Technical Q & A

Installation Instructions

by Ryan J. Dexter, P.E.

Contractors' common truss installation questions

Whether it is new appliances or structural building components, installations can be confusing. The following questions are from building officials or contractors regarding truss installations. As you can tell from the responses, most answers can be found in *BCSI: Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses*.[1] *BCSI* is the guide that provides the installation instructions for structural building components and is available in an all-inclusive booklet or in individually summarized sheets.

Question: *As a carpenter for many years I have noticed homes built with trusses are not properly braced while they are being installed (in my opinion). How do carpenters know how to install trusses safely? Is there a guideline to follow? What about guidelines for steel trusses?*

Answer: Yes, there is a lot of useful information framers and carpenters can use to install trusses safely. SBCA, along with the Truss Plate Institute (the association representing metal connector plate manufacturers), saw the need to format the temporary bracing requirements of metal plate connected wood trusses into a digestible resource for contractors (and home owners)—the *BCSI* book was the answer.

BCSI aims to present bracing guidelines in a clear and concise manner with as few words and as many color-coded graphics as possible. The topical *BCSI* Summary Sheets were created to provide another avenue to get installation material distributed to a larger audience. The industry also provides a specific bracing guide for cold-formed steel trusses—*CFSBCSI*.[2] Both *BCSI* and *CFSBCSI* are or will be referenced in the International Codes.[3]

SBCA has also created the Tech Note[4] "What Should Constitute a Truss Submittal Package?"[5] with information component manufacturers should provide with every truss delivery. Many SBCA members provide a JOBSITE PACKAGE[6] that includes many of the *BCSI* Summary Sheets with every single job they ship.

As stated in the Tech Note, the standard JOBSITE PACKAGE is a tool that helps component manufacturers assist contractors in understanding *ANSI/TPI 1-2007* and building code requirements, and provides the contractor with important standardized installation and safety information with every jobsite delivery. This consists of the following documents in a zippered plastic bag:

- Information for Framers insert
- Cover Sheet: English/Spanish warnings on the front and some of the *ANSI/TPI 1-2007* design responsibilities on the back.
- TTB Checklist for Handling and Installing
- Four *BCSI* Summary Sheets:
- *BCSI-B1:* Guide for Handling, Installing, Restraint & Bracing of Trusses
- *BCSI-B2:* Truss Installation & Temporary Restraint/Bracing
- *BCSI-B3:* Web Member Permanent Bracing/Web Reinforcement
- *BCSI-B4:* Construction Loading

The documents emphasize a consistent message: Proper truss handling, installing, restraining, and bracing are crucial for consistent jobsite safety and acceptable structural performance. In the future, the industry is committed to making BCSI guidelines more efficient by testing at the Structural Building Components Research Institute (SBCRI).[7] Our goal is to find ways to design bracing so that much of the temporary bracing required to install trusses safely can be used as permanent bracing. This will allow bracing to be installed only once, minimizing cost and material use. We are hopefully that is will also enhance performance reliability.

Question: *Are there any installation tolerances for where trusses should be set?*

Answer: Yes, these are found in *BCSI*. B1 states:

> The spacing of Trusses along bearing support must be within +/- 1/4" of plan dimension. Field conditions that force spacing beyond this tolerance shall be reviewed and approved by the Building Designer and Truss Designer.

This tolerance is a one size fits all tolerance. As such the focal point is on installing the trusses at their designed on center spacing. Most roof trusses are designed at 24" on center while floors are usually designed at 19.2" or 24" on center. Check the truss placement diagram for the assumed location of each truss; there may be additional positioning tolerance for some trusses.

If you cannot install the trusses within the small "one-size-fits-all" tolerance of 1/4", you should check with your component manufacturer. Many times, the truss can be shifted without the need to repair it, but you should always have the component manufacturer check the design to see if this is possible. SBC

[1] www.sbcindustry.com/bcsi.php
[2] www.cfsc.sbcindustry.com/cfsbcsi.php
[3] *BCSI* is referenced in the 2006, 2009, and 2012 IRC and *CFSBCSI* will be referenced in the 2012 IRC.
[4] The goal of SBCA Tech Notes is to clarify code issues and help educate the marketplace for component manufacturers: www.sbcindustry.com/technotes.php.
[5] www.sbcindustry.com/TrussSubmittalPkg.pdf
[6] www.sbcindustry.com/jobsite.php
[7] www.sbcri.info

at a glance

- ❑ Sending a Jobsite Package with each truss delivery is a good way to share safe installation and bracing recommendations with framers.
- ❑ In the near future, SBCA is committed using SBCRI testing to optimize BCSI guidelines.
- ❑ We hope to change bracing design by combining temporary and permanent bracing into one step.
- ❑ Information about installation tolerances can be found in the B1 Summary Sheet.

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