



December 28, 2007

TO: PARTIES INTERESTED IN EVALUATION REPORTS ON LATERAL-FORCE-RESISTING ELEMENTS USED WITH WOOD STUDS AND/OR COLD-FORMED STEEL FRAMING

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 (KS/BG/PB)

Hearing Information:

Thursday, February 7, 2008

8:00 a.m.

The Westin Los Angeles Airport

5400 West Century Boulevard

Los Angeles, California 90045

(310) 216-5858

Dear Madam or Sir:

This item was discussed briefly at the October 2007 Evaluation Committee hearings in conjunction with AC130 and AC322. Both criteria were approved by the committee without changes that address the subject noted. Discussions and decisions on this item may also affect other, similar criteria such as AC154 and AC230.

The item has been placed on the committee agenda as requested in the enclosed letters (AC130 and AC322) from Commins Manufacturing, Inc., dated December 3, 2007. The ES staff is seeking comments and committee input on the proposal, which will determine whether changes to the affected criteria are necessary.

The staff has concerns with requiring shrinkage compensating devices as part of the conditions of use in evaluation reports, since the devices will likely make the overall lateral-force-resisting assembly stiffer than anticipated by the designer, given the information in the evaluation reports and the results of tests.

You are cordially invited to submit written comments, or to attend the Evaluation Committee hearing and present verbal comments. Written comments will be forwarded to the committee, **prior to the hearing**, if received by **January 23, 2008**. If the deadline is

missed, you must provide 35 copies of the submittal material, collated, stapled and three-hole punched, to the Los Angeles business/regional office before the committee meeting. Your consideration in providing written responses by the deadline would be greatly appreciated. Consideration of written comments and presentations of a significant nature received the week of the hearing or at the hearing may be delayed until a future meeting as the committee and staff may not have adequate time for review.

Comments from interested parties that are submitted in response to proposed acceptance criteria will be posted on the ICC-ES web site prior to the meeting. Postings will occur shortly after the comment deadline (January 23, 2008). Staff memos responding to some of the comments, and comments received after the January 23 deadline, will be posted on February 1, 2008.

The purpose for posting the comments prior to the meeting is to help interested parties be better prepared to discuss the issues at the meeting.

Any written material submitted for committee consideration will be available for public distribution as set forth in Section 2.7 of the Rules of Procedure for the Evaluation Committee (copy enclosed).

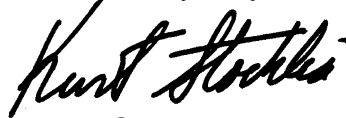
Visual aids (including, but not limited to, charts, overhead transparencies, slides, videos, or presentation software) for viewing at meetings will be permitted only if the presenter provides to ICC-ES, before the presentation, a copy of the visual aid(s) in a medium that can be retained by ICC-ES with its record of the meeting, and that can also be provided to interested parties.

Your cooperation is requested in forwarding to the Los Angeles business/regional office all material directed to the Evaluation Committee. Parties interested in the deliberations of the committee should refrain from communicating, whether in writing or verbally, with committee members regarding agenda items. The committee reserves the right to refuse communications that do not comply with this request.

Newly approved acceptance criteria may involve test methods or test protocols that are not currently included in the scope of testing services offered by accredited testing laboratories. As noted in the ICC-ES Rules of Procedure for Evaluation Reports, the scope of the laboratory's accreditation must include the type of testing that is to be reported to ICC-ES. We encourage accredited laboratories to expand their scopes of accreditation to include testing under newly approved acceptance criteria. Please note that testing laboratories must be accredited by the International Accreditation Service (IAS) or by another accreditation body that is a signatory to the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement. For further information, please contact IAS at (562) 699-0541, extension 3309, or send an e-mail to pmccullen@iasonline.org.

If you have any questions, please contact the undersigned at (800) 423-6587, extension 3733, or Brian Gerber, S.E., principal structural engineer, at extension 3260. You may also reach us by e-mail at es@icc-es.org.

Yours very truly,

A handwritten signature in black ink, appearing to read "Kurt Stochlia". The signature is written in a cursive, flowing style.

Kurt Stochlia, P.E.
Vice-President

KS/BG/II

Enclosures

cc: Evaluation Committee

**Commins Manufacturing Inc
960 B Guard Street
Friday Harbor, WA 98250**

AC 130

Dec 3, 2007

Mr. Brian Gerber, SE
ICC Evaluation Service, Inc.
5360 Workman Mill Road,
Whittier, CA 90601-2299

Via internet bgerber@icc-es.org

Subject: AC-130

Dear Mr. Gerber:

Installed shear resisting panels are expected to perform at the same level as when tested to AC130. Performance includes both panel strength and drift. That expectation will not be met with AC 130 as written. All testing is with tight panels and tight connections. Most finished buildings have many loose panels. Looseness comes from component misfits and/or wood shrinkage.

This conundrum has a simple solution, either:

1. Test per acceptance criteria AC 130 and require a Shrinkage Compensator be installed at every connection during installation or:
2. Test assemblies with induced tie-down slack based on the following table:

Floor system

Light Gage Steel Stud	Manufactured Wood	Solid Sawn
1/8	3/8	3/4

Slack introduced per the above table will replicate looseness and resultant drift as seen in actual installations. Wall drift will vary as a function of the wall length and the induced looseness.

In addition, loose walls will have substantially less strength (50% less?) than tight walls. This testing will allow the manufacturers to properly and accurately rate the walls.

Integration into the Acceptance Criteria may require some wording and numbering changes, but it should be relatively easy to do.

This proposal is similar to the AC 322 proposal. I will be ready to discuss this at the LA ICC ES meeting in February.

Best Regards

|Signed|

Alfred D. Commins,
President
Commins Manufacturing Inc.

Commins Manufacturing Inc
960 B Guard Street
Friday Harbor, WA 98250

AC 322-0208-R5

December 3, 2007

Mr. Kurt Stochlia, P.E.
ICC Evaluation Service, Inc.
5360 Workman Mill Road,
Whittier, CA 90601-2299

Via internet kstochlia@icc-es.org

Subject: AC 322

Dear Mr. Stochlia:

Installed shear resisting panels are expected to perform at the same level as when tested. Performance includes both panel strength and drift. That expectation will not be met with panels tested to AC 322 as written. All testing is with tight panels and tight connections, a perfect installation. Most finished buildings have many loose panels. Looseness can come from component misfits and/or wood shrinkage.

Width	15	Height		141.25
"What If" Shrinkage Inches	Seismic		Wind	
	Capacity	Drift	Capacity	Drift
Perfection	543 lbs	0.63	685 lbs.	0.8
1/8	??	1 1/8	??	1 1/8
3/8	??	3 1/2	??	3 1/2
3/4	??	7 1/8	??	7 1/8

The table above outlines the seismic and wind capacities of a shear panel selected from the catalog of a panel supplier. This panel has a width of 15" and height of 141". Capacity and drift numbers are directly from the manufacturer's catalog. Capacity and drift values are labeled "perfection" because neither shrinkage nor looseness has been considered.

Below "perfection" there are listed three shrinkage numbers of 1/8", 3/8" and 3/4". This represents worse case shrinkage/settling for a floor consisting of steel, manufactured wood or solid sawn lumber respectively.

The wall geometry at 141"/15" yields a 9.5:1 aspect ratio. (The actual aspect ratio is greater since the tie-down and compression points are shifted inboard from the panel edge.) Unless compensated for in some manner, this aspect ratio will allow excessive wall drift. These panels do not provide any place for shrinkage compensators.

In the wood shear panel section of the same catalog the statement is made:

"The take-up device is recommended for 2nd story installations in order to compensate for wood shrinkage and settlement due to dead load".

This catalog has a serious internal conflict. Why is shrinkage compensation listed in one section but not in another? More importantly how much wall drift will the panel experience with shrinkage and settling? Drift shown in the chart addresses wall drift attributable to shrinkage at a load of 0.0 pounds. Resistance to lateral loading begins at the drift numbers shown.

Section 4.2.2.10 of AC 322 attempts to address shrinkage by a calculation method. But who does this, when is it done, how much shrinkage is there and how is this presented to the specifier?

Compounding the drift issue is a more serious issue, panel strength. A 4 x 8 foot plywood panel with shrinkage of ¼” will lose 30 to 40 % of its ultimate strength. I expect a similar outcome for steel frames.

Most people are familiar with the trick of the “strong-man” tearing apart a telephone book. If a load is put on the book as a whole it is almost impossible to tear apart the book. However, if the “Strong-Man” bends the book and changes the geometry, just a little, the load is shifted to the outer fibers and a progressive page-by-page failure, ensues. In a like manner, shear panels with excessive deflection will load the outer “fibers” of the panel and will fail progressively at a lower load.

This problem is serious but I believe there is a simple solution, either:

1. Test per acceptance criteria AC 322 and require a Shrinkage Compensator be installed at every connection during installation or:
2. Induce slack on test assemblies per the following table:

Floor system		
Light Gage Steel Stud	Manufactured Wood	Solid Sawn
1/8	3/8	3/4

Slack introduced per the above table will replicate looseness and resultant drift as seen in actual installations. Wall drift will vary as a function of the wall length and the induced looseness.

In addition, loose walls will have substantially less strength than tight walls. This testing will allow the manufacturers to properly and accurately rate the walls.

Integration into the Acceptance Criteria may require some wording and numbering changes, but it should be relatively easy to do.

I wish to discuss this at the LA Meeting in February of 2008.

Best Regards

|Signed|

Alfred D. Commins,
President
Commins Manufacturing Inc.



ICC EVALUATION SERVICE, INC., RULES OF PROCEDURE FOR THE EVALUATION COMMITTEE

1.0 PURPOSE

The purpose of the Evaluation Committee is to monitor the work of ICC-ES, in issuing evaluation reports; to evaluate and approve acceptance criteria on which evaluation reports may be based; and to sponsor related changes in the applicable codes.

2.0 MEETINGS

2.1 The Evaluation Committee shall schedule meetings that are open to the public in discharging its duties under Section 1, subject to Section 3.

2.2 All scheduled meetings shall be publicly announced.

2.3 Two-thirds ($\frac{2}{3}$) of the voting Evaluation Committee members shall constitute a quorum. A majority vote of members present is required on any action.

2.4 In the absence of the nonvoting chairman-moderator, Evaluation Committee members present shall elect an alternate chairman from the committee for that meeting. The alternate chairman shall be counted as a voting committee member for purposes of maintaining a committee quorum and to cast a tie-breaking vote of the committee.

2.5 Minutes of the meetings shall be kept.

2.6 An electronic audio record of meetings shall be made by ICC-ES; no other audio, video, electronic or stenographic recordings of the meetings will be permitted. Visual aids (including, but not limited to, charts, overhead transparencies, slides, videos, or presentation software) viewed at meetings shall be permitted only if the presenter provides ICC-ES before presentation with a copy of the visual aid in a medium which can be retained by ICC-ES with its record of the meeting and which can also be provided to interested parties requesting a copy. A copy of the ICC-ES recording of the meeting and such visual aids, if any, will be available to interested parties upon written request made to ICC-ES together with a payment as required by ICC-ES to cover costs of preparation and duplication of the copy. These materials will be available beginning five days after the conclusion of the meeting but will no longer be available after 30 days have elapsed from the conclusion of the meeting.

2.7 Parties interested in the deliberations of the committee should refrain from communicating, whether in writing or verbally, with committee members regarding agenda items. All written communications and submissions regarding agenda items should be delivered to ICC-ES. All such written communications and submissions shall be considered nonconfidential and available for discussion in open session of an Evaluation Committee meeting, and shall be delivered at least ten days before the scheduled Evaluation Committee meeting if they are to be forwarded to the committee. Correspondence received by ICC-ES will not

be released to any party, except to the Evaluation Committee, prior to the meeting without permission of the author. The committee reserves the right to refuse recognition of communications which do not comply with the provisions of this section. All such communications and submissions will be available from ICC-ES upon written request and payment of costs associated with duplication. The materials will be available beginning five days after the conclusion of the meeting but will no longer be available after 30 days have elapsed from the conclusion of the meeting.

3.0 CLOSED SESSIONS

Evaluation Committee meetings shall be open except that the chairman may call for a closed session to seek advice of counsel.

4.0 ACCEPTANCE CRITERIA

4.1 Acceptance criteria are established by the committee to provide a basis for issuing ICC-ES evaluation reports on products and systems under codes referenced in Section 2.0 of the Rules of Procedure for Evaluation Reports. They also clarify conditions of acceptance for products and systems specifically regulated by the codes.

Acceptance criteria may involve a product, material, method of construction, or service. Consideration of any acceptance criteria must be in conjunction with a current and valid application for an ICC-ES evaluation report, an existing ICC-ES evaluation report, or as otherwise determined by the Evaluation Committee.

4.2 Procedure:

4.2.1 Proposed acceptance criteria shall be developed by the ICC-ES staff and discussed in open session with the Evaluation Committee during a scheduled meeting, except as permitted in Section 5.0 of these rules.

4.2.2 Proposed acceptance criteria shall be available to interested parties at least 30 days before discussion at the committee meeting.

4.2.3 The committee shall be informed of all pertinent written communications received by ICC-ES.

4.2.4 Attendees at Evaluation Committee meetings shall have the opportunity to speak on acceptance criteria listed on the meeting agenda, to provide information to committee members.

4.3 Approval of acceptance criteria shall be as specified in Section 2.3 of these rules.

4.4 The action of the Evaluation Committee may be appealed in accordance with the ICC-ES Rules of Procedure for Appeal of Acceptance Criteria.

5.0 COMMITTEE BALLOTING FOR ACCEPTANCE CRITERIA

5.1 Acceptance criteria may be issued without a public hearing following a 45-day public comment period and a majority vote for approval by the Evaluation Committee when, in the opinion of ICC-ES staff, one or more of the following conditions have been met:

1. The subject is nonstructural, does not involve life safety, and is addressed in nationally recognized standards or generally accepted industry standards.
2. The subject is a revision to an existing acceptance criteria that requires a formal action by the Evaluation Committee, and public comments raised were resolved by staff with commenters fully informed.
3. Other acceptance criteria and/or the code provide precedence for the revised criteria.

5.2 Negative votes must be based upon one or more of the following, for the ballots to be considered valid and require resolution:

- a. *Lack of clarity:* There is insufficient explanation of the scope of the acceptance criteria or insufficient description of the intended use of the product or system; or the acceptance criteria is so unclear as to be unacceptable. (The areas where greater clarity is required must be specifically identified.)
- b. *Insufficiency:* The criteria is insufficient for proper evaluation of the product or system. (The provisions of the criteria that are in question must be specifically identified.)
- c. *The subject of the acceptance criteria is not within the scope of the applicable codes:* A report issued by ICC-ES is intended to provide a basis for approval under the codes. If the subject of the acceptance criteria is not regulated by the codes, there is no basis for issuing a report, or a criteria. (Specifics must be provided concerning the inapplicability of the code.)
- d. *The subject of the acceptance criteria needs to be discussed in a public hearings.* The committee member

requests additional input from other committee members, staff or industry.

5.3 An Evaluation Committee member, in voting on an acceptance criteria, may only cast the following ballots:

- Approved
- Approved with Comments
- Negative: Do Not Proceed

6.0 COMMITTEE COMMUNICATION

Direct communication between committee members, and between committee members and an applicant or concerned party, with regard to the processing of a particular acceptance criteria or evaluation report shall take place only in a public hearing of the Evaluation Committee. Accordingly:

6.1 Committee members receiving an electronic ballot should respond only to the sender (staff). Committee members who wish to discuss a particular matter with other committee members, before reaching a decision, should ballot accordingly and bring the matter to the attention of ICC-ES staff, so the issue can be placed on the agenda of a future committee meeting.

6.2 Committee members who are contacted by an applicant or concerned party on a particular matter that will be brought to the committee will refrain from private communication and will encourage the applicant or concerned party to forward their concerns through the ICC-ES staff in writing, and/or make their concerns known by addressing the committee at a public hearing, so that their concerns can receive the attention of all committee members.■

Effective November 6, 2006