# Code Amendment Proposal Application OSSC 22-06

**Department of Consumer & Business Services**
**Building Codes Division**
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| APPLICANT INFORMATION | |
|---|---|
| Name: | Dusty Andrews |
| Representing: | Structural Engineers Association of Oregon |
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| **PROPOSAL INFORMATION** | |
| Specialty code: | Oregon Structural Specialty Code (OSSC) |
| Code section(s): | 1604.4 |
| Briefly explain the subject of your proposal: | This proposal cleans up a long standing conflict between ASCE 7 and the IBC regarding structural analysis requirements. |

**Code Review Committee Outcomes**

Nov. 9, 2021 – Approved.

STRUCTURAL ENGINEERS ASSOCIATION OF OREGON
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# PART I – CODE AMENDMENT LANGUAGE

You must provide exact language for your code proposal. Failure to provide language will invalidate the application. Include all code sections that require changes and use the following format to show additions and deletions from the code — strikethrough for deleted text and underline and bold for new text.

Note: Where applicable, the proposed code language should show how the existing Oregon amendments will integrate with the base model code or if the proposal is rescinding an existing Oregon amendment. Any modification to the new model code should note or reflect any current Oregon amendments related to this language.

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**1604.4 Analysis**

Load effects on structural members and their connections shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short and long term material properties.

Members that tend to accumulate residual deformations under repeated service loads shall have included in their analysis the effects of added deformations expected to occur during their service life.

Any system or method of construction to be used shall be based on rational analysis in accordance with well established principals of mechanics. Such analysis shall result in a system that provides a complete load path capable of transferring loads from their point of origin to the load-resisting elements.

The total lateral force shall be distributed to the various vertical elements of the lateral force resisting system in proportion to the rigidities, considering the rigidity of ~~the horizontal bracing system or diaphragms~~ all horizontal and vertical elements part of the lateral force resisting system. Rigid elements assumed not to be part of the lateral force resisting system are permitted to be incorporated into the buildings provided that their effect on the action of the system is considered and ~~provided for in the design~~ they are detailed to accommodate the building drift. A diaphragm ~~is~~ may be considered rigid for the purpose of distributing of story shear and torsional moment ~~when the lateral deformation of the diaphragm is less than or equal to two times the average story drift~~ as allowed by ASCE 7 section 12.3. Where required by ASCE 7, provisions shall be made for the increased forces induced on resisting elements of the structural system resulting from torsion due to the eccentricity between the center of the application of the lateral forces and the center of rigidity of the lateral force resisting system.

Every structure shall be designed to resist the effected caused by the forces specified in this chapter including overturning, uplift and sliding. Where sliding is used to isolate the elements, the effects of friction between sliding elements shall be included as a force.

## PART II – CODE AMENDMENT PROPOSAL REQUIREMENTS

Generally, proposals should only suggest amending the technical and scientific matters within the scope of the specialty code. Administrative matters are adopted and amended to align with statutes and rules governing the state building code.

Those administrative matters not regulated by a specialty code, include, but are not limited to:

- Licensing or certification requirements, or other qualifications and standards for businesses or workers;
- Structure or equipment maintenance requirements;
- Matters that conflict with federal or state law; and,
- Matters that conflict with other specialty codes or publications adopted by the division.

☒ **Review the statutes and rules governing the state building code and ensure that your proposal is enforceable by the specialty code for which you are proposing an amendment.**

## PART III – CODE AMENDMENT PROPOSAL CRITERIA

Code amendment proposals must conform to the requirements in ORS 455.020, ORS 455.030, ORS 455.110, and OAR 918-008-0060. All proposals must provide justification and the particular circumstances requiring the amendments. View the proposal criteria on page 3 of this application.

## Code Amendment Proposal Criteria

**Proposal**

1. Describe the concept and purpose of this proposal.

*This proposal cleans up a longstanding conflict between language of ASCE 7 chapter 12 and the model code.*

2. What problem in the existing Oregon code or national model code is this proposal solving? How does this amendment address the issue? If you have evidence demonstrating the problem, submit that information.
   a) If this proposal corrects any unforeseen or probable outcomes resulting from the application of a code section, explain how.
   b) If this proposal corrects inadequate application by a code section to a method, material or design, explain how.
   c) If this proposal eliminates conflicting, obsolete, or duplicative code provisions or standards between Oregon-adopted codes, statutes or regulations, explain why.
   d) If this proposal is for a fire or life safety matter, or is it otherwise needed to protect the health, safety, welfare, comfort and security of occupants and the public, explain why.
   e) If this proposal is necessary to address unique geographic or climatic conditions within Oregon, explain why.
   f) If there are alternatives to this proposal that solve the problem, explain why this proposal is the best or a necessary solution.
   g) If this proposal provides for the use of unique or emerging technologies, or promotes advances in construction methods, devices, materials and techniques, explain how.
   h) If this proposal meets any energy conservation or indoor air quality requirements, explain how.
   i) If this proposal involves the adoption of an electrical or plumbing building product, note if the appropriate advisory board approved the product.

*There is conflicting language on the analysis/modeling requirements for lateral force resisting systems between the model code and ASCE 7. This proposal removes conflicting language and provides correct pointers to the requirements of ASCE 7 for modeling. This primarily relates to the requirements for modeling of lateral force resisting systems for seismic design.*

3. Has this been proposed at the national model code level. If so, explain when it was proposed, what happened, and why it was not adopted. Provide all associated national model code hearing information and background.

*Not previously, however FEMA/ATC SCSC is working on a similar proposal for the 2024 code hearings. Final language will be coordinated with that groups proposed language for the 2024 IBC so that if adopted there would be no change in language the next code cycle.*

**Implementation And Fiscal Impact**

1. Explain how the proposed provisions would be enforced? Are additional inspections or permits required? Describe any necessary equipment, training, tests or special certifications.

*These provisions will be enforced by the building official. No additional inspections, permits or training will be required.*

2. What is the fiscal impact of this proposal? Provide a cost benefit analysis and include the resources or methods you used to determine the fiscal impact.
   a) If this proposal adds to the cost of construction, explain how the added cost contributes to the health and safety of occupants, or is necessary to conserve scarce resources.
   b) If there are any other adverse fiscal impacts or cost savings passed on to the general public, the construction industry, local and state governments, and small businesses, an interested person must describe the added or reduced cost of a proposed code amendment, and describe the adverse fiscal impact or cost savings in relation to the current Oregon specialty code.
   c) If this proposal will affect the cost of development of a detached single-family dwelling, please indicate the cost. For the purposes of illustrating the change on the cost, please use a 6,000-square-foot parcel and the construction of a 1,200-square-foot detached single-family dwelling on that parcel. The information on the cost must be sufficient to assist the division in preparing a housing cost impact statement.

*No fiscal impact. This does not change the cost of construction, just clarifies the structural analysis requirements.*

**Impacted Stakeholders And Other Specialty Codes**

1. It is important that proposals be shared with stakeholders that will be impacted by them. Was this proposal developed with people or organizations likely to be affected by it? Has it been reviewed or shared with people or organizations likely to be affected by it? If so, who, and if not, why not?

This proposal was developed by the Structural Engineers of Oregon.

2. Does this proposal impact other specialty codes or statewide programs?

No