



City of Portland, Oregon
Bureau of Development Services
Plan Review / Permitting Services
FROM CONCEPT TO CONSTRUCTION

Amanda Fritz, Commissioner
Paul L. Scarlett, Director
Phone: (503) 823-7310
Fax: (503) 823-4172
TTY: (503) 823-6868
www.portlandoregon.gov/bds

The City of Portland is proposing to revise Title 24.85 **“Seismic Design Requirements for Existing Buildings”**

Title 24.85 was first adopted in 1995 and then revised in 2004. It deals with regulations for the seismic design of existing buildings. It contains triggers of when existing buildings are required to be evaluated and upgraded for seismic resistance.

Since its revision in 2004, ASCE 31 the code referenced by Title 24.85, has been replaced by ASCE 41-13 which combines the old ASCE 31-03 and ASCE 41-06. The proposed revision to Title 24.85 seeks to update the Title to reference the new code ASCE 41-13 since the old reference code is obsolete. In general the proposed revisions do not alter the intent or the philosophy of the current Title 24.85. The proposed revisions adopt ASCE41-13 as the evaluation and upgrade standard in its entirety. The only exception is in the definition of BSE-1E and BSE-2E where the following change is proposed.

“..... the design spectral response acceleration parameters S_{xs} and S_{x1} for BSE-1E seismic hazard level shall not be taken as less than 75 percent of the respective design spectra response acceleration parameters obtained from BSE- 1N seismic hazard level and need not be greater than BSE-2N at a site.” AND

“....that the design spectral response acceleration parameters S_{xs} and S_{x1} for BSE-2E seismic hazard level shall not be taken as less than 75 percent of the respective design spectra response acceleration parameters obtained from BSE- 2N seismic hazard level and may not be greater than BSE-2N at a site.”

Traditionally starting with UCBC and then with IEBC and ASCE 31, existing buildings were always given a “break” in the sense that they were required to be evaluated and designed to lower force levels than that required for new buildings. Typically, the “break” has been, that existing buildings be evaluated and designed for 25% lower force levels than that required for new buildings. The new ASCE 41-13 has approached this issue of giving a break to existing buildings from a different angle. The break is provided for by evaluating and designing existing buildings using ground motions associated with more frequent earthquake. For example, where a new building is designed for collapse prevention performance level in a maximum credible earthquake with a 2% probability of exceedance in 50 yrs or return period of 2475 years, existing buildings are evaluated and designed for ground motions associated with an earthquake with a 5% probability of exceedance in 50 years or a return period of 975 years, for the same performance level.

In the Portland metro area, analysis has shown that this results in design force levels that are about 52% to 65% of the design loads for new buildings. We believe this to be unconservative.

In keeping with past precedent and the general desire not to make substantial changes to the intent of the existing Title 24.85, we propose to limit the “break” for the design and evaluation of existing buildings to 75% of the design values for which new buildings are required to be designed .

The second proposed change is to add a definition of Occupant load and how it is to be calculated. Occupant load calculations in Title 24.85 are used to determine if more than 149 people are added when a change of occupancy or use is proposed. This number triggers requirements for seismic upgrades. Applicants have been applying the provision of the code inconsistently by proposing their own occupant loads based on what they believe is the actual use in the building using the exception in section 1004.1.2 of the 2014, Oregon Structural Specialty Code. This has led to inconsistent occupant load calculations and application of Title 24.85. The proposed definition clarifies that occupant loads are to be calculated using the occupant load factors tabulated in OSSC thus providing the user a consistent and clear method to determine the occupant loads.

The other revisions provide definitions to terms used in ASCE 41-13 and Title 24.85 like BSE-1N, BSE-1E, BOPN, BPOE etc.

No other major revisions are proposed.

The Bureau of Development Services, City of Portland, is interested in getting your feedback to the proposed change. Please email your comments to amit.kumar@portlandoregon.gov . Please provide feedback by December 15, 2014