

by WTCA Staff

There are many options for bracing the webs of different truss types.

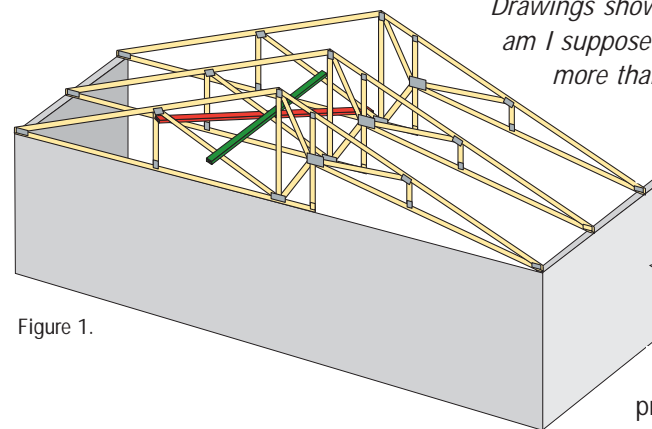


Figure 1.

Stress-rated lumber or boards attached with their long dimension at right angles to the web member of a truss are often considered the standard means of “bracing” the web member to prevent buckling under load. Often referred to as lateral bracing (LB) or continuous lateral bracing (CLB), a basic requirement when applying this type of lateral restraint is that the web member that requires bracing “lines up” with the web members of adjacent trusses that also require restraint. The complexities of most roof systems built today require a myriad of different truss configurations, resulting in very few trusses having the same web pattern. This can lead to confusion with installers as to how to “brace” the webs.

### Question

*I've got a residential roof with 46 different truss types. Several of the Truss Design Drawings show webs that need bracing and call out a lumber lateral brace. How am I supposed to brace the webs when there are only a few cases where I have more than one or two of the same truss web configuration?*

### Answer

There are many different ways to brace or restrain the web members in a truss. As long as there are at least two adjacent trusses with the same or similar web configurations, lateral restraint (i.e., lateral bracing) methods can be used. These methods typically include the use of lateral members in combination with diagonal bracing (DB). The lateral members are installed to reduce the buckling length of the web(s), but must be restrained laterally to prevent the webs to which they are attached from buckling together in the same direction. Properly installed DB provides the restraint and transfers the forces from the laterals to the roof and ceiling diaphragms.

For groups of at least three trusses, attach the lateral “brace” at the locations shown on the Truss Design Drawing together with a DB on the opposite side of the webs at an angle to the lateral (see Figure 1). Be sure to extend the DB from the top chord of the first truss to the bottom chord of the last truss, attaching the DB to each web that it crosses. This provides rigidity that prevents the webs from displacing laterally. For long continuous runs of lateral bracing, DB should be installed at no more than 20-foot intervals, unless a closer spacing is specified by the Registered Design Professional/Building Designer.

If there are only two adjacent trusses in which the webs align, the single DB must be attached to each web and the lateral brace. One way to accomplish this is to install the DB on the opposite side that the lateral brace is attached. Attach the DB near the top of the web of the first truss and near the bottom of the web of the second truss. Install dimension lumber blocking, of the same depth as the webs, directly behind the lateral brace and attach the blocking to both the lateral and the diagonal brace (see Figure 2).

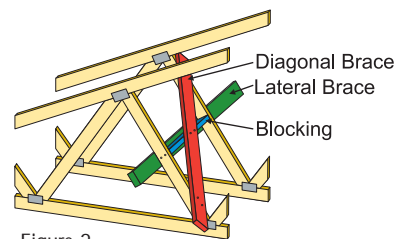


Figure 2.

When each adjacent truss is of a different configuration so that none of the webs requiring bracing align, web bracing can be accomplished by installing either a single diagonal brace or web reinforcement. A single diagonal brace, without a lateral brace, can be used to provide lateral restraint by attaching the diagonal near the mid-span of the web. The ends of the diagonal must be cut to fit snugly against the top and bottom chords of the adjacent trusses and toe-nailed to each (see Figure 3). (**Note:** The single diagonal brace works only in cases in which the web requires only one brace.)

Web reinforcement can also be used and, in many cases, is a more efficient and economical option. Web reinforcement is accomplished by attaching a piece of stress-rated lumber to the web, thereby increasing its cross-section. The reinforcement can be added to the edge of the web to form a “T-” or “L-brace,” or may be added to the face of the web (i.e., scab). Proprietary metal reinforcement in the shape of a “Z” is also available, and some truss manufacturers will “build” individual member reinforcement into the truss by plating an additional piece of lumber to the edge of the web in a “stacked” configuration (see Figure 4). Lumber reinforcement must be a single piece at least 90 percent of the length of the web.

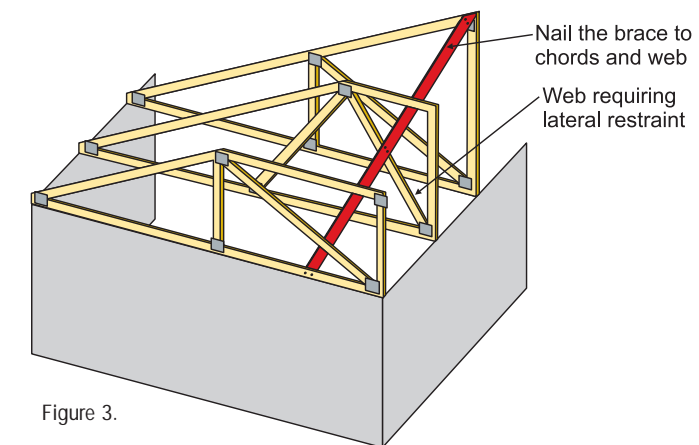


Figure 3.

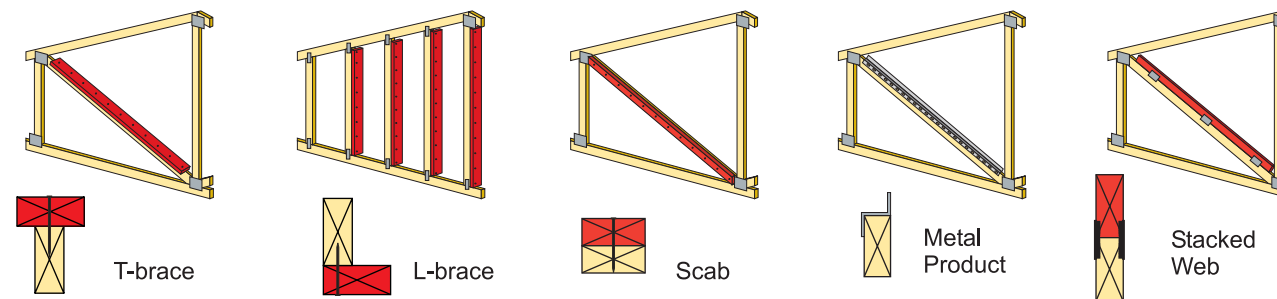
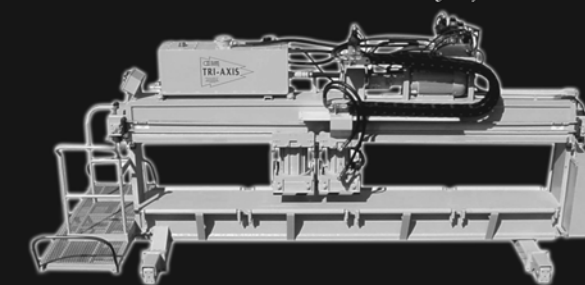


Figure 4.

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ment must be a single piece at least 90 percent of the length of the web.

The single diagonal brace and web reinforcement options satisfy the bracing needs for individual trusses and truss members, but not the stability bracing of the entire building system. Building system bracing design is the responsibility of the Registered Design Professional.

BCSI-B3, *Web Member Permanent Bracing/Web Reinforcement*, a publication jointly produced by WTCA and the Truss Plate Institute (TPI), provides general industry recommendations and methods for restraining web members against buckling. WTCA’s *Tech Note “T-DissimilarWebs06, Bracing Webs in Trusses that have Dissimilar Configurations,”* also provides information. Both of these publications can be viewed at [www.sbcindustry.com/technotes.php](http://www.sbcindustry.com/technotes.php). Standard details for bracing individual truss web members may also be available from the Truss Designer. **SBC**

To pose a question for this column, call the WTCA technical department at 608/274-4849 or email [technicalqa@sbcmag.info](mailto:technicalqa@sbcmag.info).

### at a glance

- ❑ Without the diagonal brace, the only thing the lateral member(s) ensures is that the webs to which they are attached will behave as a unit and buckle together in the same direction if and/or when the buckling load is reached.
- ❑ The single diagonal brace and web reinforcement options satisfy the need for bracing individual trusses and truss members, but not the stability bracing of the entire building system.
- ❑ BCSI-B3 Web Member Permanent Bracing/Web Reinforcement provides industry recommendations and methods for restraining web members against buckling.

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