IBC table 1607.1) is changed. This error would allow all types of structural revisions that do not meet code as long as the live-load is not increased. This revision ensures that the structural provisions are applicable to all alterations of structural members.
2. Reinforcing those requirements for Alteration Levels 1, 2 and 3 are cumulative. This change is not mandatory as it is included generally in section 404.2, but does improve usability of the code.
3. Removing section 707.2 which is in direct conflict with other sections that do allow limited strength reduction of lateral system. Reduction in strength of gravity framing is covered under the gravity framing section.
4. Adding section 707.3 minimum design loads to provide consistency with the provisions for Level 3 alterations.
5. Revising section 707.4 to clarify the applicability of structural provisions to all alterations, similar to item 1 above.
6. Merging 707.4.1 into section 707.4 to improve presentation. Rename section to clarify applicability to gravity framing system.
7. Separating previous lateral loads section 707.4.2 into new section 707.5 to better clarify lateral and gravity requirements.
8. Clarifying lateral revision checks of existing elements by changing the alteration trigger to a D/C ratio change versus changes in load and capacity. This approach better satisfies the intent of the code to allow minor changes to structural elements of the lateral system without triggering upgrade of the lateral system as it allows some limited increase in force and/or decrease in capacity. The D/C ratio approach provides more flexibility than currently provided in OSSC chapter 34, which does not allow any strength reduction. It improves current IEBC language by closing the loophole that inadvertently allowed simultaneous 10% increases in load and decreases in capacity.
9. Deleting the snow drift section 707.4.3 and including this section within the gravity loads requirements for enhanced clarity.
10. Adding section 707.6 for voluntary seismic upgrades similar to requirements for Level 3 alterations.

Oregon Revisions:

707.1 General. Structural elements and systems within buildings undergoing Level 2 Alterations shall comply with the requirements of this section and section 606.

707.2 New structural elements. New structural elements in alterations, including connections and anchorage shall comply with the *International Building Code*.

707.3 Minimum design loads. The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the building was constructed.

707.4 Existing structural elements carrying gravity loads. Alterations shall not reduce the capacity of existing gravity load-carrying structural elements unless it is demonstrated that the elements have the capacity to resist the applicable design gravity loads required by the *International Building Code*. Existing structural elements supporting any additional gravity loads as a result of the alterations, including the effects of snow drift, shall comply with the *International Building Code*.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-framed construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

707.5 Existing structural elements resisting lateral loads. Any existing lateral load-resisting structural element whose demand-capacity ratio with the alteration considered is more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall comply with the structural requirements specified in Section 807.5. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. For purposes of this section, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.

707.6 Voluntary lateral-force resisting system alterations. Alterations of existing structural elements and additions of new structural elements that are initiated for the purpose of increasing the lateral-force resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces conforming to the *International Building Code*, provided that an engineering analysis is submitted to show that:

1. The capacity of existing structural elements required to resist forces is not reduced;
2. Either the lateral loading to existing structural elements is not increased beyond their capacity or the lateral loading to existing structural elements is not increased by more than 10 percent;
3. New structural elements are detailed and connected to the existing structural elements as required by the *International Building Code*;
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code*; and
5. A dangerous condition as defined in this code is not created.

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Chapter 8

Section 807

Summary of Revisions:

1. Removing section 807.2 which is in direct conflict with the lateral load provisions which allow limited reduction in strength of lateral system. Reduction in strength of gravity framing is covered under gravity framing section.
2. Revising 807.3 to re-name the section and to reference Level 2 alteration requirements. This removes duplicate information and reinforces the intent that provisions are cumulative (i.e. Level 3 must satisfy requirements of Level 1 and Level 2) and consistent for all alteration levels.
3. Revising 807.4 to re-name section.
4. Adding section 807.4 regarding gravity load carrying elements to follow similar format as section Level 2 alterations section 707. Referencing the requirements of section 707 reinforces the intent that the Level 3 provisions are cumulative with other alteration levels and consistent for all alteration levels.
5. Clarifying section 807.5 requirements are for all Level 3 alterations and Level 2 alterations where referred to from section 707.
6. Removing exception 3 from 807.5 as base shear capacity is no longer a trigger. Also, changes in capacity are specifically referenced from the revised section 707.4.
7. Changing code from reduced IBC to full IBC forces for altered elements of the lateral system for substantial and limited alterations. This brings the code in line with current design practice and OSSC chapter 34 and City of Portland's title 24.85. This ensures that modified portions of structures conform to the current best practices regarding structural loads and design.
8. Revise 807.5.3 to clarify that all modified structural elements must meet current code forces.

Oregon Revisions:

807.1 General. Where buildings are undergoing Level 3 alterations including structural alterations, the provisions of this section and sections 707 and 606 shall apply.

807.2 New structural elements. New structural elements shall comply with Section 707.2.

807.3 Minimum design loads. The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the building was constructed.

807.4 Existing structural elements carrying gravity loads. Existing structural elements carrying gravity loads shall comply with Section 707.4.

807.5 Existing structural members resisting lateral loads. All structural elements of the lateral-force resisting system in buildings undergoing Level 3 structural alterations or buildings undergoing Level 2 alterations as triggered by Section 707.5 shall comply with this section.

Exceptions:

1. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.
2. Where such alterations involve only the lowest story of a building and the change of occupancy provisions of Chapter 9 do not apply, only the lateral-force-resisting components in and below that story need comply with this section.

807.5.1 Evaluation and analysis. An engineering evaluation and analysis that establishes the structural adequacy of the altered structure shall be prepared by a registered design professional and submitted to the code official.

807.5.2 Substantial structural alteration. Where more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the *International Building Code* for wind loading and seismic forces. For seismic considerations, the analysis shall be based on one of the procedures specified in Section 506.1.1.1. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.

807.5.3 Limited structural alteration. Where not more than 30 percent of the total floor and roof areas of the building are involved in the structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time of the original construction or of the most recent substantial structural alteration as defined by Section 807.5.2. Any existing structural element whose seismic demand-capacity ratios with the alteration considered are more than 10 percent greater than their demand-capacity ratio with the alteration ignored shall comply with the *International Building Code* level seismic forces as specified in 506.1.1.3.

Oregon Building Codes Division
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Chapter 9

Section 907

Summary of Revisions:

These revisions incorporated the 2009 IEBC committee hearing results and SEAO's revision to relative hazard level based on occupancy classification. Table footnotes gave exceptions that do not require structural improvements when there is only a minimal area or number of occupants changed. This combination of triggers with exceptions have worked well in the past to balance development and improvement requirements. Items modified include:

1. Incorporation of IEBC committee hearing results that are mainly editorial to make the section consistent with current IBC terminology.
2. Substantially change the occupancy classification relative hazard table. The revised table more accurately reflects changes to higher more hazardous occupancies. The additional required structural improvements are balanced by more exceptions that do not require structural improvements. Past experience has shown these rules to be a good balance between development and required improvements.

Oregon Revisions:

901.3.1 Partial change of occupancy classification. Where a portion of an existing building is changed to a new occupancy classification, Sections 907 and 912 shall apply.

907.3 Seismic loads. Existing buildings with a change of occupancy shall comply with the seismic provisions of Sections 907.3.1 and 907.3.2.

907.3.1 Compliance with the *International Building Code* level seismic forces. Where a building or portion thereof is subject to a change of occupancy that results in the building being assigned to a higher occupancy category based on Table 1604.5 of the International Building Code; or where such change of occupancy results in a reclassification of a building to a higher hazard category as shown in Table 907.3; or when the total building occupancy load is increased by more than 150 occupants, the building shall comply with the seismic improvement standards of Table 907.3 and as defined in Section 506 for the new occupancy category.

Exception:

Where approved by the code official, specific detailing provisions required for a new structure are not required to be met where it can be shown that an equivalent

level of performance and seismic safety is obtained for the applicable occupancy category based on the provision for *reduced International Building Code* level seismic forces as specified in Section 506.1.1.3.

Seismic Hazard Categories and Structural Improvement Standard

TABLE 907.3		
Relative Hazard	OSSC Occupancy Classification	Seismic Improvement Standard
1 (Highest Hazard)	A, E, I-2, I-3, H	506.1.1.2
2	R-1, R-2, R-4, SR, I-1, I-4	
3	B, M	506.1.1.3
4	F-1, F-2, S-1, S-2	
5 (Lowest Hazard)	R-3, U	

Notes:

- a) Required improvements shall be made such that the entire building conforms to the indicated standard.
- b) Where the area of the new occupancy with a higher hazard category is less than or equal to 33 percent of the total building area, and the total occupant load for the building is not increased by more than 150 occupants, the building does not have to be structurally improved unless required by other provisions of this code.
- c) Where a change in occupancy results in the addition of more than 150 occupants to the building, the building is required to be structurally improved based on the seismic improvement standard for the occupancy classification of the majority of the added occupants.
- d) Buildings with a total occupant load greater than 1,500 may use 10% of the occupant load in place of the 150 noted in notes 2) and 3).
- e) The cumulative effects of the building area occupancy changes and occupant load changes shall be considered on October 1, 2008 for the purposes of this section.