

SEAOC's Petition to the Building Standards Commission

Below is SEAOC's petition to the BSC with amending language to the CBC to adopt the alternative simplified wind provisions for the CBC. This letter and proposed amendment was delivered to BSC Executive Director Dave Walls in February. They are a product of the SEAOC Code Committee ad-hoc Wind Subcommittee in conjunction with the Tri-State (CA, OR, WA) Wind Committee. These provisions were also scheduled to go before the ICC the end of February for consideration as an alternative nationally.

Dave Walls
Executive Director
Building Standards Commission
2525 Natomas Park Drive, Suite 130
Sacramento, CA 95833

Mr. Walls:

In accordance with Article 1-8 or Title 24, C.C.R., the Structural Engineers Association of California (SEAOC) hereby submits this petition to amend the 2007 California Building Code based on the following reasons:

Issue:

2007 CBC Section 1609, Wind Loads, makes reference to ASCE 7-05 for determination of wind loads. Many practitioners and building officials have expressed concerns on the complexity of the wind design procedures, both Method 1 and Method 2 in ASCE 7. A draft proposal is attached for consideration. This proposed amendment offers an alternate design procedure to Method 2 of ASCE 7. This issue is a matter of statewide significance involving a broad range of projects.

Reason for petition:

The current regulation is inefficient. In using 2007 CBC and ASCE 7, engineers have found that except for low rise light framed buildings, lateral force design of most structures tend to be controlled by seismic forces in the western states. Although ASCE 7 includes a simplified procedure under Method 1 for buildings not greater than sixty feet in height, the procedure includes various limitations such as simple diaphragm, low rise building with no unusual geometrical irregularity, and requires an engineer to refer to numerous relatively complicated charts. The complexity of Method 2, detailed Analytical Procedure, has daunted even the most experienced engineers. The need for an alternate regulation wind design procedure in CBC similar to that which was in the 2001 CBC has been echoed throughout California and most of the United States.

The Structural Engineers Association of California established a Wind Ad Hoc Committee in late 2006. The group was charged with developing alternate wind design procedures for all height buildings in conjunction with the Tri-state (California, Oregon and Washington) Wind Committee. The Tri-state Wind Committee with representatives appointed by each of the three states' structural engineers associations, all of whom are experienced structural engineers, was active in code development for the 1991 UBC using ASCE 7-88 standard as the source document, and also took a primary role in developing the basic format of the wind design provisions in the 1997 Uniform Building Code. The proposed code change by SEAOC Wind Ad Hoc Committee has been developed in concert with the Tri-state Wind Committee proposed document.

This proposed alternate design procedure is developed for the most common type of buildings which are not subjected to dynamic response with further limitation for a building or other structure over 75 feet. The alternate method follows closely the design requirements of Chapter 6 of ASCE 7. Simplification is accomplished by generating a table of net pressure coefficients (Cnet), combining a number of parameters in a simple and yet conservative manner. Application of the net pressure coefficients reduces the number of steps required for performing a wind loading analysis on buildings that satisfy the criteria prescribed under the scope statements resulting in net forces which meet or exceed those calculated based on Method 2. The reduction of design effort should be helpful in the determination of wind forces for the main wind force resisting system and should be substantial for components and cladding. The procedure has been designed to give results equal to or more conservative than the present regulation under provisions in ASCE 7.

This proposal has some uniqueness in addressing buildings of all heights and the table developed for Cnet coefficient has been arranged in a similar format as the 2001 California Building Code, which most engineers preferred in the past. Given the substantial time savings using this proposed alternate design procedure, and given that the next edition of the ASCE wind standard will not be published until after 2010, we respectfully request that this proposed change be adopted into the CBC as an alternative procedure until such time as the next edition of the ASCE wind standard can incorporate this alternate design method.

Thank your considering this petition. Please forward these documents to the appropriate state agencies having an interest including OSHPD, DSA, HCD, and the SFM.

We urge the commission to adopt these alternate design provisions at the earliest possible time.

Sincerely,

Jon Kiland
President

Lee Adler
Executive Director