

STRUCTURAL BUILDING COMPONENTS MAGAZINE (FORMERLY WOODWORDS)

June/July 1999

Engineering Review Update

"International Building Code™ & International Residential Code™ Development Update" by Jim Vogt, P.E.

The development of the *International Building Code*™ (IBC) and the *International Residential Code*™ (IRC) is nearing completion. Public hearings for proposed changes to the *Final Drafts* of these two new building codes were held March 15-26, in Costa Mesa, California. Final action considerations and approval of the first editions of the IBC and IRC will take place this September in St. Louis at a combined annual meeting for the three model code agencies.

Once approved, these two codes will be available for adoption by state and local jurisdictions as early as 2000. The IBC is being developed to replace the three model building codes (i.e. the BOCA® *National Building Code*, the *Standard Building Code*®, and the *Uniform Building Code*™) and will primarily apply to structures other than detached one- and two-family dwellings. The IRC is being developed to replace the current *CABO One & Two Family Dwelling Code*.

The development of both the IBC and IRC has very important strategic implications for our industry. WTCA and TPI staff members have attended the public hearings during the development of the IBC and the IRC to monitor the proceedings and to submit code change proposals pertaining to truss design requirements.

CODE CHANGE SUCCESSES IN IRC

WTCA and TPI, with important and valuable support from AF&PA and NAHB, were successful in defeating several proposed code changes to the IRC that would have negatively impacted trusses. One code change proposal (IRC RB418) sought to remove the reference to HIB-91 for bracing of trusses and add a provision for marking trusses to designate bearing and bracing locations. A second proposed code change (IRC RB527-99) sought to define the application of bottom chord live loads within the truss attic space when a ceiling scuttle provides attic access. A third proposal (IRC RB526-99) sought to require that all residential wood trusses be designed by a registered design professional. All three of these proposed changes were disapproved by code committee votes of 8 to 1, 9 to 0 and 9 to 0, respectively.

WTCA and TPI submitted a proposal introducing the term "truss design drawing" into the IRC and also a modification to a current provision to allow the code official the authority to determine when a registered design professional is required to prepare the truss design drawings. These proposals were also supported by AF&PA and NAHB and were **approved** by the code committee by a vote of 8 to 1.

CODE CHANGE CONCERNS IN IBC

A modified WTCA/TPI code change proposal S295 was disapproved by the IBC structural subcommittee by a 13 to 0 margin. This proposal was similar to the one approved for the IRC as described in the previous section. Representatives from WTCA, AF&PA and NAHB spoke in favor of this proposal. Representatives from the Structural Engineers Association of California (SEAOC), SEAOC Seismology Committee, the City of Philadelphia and the City of Tuscaloosa, Alabama, spoke against this proposal. Reasons for opposition included:

- Concern that the computer programs used to design the trusses contain “bugs,” and therefore, the designs should be sealed by a registered design professional as an assurance that the design will work.
- Trusses are a variable property product that must be “engineered.” A registered design professional is needed to perform this function.
- Building designers and code officials need the assurances that the trusses have been designed appropriately. They believe the “seal” on the drawing provides this assurance.
- There is concern over the quality of truss construction and many feel that an engineer’s seal provides greater assurance of a truss manufacturer producing a better quality product.

A code change proposal (S296) introducing mandatory language into the IBC requiring that truss design drawings be prepared by a registered design professional was approved by a code committee vote of 11 to 2. Proponents included SEAOC and SEAOC Seismology Committee. Opponents included WTCA, AF&PA and a builder from Birmingham, Alabama.

The code change S296 is provided below. The language introduced into the existing code by this code change is *italicized*.

2303.4.1 Truss Design Drawings: Truss construction documents *shall be* prepared by a registered design professional *and* shall be provided to the building official and approved prior to installation. These construction documents shall include, at a minimum, the information specified below. Truss shop drawings shall be provided with the shipment of trusses delivered to the jobsite.

- Slope or depth, span and spacing.
- Location of all joints.
- Required bearing widths.
- Design loads as applicable:
 1. Top chord live load (including snow loads).
 2. Top chord dead load.
 3. Bottom chord live load.
 4. Bottom chord dead load.
 5. Concentrated loads and their points of application.
 6. Controlling wind and earthquake loads.
- Adjustments to lumber and metal connector plate design values for conditions of use.
- Each reaction force and direction.

- Metal connector plate type, size, thickness or gauge, and the dimensioned location of each metal connector plate except where symmetrically located relative to the joint interface.
- Lumber size, species and grade for each member.
- Connection Requirements for:
 - (a) Truss to truss girder.
 - (b) Truss ply to ply.
 - (c) Field splices.
- Calculated deflection ratio and/or maximum deflection for live and total load.
- Maximum axial compression forces in the truss members to enable the building designer to design the size, connections and anchorage of the permanent continuous lateral bracing (forces shall be shown on the truss construction documents or on supplemental documents).
- Required permanent truss member bracing location.

As a result of all of this, the IRC and the IBC do not currently contain identical language with regard to truss design drawing requirements. This discrepancy could potentially become an issue if the code administrators decide that the language for this particular provision must be identical in both codes. If this happens, we have an opportunity in St. Louis to propose changing the IBC language to conform to the language in the IRC.

WTCA and TPI will continue to work closely with our industry allies, AF&PA and NAHB, to develop a strategy for a collective approach on this issue. For more complete review of this issue, including a listing of all the proposed code changes, please visit our web site at www.woodtruss.com.

New ASCE Standard on Construction Loads Soon to Be Available for Public Review

The final draft of the new ASCE sponsored design standard, *Design Loads for Structures During Construction*, will be available later this fall for public review and comment. Issues resulting from this public review phase must be addressed and resolved before the standard becomes available for adoption and enforcement by local code jurisdictions.

The proposed standard is intended to provide minimum design load requirements during construction for all types of buildings and all types of conventional construction materials. The document is written for use by engineers knowledgeable in the performance of structures and, as such, is most applicable to projects in which a "construction engineer" is involved.

WTCA staff has participated in the development of this standard in an attempt to ensure that the conditions so often typical of light-frame wood construction are accurately represented. Our efforts have met with some success; however, we have not been able to limit the standard's scope to commercial projects, even though these are the projects for which this standard most clearly applies. Our concern is that this standard could be adopted by local code jurisdictions and enforced on residential projects. If this occurs, the contractor would be forced to hire a design professional to determine the loads and stability systems required during the construction

of the building, yet not need a design professional in the design of the permanent structure.

The public comment period will provide our entire industry with the opportunity to review and revise this document in order to remove all remaining ambiguity concerning its applicability to light-frame wood construction. WTCA's Engineering Review Committee will participate in the review process. Anyone else who is interested in participating should contact WTCA at 608/274-4849.

[SBC HOME PAGE](#)

Copyright © 1999 by Truss Publications, Inc. All rights reserved. For permission to reprint materials from SBC Magazine, call 608/310-6706 or email editor@sbcmag.info.

The mission of Structural Building Components Magazine (SBC) is to increase the knowledge of and to promote the common interests of those engaged in manufacturing and distributing of structural building components to ensure growth and continuity, and to be the information conduit by staying abreast of leading-edge issues. SBC will take a leadership role on behalf of the component industry in disseminating technical and marketplace information, and will maintain advisory committees consisting of the most knowledgeable professionals in the industry. The opinions expressed in SBC are those of the authors and those quoted solely, and are not necessarily the opinions of any of the affiliated associations (SBCC, WTCA, SCDA & STCA).