Truss Repair and Modifications

Installation Guide

Revised 4/17/2017

SBCA

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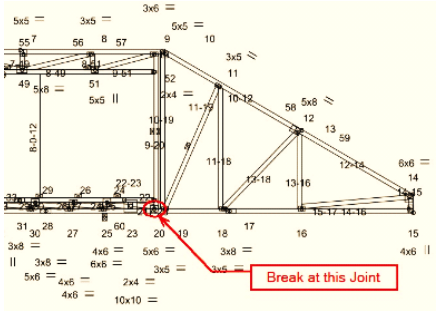
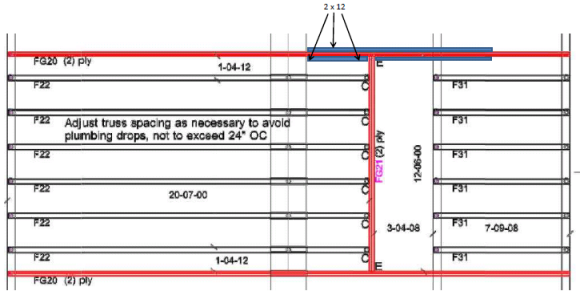
Introduction

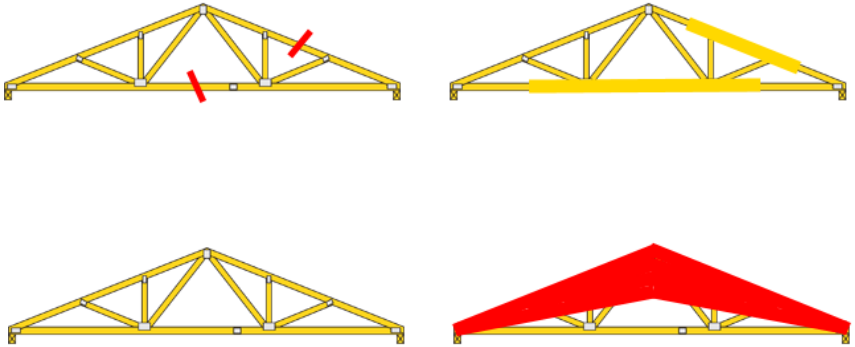
- Trusses are typically designed for a specific application.
- Therefore, truss repairs or modifications must be analyzed on a case by case basis.
- The repair designer needs to be provided with accurate information.
  - In simple scenarios, a “marked-up” Truss Design Drawing (TDD) or photos of the damaged truss may be sufficient.
  - In more complex situations, a jobsite visit may be required.





Introduction

- What is the difference between a Repair and a Modification?
  - **Truss Repair (top)**: restoring a truss back to its original shape and strength in situations where damage has caused a change or a reduction in either.
  - **Truss Modification (bottom)**: altering a truss profile, loading, and/or bearing conditions to fit a situation for which the original truss was not designed.



Introduction

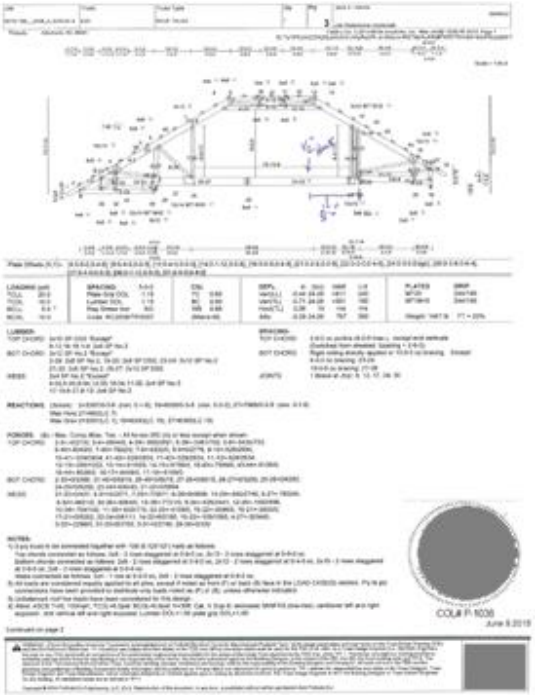
- The truss repair or modification must result in a truss that is able to safely carry all intended loads.
- This presentation will provide a step by step approach to truss repair
- **Depending on the extent of damage, some trusses cannot be repaired and must be replaced.**
- BCSI-B5 recommends the following steps to correct damage, jobsite modifications or installation errors.

Step 1: Temporary Bracing

- If the truss is installed, temporarily brace or support the truss to prevent further damage to the truss and danger to the workers.

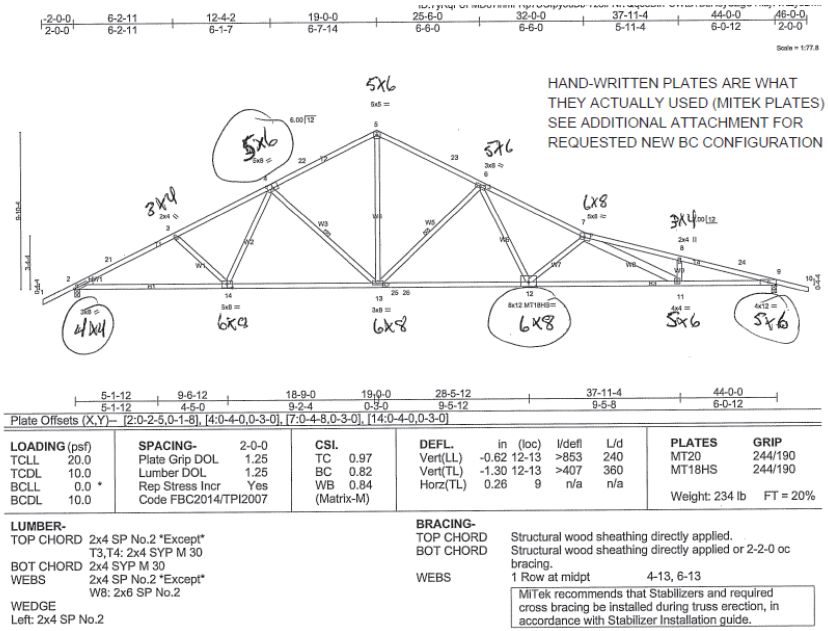
Step 2: Report Damage

- Report damage, alterations or installation errors to the truss manufacturer immediately.
- Provide the original as-built TDD (if available) to the Truss Repair Engineer along with any materials describing the repair needed



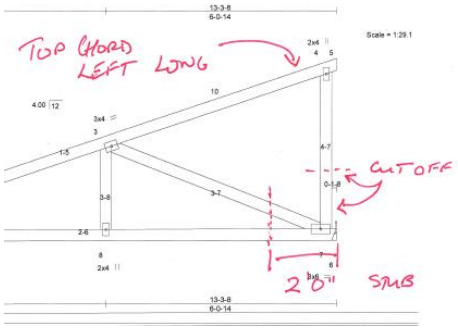
Step 2: Report Damage

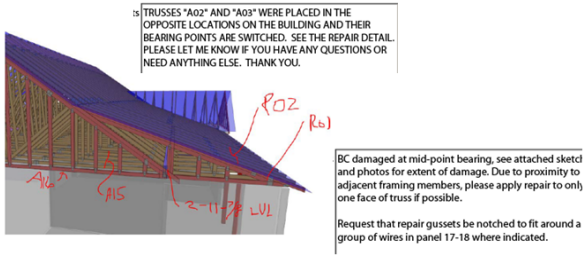
- If the TDD is not available, provide a sketch of the existing truss, showing:
  - Geometry (dimensions)
  - Materials (size, species, and grades)
  - Size and type of connector plates

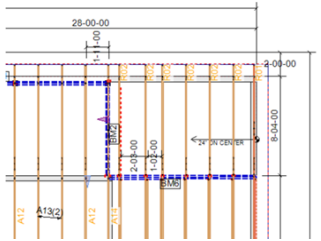


Step 2: Report Damage

- The following can be helpful in conveying the repair condition:
  - Redline of TDD
  - Photos of the damaged truss
  - Layout of the building
  - Additional written explanation about the damage
  - A jobsite visit may be required in more complex situations

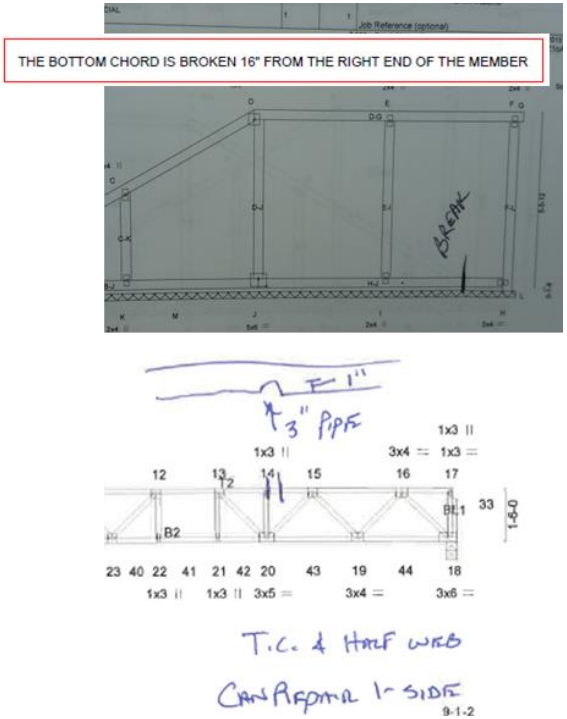






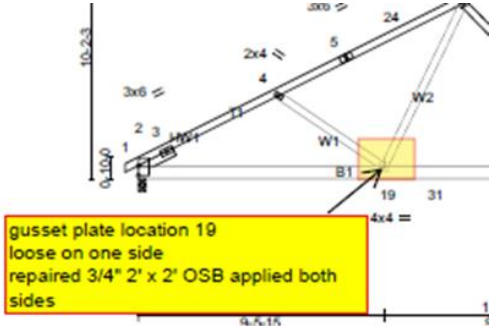
Step 2: Report Damage

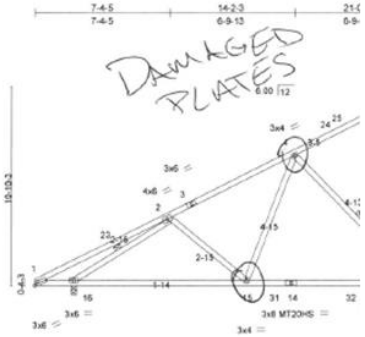
- Is the lumber damaged? If so provide:
  - Exact location of damage from a known location such as a panel point or bearing
  - Description of damage
  - Dimensions of the damaged area
  - Note any treatments applied to the lumber (weather or fire resistance)



Step 2: Report Damage

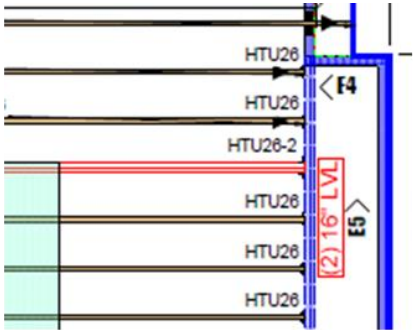
- Are plates or joints damaged? If so provide:
  - Location or the Truss Design Drawing joint number of the damaged plate or joint
  - Size of the damaged plate
  - Description of plate or joint damage
  - Indicate if there is damage to one or both faces of the plate/joint





Step 2: Report Damage

- Load types and locations supported by the damaged truss
  - Supported trusses may need to be cut back to fit repair
- Any loading changed from the original TDD
- Total number of plys and how many are damaged



LOADING (psf)	
TCLL	20.0
TCDL	10.0
BCLL	0.0 *
BCDL	10.0

Truss	Truss Type	Qty	Ply
K02	HIP GIRDER	1	2

Web broken out 1 ply only

Step 2: Report Damage

- Notify the Truss Repair Engineer about:
  - Stage of construction
    - If the truss has been set
    - If sheathing has been applied
  - Any interference that may affect the repair
    - HVAC
    - Electrical
    - Plumbing

Step 2: Report Damage

- Notify the Truss Repair Engineer about:
  - Preferred materials for the repair
  - Tools and materials available at the jobsite
    - Sheathing and lumber typical sizes and grades
    - If there is a plate press
  - Availability of special order materials
  - Additional considerations

Step 3: Obtain Repair Drawing

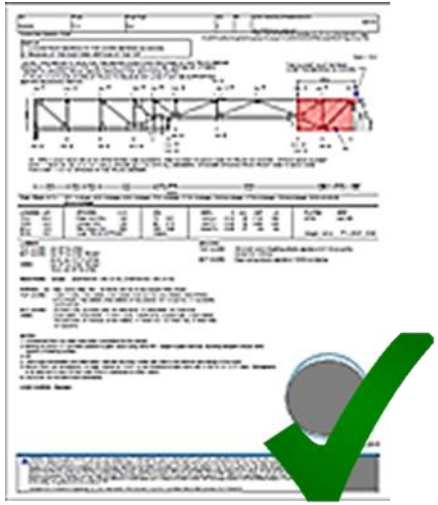
- DO NOT begin a repair without a Truss Repair Design Drawing (TRDD)
- Upon receiving the TRDD, check to make sure the repair can be made.
- If the designed repair cannot be accomplished, inform the building designer, truss designer, or truss manufacturer.
- If conditions have changed at the jobsite, notify the Truss Repair Engineer to obtain an updated repair detail.

Step 4: Pre-Repair Setup

- Prior to beginning the repair, lay the truss flat on a solid, level surface.
- If the truss is already installed, shore up the truss to relieve any load.

Step 5: Perform the Repair

- Repair the truss by following the information provided in the TRDD exactly.
  - All materials are the same size, grade, species as specified (or better)
  - Materials are cut to proper dimensions and placed in correct orientation
  - All fasteners are sized and spaced as described
  - Nails are clinched if required
  - If specified, the repair extends a certain length beyond the damage



Step 6: Inspect the Repair

- Make sure that both the damage condition and repair are as described in the repair drawing
- Consult the Truss Repair Engineer if there are any differences between the drawing and what was done in the field

Step 7: Keep Records

- Keep the TRDD in case the building official, building designer or owner requests it.