



Center for Light Frame Structural Research
Department of Civil Engineering

January 23, 2008

Kurt Stochliia, P.E.
Vice-President
ICC Evaluation Services, Inc
5360 Workman Mill Road
Whittier, CA 90601

Subject: Testing With Induced Slack or Requiring Take-up Devices in ESRs Covered Under Criteria Such as AC130, AC322, AC154 and AC230, Subject MISC1-0208-R1

Dear Mr. Stochliia:

In response to your request for comments on the above subject please find below my input for consideration by ICC-ES staff

- 1 In my review of the letters dated December 3, 2007 by Commins Manufacturing Inc (CMI), there are no references to AC154 and AC230. The eighth paragraph of CMI's "AC322 letter" does however reference conventional shear walls in both wood and cold-formed steel frame construction and I assume the reference to AC154 and AC230 was subsequently drawn.

If CMI is indeed correct then all acceptance criteria that evaluate shear wall products used in cold-formed steel and wood frame construction, not just AC154 and AC230, must be included.

- 2 Both CMI letters begin with the statement "*Installed shear resisting panels are expected to perform at the same level as when tested*". For cold-formed steel framing, an argument is made that unless a take-up device is used in testing, induced slack in tests should be 1/8 in. CMI does not discuss the source of the recommended 1/8 in. slack.

Section C3.4.4 of the 2004 AISI Standard for Cold-Formed Steel Framing—General Provisions requires that the "*ends of structural wall studs shall have square end cuts and shall be seated tight and squarely against tracks*". The Standard further defines tight seating as a maximum gap tolerance of 1/8 in. between the end of the wall stud and the track. Because of the cold forming process, a very tight fit of wall studs with square ends will bring the stud end in direct contact with the track corner radius.

To my knowledge, designers typically require, as part of their Structural Notes, that studs be installed tight against the track. To accommodate tighter fits in multi-story applications, tracks are sometimes oversized to provide direct contact between the end of a stud and the track, or tracks are fabricated with smaller than typical (see Steel Stud Manufacturers Association catalog) corner radii. The framing of walls tested under AC154 and AC230 is identical to framing used in conventional light frame construction. Thus, imposing new requirements in AC154 and AC230 above those explicitly stated in the Standard is inappropriate.

- 3 The effect of shrinkage, relaxation, crushing and lack of tight fit with regard to the performance of shear walls in wood frame construction may warrant further consideration, particularly in high aspect ratio applications where these effects may be amplified drifts. However, to be useful and productive, discussion of the concerns raised must engage some of the key constituents of the wood frame industry and physical data documenting "slackness" magnitudes and the potential structural risks of "slackness" should be a central part of that discussion. The 3/8 in. and 3/4 in. tie-down slacks referenced CMI need verification.

Thanks for the opportunity to respond, I hope the above comments are helpful to your deliberations.

Sincerely,

Signed

Reynaud Serrette