

*Comments on Criteria AC120.*

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*Comments:*

The new language in Section 3.2 that requires AC233 qualification for certain screws and Section 4.1.4, which limits use of screws for use in lateral force resisting systems to lower seismic zones and assigns low seismic factor/coefficients are good additions. How will the slip data of Section 4.4.3 be evaluated? What point on the load-slip curve is to be compared with the nail load-slip? Lateral testing (Section 4.4), withdrawal tests (Section 4.5) and pull-through tests (Section 4.6) are done using a sample size of 10 specimens. These are limited sample sizes and have no criteria for acceptability, such as, precision and confidence. Further, the mean for the screw property data is compared to the mean of the nail property data using no defined method or significance level. The small unqualified sample sizes, and the absence of statistical requirements and defined tools is considerably different from the careful methods set forth in other ACs, e.g., AC233. The tests of equivalent (or better) performance are deficient without the identified statistical requirements. The connection test (Section 4.7) gives a partial description of the test specimen and gives no instruction on the load to be applied or the use and analysis of the resulting data. Is this a single-fastener connection? Is the connection loaded in shear? How big are the members? Is the load of the screw connection required to be greater than calculated or tested nail connection? Are the failure modes of the screw and nail connections to be the same? Are the screws inserted into a countersunk hole? What if the screw meets or exceeds the nail in all comparisons but one? What if it exceeds the nail in in all tests but requires greater end distance? Section 6.0 gives one sentence about what the report will not address, but it does not give information about what the report will address. The AC has a number of open items that should be addressed before approval. I can be available to work with a task group or staff to bring these revisions into the AC. /b/

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**From:** Jeff Ellis [mailto:jellis@strongtie.com]

**To:** Peter Bahlo

**Subject:** Revision recommendations for the proposed changes to AC120

Peter,

Attached are our revision recommendations for the proposed changes to ICC-ES AC120 posted to the Alternative Criteria Process section of your website.

Sincerely,

*Jeff Ellis*, P.E., S.E.

Code Report & Branch Engineering Manager

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October 30, 2009

Peter Bahlo  
Senior Staff Engineer  
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**Subject: ICC-ES AC391 Revision Recommendations**

Dear Mr. Bahlo,

Section 3.2 of the proposed revised ICC-ES AC120, posted to your Alternative Criteria Process section of your website, contains a proposed revision that would require ICC-ES AC233 approval for any threaded fastener that is not installed in a pre-bored hole or does not conform to ASME B18.6.1. It is our position that such a change is not needed. This AC has allowed for non-pre-bored installations for at least ten years. We are unaware of any field problems during that time that have illustrated a need for a change.

Whether or not a fastener conforms to a recognized standard is not relevant because side by side comparison testing is being performed. If only a calculation was used to determine allowable loads then it is understandable why a fastener would need to conform to a standard. But testing will bring to light any problems due to the fastener being non-standard. The potential for splitting of non-pre-bored installations is also taken into account already as Section 4.7.2 of the AC requires a splitting check.

Please email me at [jellis@strongtie.com](mailto:jellis@strongtie.com) or call me at 714-738-2029 with any questions or comments you may have.

Sincerely,  
**Simpson Strong-Tie Co., Inc.**

A handwritten signature in black ink that reads "Jeff Ellis".

Jeff Ellis, P.E., S.E.  
Code Report & Branch Engineering Manager

dw/ES,AK

Copies: Ed Sutt, Simpson Strong-Tie  
Aram Khachadourian, Simpson Strong-Tie