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RE: BC Calc® Building Code Reference – 2012 I-Codes

BC Calc® sizing software provides component design of BCI® and AJS® joists and VERSA-LAM® LVL and BOISE GLULAM® beams, columns and studs, and is in accordance with the relative provisions stipulated in the edition of the International Building Code (IBC) selected by the user, including analysis, load combinations, and minimum deflection limits.

The International Residential Code (IRC) is a prescriptive-oriented code, regulating the construction of one and two family houses and buildings consisting of three or more townhouse units.

Both the 2012 IBC and IRC reference design standard ASCE 7-10 *Minimum Design Loads for Buildings and Other Structures*. However, the IBC requires more design checks than the IRC and thus can be slightly more conservative for floor and roof (excluding wind load) joist and beam designs. In addition, the 2012 IRC allows for the use of the IBC in design per Section R301.1.3: “...Engineered design in accordance with the International Building Code is permitted for all buildings and structures, and parts thereof, included in the scope of this code.”

Because of these issues, only editions of the IBC may be selected in BC Calc® software. For projects governed by the 2012 IRC, the 2012 IBC may be selected by the software user. **All resulting designs that don't include wind loads are compliant with both the 2012 IBC and IRC.**

For wind loading, differences between the 2012 IBC and IRC exist, though both codes reference the same design standard ASCE 7-10. The IBC publishes design wind speed maps in “ultimate” values, whereas the IRC still references “allowable” wind speed values. ASCE 7-10 provisions provide a design load based on “ultimate” wind speed design, thus ASCE 7-10 provides a load reduction factor of 0.6 to all wind loads in each relative load combination listed in Section 2.4.1. Since BC Calc® applies this 0.6 load factor, IRC “allowable” design wind speeds need to be adjusted to “ultimate”. This conversion may be provided by the local building department or by multiplying the “allowable” design wind speed by a factor of 1.3. **If the IRC wind speed adjustment is made, all resulting designs are compliant with both the 2012 IBC and IRC.**

Please note that BCI® and AJS® joists, VERSA-LAM® LVL, and BOISE GLULAM® have product acceptance through ICC ES ESR evaluation reports and APA product reports. These evaluation reports list that all Boise Cascade EWP products comply with both the 2012 IBC and 2012 IRC.

Please feel free to contact me at 888.234.0056 or jeffolson@bc.com if there are further questions.

Sincerely,



Jeffrey K. Olson, P.E.
Technical Services Manager
Boise Cascade Engineered Wood Products