



MEMO

December 12, 2019

TO: Stakeholders interested in wall bracing of light-frame construction

FROM: Brian Gerber

RE: **EC-002, the Evaluation Criteria for Joist Hangers and Miscellaneous Connectors – addition of ANNEX B for Metal Wall Braces under IBC/IRC Method LIB**

A revised EC-002 draft is being posted for public comments. The purpose of the revision is to add a new section, Annex B, to permit evaluation of metal bracing or straps as an alternative to conventional 1 x 4 lumber let-in braces. Currently, both the International Building Code (IBC) and International Residential Code (IRC) permit Method LIB to brace wood-framed wall construction as a means of resisting in-line lateral forces.

The wall bracing provisions were revised with improved coordination among the permitted bracing methods beginning with the 2009 IRC. These provisions were subsequently introduced into the 2015 IBC. Currently both the IBC and IRC allow for “approved metal straps” to substitute for 1 x 4 wood let-in braces under Method LIB for wall bracing. Neither a description nor installation details are provided for the straps. The acceptance of the metal strap would need to be approved by the building official. Under IBC and IRC Section 104.11, there is an obligation to decide whether the metal strap or brace is not less than equivalent to the code-prescribed 1 x 4 wood let-in brace.

In reviewing the references provided in this memo, the capacity of the 1 x 4 let-in brace was established by testing and the test results were used to establish the permitted uses under IRC Section R602.10. Method LIB also requires gypsum wallboard on one side of the wall. The proposed conditions of acceptance in Annex B acknowledge observations that gypsum wallboard typically loses strength at a one-inch deflection.

The Annex B was developed to follow provisions in the main body of EC-002, the references to this memo, and ASTM E72 for the qualification of metal straps. In keeping with the spirit of the current wall bracing provisions in the IBC and IRC, the qualification is test-based, except that the thickness and strength of the metal straps are adjusted to the specified values.

IAPMO UES welcomes all input on this proposal. In addition, upon approval, an enforcement date may be needed to allow current report holders to provide the specified data for evaluation by IAPMO UES.



References:

1. *Code Changes Resource Collection: 2009 IRC*, April 2009, International Code Council.
2. *Evaluation of Let-in Bracing and Mixed Bracing*, Report No. EG5736 052908, May 29, 2008, NAHB Research Center.
3. *The Story Behind IRC Wall Bracing Provisions*, by Crandell, Summer 2007, Wood Design Focus.
4. *The Story Behind IRC Wall Bracing Provisions (Part2: New Wind Bracing Provisions)*, by Crandell and Martin, Spring 2009, Wood Design Focus.

