



January 23, 2008

Ms. Irni Yani  
ICC-ES  
5360 Workman Mill Road  
Whittier, CA 90601

Re: Acceptance Criteria for Fiber-reinforced Cement Sheet Structural Floor Sheathing,  
Subject AC367-0208-R1

Dear Irni:

I have some comments on the proposed revisions to AC367 as follows:

1. Section 3.6.1: It seems important that the minimum fastener spacing be established if a tight fastener spacing would cause a different failure mode, such as severe split on the sheathing materials, which could reduce the diaphragm capacities. I hope the diaphragm tests will encompass the extreme fastener spacings intended for recognition in an ESR report. For an unusual failure mode, additional tests might be warranted.
2. Section 3.6.5.4: If the tests require staggered fasteners, it should be specified in the ESR report (Section 6 of the AC).

Sincerely,

A handwritten signature in black ink, appearing to read "Borjen Yeh".

Borjen ("B.J.") Yeh, Ph.D., P.E.  
Director  
Technical Services Division  
E-mail: [borjen.yeh@apawood.org](mailto:borjen.yeh@apawood.org)



James Hardie Building Products, Inc.  
26300 La Alameda, Suite 250  
Mission Viejo, CA 92691

22 January 2008

Ms. Irni Yani  
ICC-Evaluation Service, Inc.  
5360 Workman Mill Road  
Whittier, CA 90601

**Subject: Comment to proposed Acceptance Criteria AC367**

Dear Ms. Yani,

As an "interested party" JamesHardie® Building Products, Inc. accepts your invitation to submit the following written comments relating to proposed AC367 dated January 2008.

**ITEM 1:**

Section 4.4 requiring the minimum diaphragm assembly size to be 12 feet in either length or width is restrictive. ASTM E 455 is set up specifically for static load testing of floor diaphragms on *wood frames*.

Rationale:

1. The requirement to set the assembly to 12 feet is not in alignment with E 455. As a result it is confusing and places an undo burden on the laboratories certifying these methods through International Accreditation Services (IAS);
2. The only other relevant Acceptance Criteria in which one can compare AC367 is, AC262 "Acceptance Criteria for Horizontal Diaphragms Consisting of Wood Structural Panel Sheathing Attached to Cold-Formed Steel Framing" and AC319 "Acceptance Criteria for Horizontal Diaphragms Consisting of Structural Cementitious Floor Sheathing Panels Attached to Cold-Formed Steel Framing" which both read in alignment with the test standards, leaving the size of the test specimen to the test method. In both criteria above the test method is *TS-7-02, of the AISI Cold-Formed Steel Design Manual*. TS-7-02 states the assembly must be a minimum of 8 feet in either direction.

James Hardie suggests Section 4.4 Diaphragm Test Method read as follows:

*"Diaphragm testing shall be carried out in accordance with ASTM E 455. End and edge sheathing joints, and fastening shall be consistent with the panel manufacturer's installation instructions and the installation conditions (including block/unblocked joints) for which recognition is sought. The loading method and rate chosen for the test shall be consistent for each specimen."*



## ITEM 2:

Section 3.6.5.2 reads "...tests divided by a factor of safety of 2.8 for Allowable Stress Design (ASD), or multiplied by 0.57 for Lateral Resistance Factor Design (LRFD) load...". James Hardie believes that having a higher FOS for wind can pose problems during design since wood structural panels have FOS 2.0 for wind.

### Rationale:

1. With thick sheet materials, the diaphragm allowable strength is normally limited to the fastener strength capacity and not the material capacity which can be demonstrated in the full scale testing (E 455).
2. The Fiber cement product could be used in conjunction with wood structural panel sheathing within the same diaphragm; when this is the case the following scenario becomes more likely,
  - a. Design professionals make every effort to have the same level of performance whether the diaphragm were sheathed completely with one sheathing material or a combination of two sheathing materials;
  - b. When different factors of safety are used for the two products, the designer will unknowingly design problems into the diaphragm;
  - c. When the FOS for the fiber cement sheathing is set higher than that used for wood structural panel, that section of the diaphragm will become disproportionately stiffer due to the requirement of having more fasteners;
  - d. More load will be attracted to this section of the diaphragm, and potentially overload before the wood structural section was near its capacity.
3. ASTM E 455 Standard Test Method for Static Load Testing of Framed Floor or Roof Diaphragm Constructions for Buildings requires performing tests twofold, AC308 requires the manufacturer to perform tests in triplicate. Triplicate testing is over and above ASTM E 455 which further substantiates minimizing the FOS.
4. AC 262 and AC 319 prescribe the requirements for wood structural panels and cementitious sheets (respectively) attached to steel framing and acting as horizontal diaphragms. In both of these criteria, the sheathing materials were given the same factors of safety associated with wind / seismic loading and steel-framed construction (Table D5 of AISI/COS/NASPEC 2001).

James Hardie suggests Section 3.6.5.2 analysis read as follows:

*"...tests divided by a factor of safety of 2.0 and 2.8 for wind and seismic respectively for Allowable Stress Design (ASD), or multiplied by 0.8 and 0.57 for wind and seismic respectively for Lateral Resistance Factor Design (LRFD) load..."*

We thank you for the opportunity to submit these comments for the February 2008 hearing date on this acceptance criteria.

Respectfully Submitted For James Hardie Building Products, Inc.,

Chad Diercks

Technical Services Manager

Office: 909.356.6366 | Fax: 909.355.0690 | Email: [chad.diercks@jameshardie.com](mailto:chad.diercks@jameshardie.com)

cc: file



Irni Yani  
ICC- ES  
5360 Workman Mill Rd.  
Whittier, CA 90601

January 21, 2008

To the staff of ICC and the proposer of AC 367,

I believe that the inclusion of the ASTM C1288 and ASTM C1325 standards within AC 367 lacks clarity and will ultimately create confusion within the building community. What is needed is a clearer separation of C1288 and C1325 products as they are not approved or intended for all of the same uses and applications. To more closely associate the two only serves to create issues for designers, builders and, ultimately, owners.

In reviewing the scope of both standards, it very clearly states that the specification is not applicable to the other as quoted below;

ASTM C1325- This specification is not applicable to ....discrete non-asbestos fiber cement interior substrate sheets (Specification C 1288).

ASTM C1288- This specification is not applicable to...fiber mat cement boards (Specification C 1325)...

Since these standards are mutually exclusive it is unclear as to how the Acceptance Criteria can offer the path of meeting one or the other within one Acceptance Criteria. The logical solution would be to select whichever ASTM standard is most applicable to the product being proposed in the AC and remove the other standard.

Sincerely,

Michael Blades  
Product Manager, Cement Board  
National Gypsum Company  
704-365-7348  
mnblades@nationalgypsum.com