

# STRUCTURAL BUILDING COMPONENTS MAGAZINE

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## TPI/WTCA Talking Points on BCSI 1-03 by WTCA Staff

*The New Year brings big changes for the structural building components industry in the form of new handling, bracing and installation documents. How will the changes affect you?*



Change is good, but nonetheless confusing at times. Take the industry's new bracing standard, BCSI 1-03, for example. Below is a simplified outline of what changes to expect with the implementation of BCSI 1-03 and how it will impact you.

### THE PAST

In March 1998, TPI held a focus group session with truss installers and framers to understand temporary bracing from the perspective of those that actually have to implement bracing

techniques in the field. Their conclusion: "Truss installers need a more simplified presentation to better understand temporary bracing."

Over time this led to the WTCA Executive Committee and TPI Board of Directors approving a motion that our industry would be best served with a single set of bracing documents and expressed their desire to consolidate the two associations' separate bracing documents. The result of this motion is BCSI 1-03, which functions as an improved replacement of TPI's HIB-91 booklet.

## THE PRESENT

BCSI 1-03 is a historic document made possible by the unprecedented cooperation of TPI and WTCA. BCSI 1-03 contains eleven chapters which form the basis for the stand-alone summary sheets referred to as the "B-Series." Each B-Series Summary Sheet will include both English and Spanish text (on the same side).

- The BCSI 1-03 booklet, Guide for Handling, Installing and Bracing of Metal Plate Connected Wood Trusses, was released at BCMC 2003 and is currently for sale through WTCA publications at [www.woodtruss.com](http://www.woodtruss.com).
- BCSI-B1 is intended for component manufacturers to provide to truss installers and is a direct replacement of HIB-91 Summary Sheet and the WTCA Jobsite Warning Poster, designed to provide the truss placement diagram on the back.

For those component manufacturers that desire to provide more detailed information for the truss installers they serve, the following individual summary sheets should be considered (in addition to B1):

- BCSI-B2 Truss Installation and Temporary Bracing
- BCSI-B3 Web Member Permanent Bracing/Web Reinforcement
- BCSI-B4 Construction Loading

These four documents will be found in the standard WTCA/TPI Jobsite Safety Package, which is an economical package containing these key documents in a resealable plastic bag. The goal of both TPI and WTCA through the Jobsite Safety Package is to provide a tool to enhance field education and safety.

The following B-Series documents were specifically created for special conditions that may be encountered during the truss installation and bracing process:

- BCSI-B5 Truss Damage, Jobsite Modifications and Installation Errors
- BCSI-B6 Gable End Bracing
- BCSI-B7 Temporary and Permanent Bracing for Parallel Chord Trusses
- BCSI-B8 Toe-Nailing for Uplift Reactions
- BCSI-B9 Multi-Ply Girders
- BCSI-B10 Post Frame Truss Installation and Bracing
- BCSI-B11 Fall Protection and Wood Trusses

BCSI-B2 through B11 will replace the WTCA TTB sheets and are very similar in content, with the exception of B10, which replaces TPI's HIB-98 poster.

## What Implementation Means to You

The effective date of BCSI 1-03 was January 1, 2004. By January 2004, the new B2, B3, B5, and B10 Summary Sheets will be available for purchase. Then, the remaining B-Series Summary Sheets will be prepared for distribution.

Finally, TPI and WTCA will no longer sell separate warning tags. The tags will be updated with BCSI information and the logos of both associations will be added.

For a complete and detailed outline of the new B-Series, visit [www.woodtruss.com](http://www.woodtruss.com).

## A Word on Bracing by Kirk Grundahl

As with any problem, there are usually two ways of looking at it:

**Positively.** This approach manifests itself in seeing the wide array of opportunities that present themselves with respect to existing problems. In the case of an industry problem, the positive approach allows one to seek and find industry-wide benefits that may exist because one was willing to part with "tradition."

**Negatively.** This approach manifests itself by bringing to the surface all of the things that are bad about both the problem and the possible solution(s). The normal outcome of this approach with respect to industry problems is intended to maintain the status quo, resist any change, and to stop any progress dead in its tracks.

CLICK ON IMAGE FOR LARGER VIEW

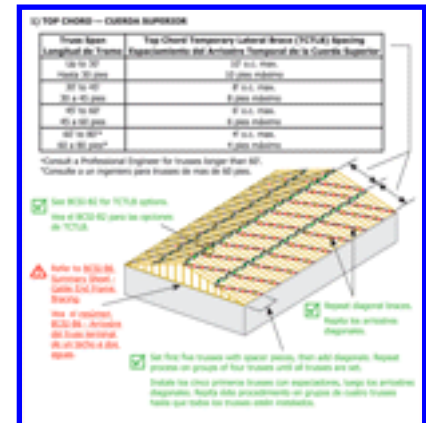


Figure 2

The BCSI 1-03 and the B-Series summary of publications have been produced out of recognition of the need for change; primarily with outside sources applying the pressure and expressing the need for this change by taking all the available data that our industry has and using it to create the needed improvements in our recommendations.

BCSI 1-03 was created with the following in mind:

- One of the goals is to place a greater emphasis on diagonal bracing so that framers understand the importance of this concept.
- BCSI 1-03 takes what framers are actually doing in the field and provides them with a way to

properly brace the trusses so that the jobsite remains as safe as possible until sheathing is applied to the top chord.

We believe that BCSI 1-03 utilizes a conservative approach to bracing, especially in light of the fact that there is not a good bracing model calibrated to full scale testing. There will certainly be other methods used in the field that are as safe—if not safer—based on the real life bracing experience of the framer. We also believe that knowledgeable professional framers will do this in the safest and most efficient manner possible. We need to listen to them closely as we make advancements in bracing and bracing technology.

It is obvious that the key element that absolutely needs to be properly braced is the top chord, since it is the member under the most significant compression stresses during installation loading. Further, it is the top chord that generally precipitates a buckling collapse due to insufficient bracing. Hence, there is an emphasis within BCSI 1-03 on top chord bracing (see Figure 2 above).

Finally, we show that the use of short pieces for spacing require more diagonal bracing to be safe. A possible outcome is for the reader to conclude that using short pieces is more work and that they instead choose to use longer pieces of lateral bracing or sheath with plywood/OSB immediately after four to five trusses are erected. This will obviously be done in increments of four, six and eight feet to accommodate offsetting the sheathing end joints.

We believe that BCSI 1-03 will help to provide the best of all worlds—practical engineering that is turned into graphical presentations that installers can easily understand, resulting in better education and a safer jobsite.

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## TPI Technical Advisory Committee (TAC) Meeting Report

WTCA staff participated in TPI's Technical Advisory Committee (TAC) November 2003 meeting held in Chicago. It was a productive meeting that included discussion on many relative topics. The following is a summary of the main items discussed:

### ANSI/TPI 1 ISSUES

TPI 1-2002 Section A3.2 Discussion—The Standard and the Commentary: TAC was presented with some component manufacturers' concerns over the half-inch tolerance in the Tooth Count Method (TCM) of truss inspection. The section is written as follows:

#### A3.2 PLATE PLACEMENT

The TCM positioning tolerance for any joint selected for inspection shall be ½ inch from the design position shown on the truss design drawing, unless up beyond its normal surface plane) within the tooth slot opening of the metal connector plate.

Taken in isolation this provision suggests that there is a ½ inch plate placement tolerance from any plate using the tooth count method. Obviously if there are not enough teeth in the member due to a misplacement of ½ inch, then the joint will be overstressed at that member location.

It was agreed that WTCA staff will work on a WTCA/TPI Talking Points document to ensure ease of application of the half-inch tolerance.

#### **TAC INTERPRETATION OF TPI 1-2002 SECTION 7.4.5.5**

The group discussed their concern that certain language in the section is vague and in need of an interpretation. Specifically, the section states that bolt spacing shall not exceed 24" on-center. It was agreed that the language needs to be revised to clarify that the maximum bolt spacing applies only when the bolts are used as the primary means of transferring ply-to-ply loads. WTCA will be revising Multi-Ply Girders TTB to reflect the new commentary language and enhance ease of application.

#### **REVIEW TPI 1-2002 SECTION 8.8 PLATING FOR COMBINED FLEXURE & AXIAL LOADING**

It was decided that the moment equations need to be addressed immediately as the truss plate size increases that we are seeing as ANSI/TPI 1-2202 is implemented in the software are controlled by the new moment equations in the majority of cases. It was decided that this is the most pressing issue for TAC to address.

A task group was formed to look into the new moment equations and thoroughly consider how these equations affect plate sizes and provide recommendations regarding what should be done to improve the analysis to most accurately model moment conditions. The task group will also look at the testing that may be needed to provide justification for changes in the methodology.

Concurrent with refining the truss plate moment analysis methodology, TAC will draft a Talking Points paper on this issue so there is a common educational message.

#### **TPI 1 - PLATING PROTOCOLS PER THE QUALITY STANDARD**

Considerable discussion took place on how fabricators can gain greater flexibility in the implementation of their in-plant quality control procedures. For example, if one uses the Plate Placement Method (PPM) of truss inspection, there is an automatic 20 percent of the plate area allowance for defects that are in the plate area. If the plate area has zero percent defects, one cannot take advantage of that fact to increase the plate location tolerance polygon. It is clear that we need a more flexible process to rationally account for defects in the plate. For example, if a plant can prove that through WTCA's QC data, it has only ten percent defects in the plate contact area on an on-going basis and if they manage their quality process to limit defects in the plate area, it should be able to take advantage of that fact with an expanded PPM tolerance polygon. This would make their in-plant QC process even quicker.

It was further agreed that WTCA will draft a single sheet containing a visual/graphical

explanation of the C<sub>q</sub> factor, the tolerance polygon changes and the defect circle changes. The goal is to promote the understanding and value of the quality management.

## **PROPOSED STANDARD REPAIR DESIGNS**

WTCA received a request from a building department on the west coast for standard repair details that would be used to help make building department processing of truss repairs more efficient. TAC members will be sending their standard repair details to a TAC subcommittee for compilation into a recommendation.

## **INTERIM PRESCRIPTIVE APPROACH TO PERMANENT BOTTOM CHORD BRACING OF POST-FRAME TRUSSES**

NFBA's Research Committee requested that TAC develop a prescriptive approach to bottom chord lateral bracing for post-frame truss construction. TAC members will define the approach that needs to be taken to ensure efficient and effective bottom chord lateral bracing.

## **PRESERVATIVE TREATED LUMBER**

The group discussed Chapter 6 of ANSI/TPI 1-2002, which includes corrosive environments and whether anything should be added to it in the wake of the December 31, 2003 CCA ban.

WTCA has contacted the preservative treatment industry's chemical suppliers regarding their testing and warranty work. TPI is looking for interim recommendations from the preservative treatment companies. TPI staff will draft a letter to the American Wood Preservers' Association (AWPA) urging the creation of a consensus standard that would address accelerated corrosion testing for embedded fasteners in preservative treated wood.

## **WIND LOAD DESIGN COMPARISONS**

TPI TAC agreed that it is necessary to have common ground on code interpretation and the application of the code as it pertains to truss construction. The group emphasized the need to collaborate with other groups and create a united approach to the application of all loads onto trusses and related structural building components.

## **KEY TAC ACTIVITIES**

The key outcome of the TAC meeting was that the two most important priorities were: (1) Addressing the ANSI/TPI 1-2002 Section 8.8 "Plating for Combined Flexure and Axial Loading" issues and (2) Defining the industry's interpretation and position regarding the application of loads on trusses within the building code.

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