

Ridgway Roof Truss Company

(Trusses and Prefabricated Building Components)

Address: 235 SW 11th Place, Gainesville, FL 32601

Telephone: (352) 376-4436

Fax: (352) 371-3316

Email: Sales@RidgwayTruss.com

RidgwayTruss.com

WARNING

THESE TRUSSES MUST BE HANDLED AND ERECTED ACCORDING TO BCSI SUMMARY SHEETS

SCAN FOR BCSI SUMMARY SHEETS:



https://www.ridgwaytruss.com/BCSI-SBCA-TrussInstallationPacket/SBCA_PACKET_2025.pdf

SEE TABLE OF CONTENTS DESIGN MANUAL

PROJECT NAME: Jenkins Utility Building

JOB NUMBER: 260311

CONTRACTOR: Southtrust Construction

DATE: 6/30/26

REVISIONS: _____

COMMENTS: _____



Lumber design values are in accordance with ANSI/TPI 1 section 6.3
These truss designs rely on lumber values established by others.

RE: 260311 6-12-26 JAJ - Jenkins Utility Bldg

MiTek, Inc.

16023 Swingley Ridge Rd.

Chesterfield, MO 63017

Model: Jenkins Utility Bldg

814.434.1200

Site Information:

Customer Info: SOUTHTRUST CONSTRUCTION Project Name: Jenkins Utility Bldg

Lot/Block: - Subdivision: -

Address: -, -

City: Columbia CO

State: FL

Name Address and License # of Structural Engineer of Record, If there is one, for the building.

Name: License #:

Address:

City: State:

General Truss Engineering Criteria & Design Loads (Individual Truss Design Drawings Show Sp Loading Conditions):

Design Code: FBC2023/TPI2014

Design Program: MiTek 20/20 25.4

Wind Code: ASCE 7-22

Wind Speed: 130 mph

Roof Load: 40.0 psf

Floor Load: N/A psf



This package includes 3 individual, Truss Design Drawings and 0 Additional Drawings.

With my seal affixed to this sheet, I hereby certify that I am the Truss Design Engineer and this index sheet conforms to 61G15-31.003, section 5 of the Florida Board of Professional Engineers Rules.

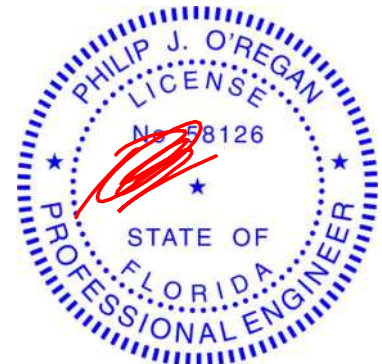
No.	Seal#	Truss Name	Date
1	T41706698	R01	6/30/26
2	T41706699	R02	6/30/26
3	T41706700	R03	6/30/26

The truss drawing(s) referenced above have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Ridgway Roof Trusses.

Truss Design Engineer's Name: ORegan, Philip

My license renewal date for the state of Florida is February 28, 2027.

IMPORTANT NOTE: The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSI/TPI 1. These designs are based upon parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which were given to MiTek or TRENCO. Any project specific information included is for MiTek's or TRENCO's customers file reference purpose only, and was not taken into account in the preparation of these designs. MiTek or TRENCO has not independently verified the applicability of the design parameters or the designs for any particular building. Before use, the building designer should verify applicability of design parameters and properly incorporate these designs into the overall building design per ANSI/TPI 1, Chapter 2.



Philip J. O'Regan PE No.58126
MiTek Inc. DBA MiTek USA FL Cert 6634
16023 Swingley Ridge Rd. Chesterfield, MO 63017
Date:

June 30,2026

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SCAN FOR BCSI SUMMARY SHEETS:



https://www.ridgwaytruss.com/BCSI-SBCA-TrussInstallationPacket/SBCA_PACKET_2025.pdf

CHAPTER 2

STANDARD RESPONSIBILITIES IN THE DESIGN AND APPLICATION OF METAL-PLATE-CONNECTED WOOD TRUSSES

2.1 GENERAL PURPOSES

The purpose of this Chapter of the Standard is to define and draw attention to the Responsibilities of the Owner, Building Designer, Truss Manufacturer, and Truss Designer, with respect to the application of Trusses in the construction of a Building.

2.2 DEFINITIONS

BCSI: *Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses* jointly produced by the *Structural Building Components Association* and the *Truss Plate Institute*.

BCSI-B1: *Guide for Handling, Installing, Restraining & Bracing of Trusses* of the Building Component Safety Information (BCSI).

BCSI-B2: *Truss Installation & Temporary Restraint/Bracing* of the Building Component Safety Information (BCSI).

BCSI-B3: *Permanent Restraint/Bracing of Chords & Web Members* of the Building Component Safety Information (BCSI).

BCSI-B7: *Guide for Handling, Installing & Bracing of 3x2 and 4x2 Parallel Chord Trusses* of the Building Component Safety Information (BCSI).

BCSI-B10: *Post Frame Truss Installation, Restraint & Bracing* of the Building Component Safety Information (BCSI).

Building: Structure used or intended for supporting or sheltering any use or occupancy.

Building Code: As it applies to a Building, any set of standards set forth and enforced by a Jurisdiction for the protection of public safety.

Building Designer: Owner of the Building or the Person that contracts with the Owner for the design of the Building Structural System and/or who is responsible for the preparation of the Construction Documents. When mandated by the Legal Requirements, the Building Designer shall be a Registered Design Professional.

Building Official: Officer or other designated authority charged with the administration and enforcement of the Building Code, or a duly authorized representative.

Building Permit: Certificate of permission issued by a Jurisdiction to an Owner to construct, enlarge, or alter a Building.

Building Structural System: Completed combination of Structural Elements, Trusses, connections and other systems, which serve to transfer the Building's self-weight and the specified loads to the foundation or ground.

Construction Documents: Written, graphic and pictorial documents prepared or assembled for describing the design (including the Building Structural System), location and physical characteristics of the elements of a Building necessary to obtain a Building Permit and construct a Building. Where required by the statutes of the jurisdiction in which the project is to be constructed, the Construction Documents or parts of the Construction Documents, shall be prepared by a Registered Design Professional.

Contract: Legally recognized agreement between two parties.

Contractor: Owner of a Building, or the Person who contracts with the Owner, who constructs the Building in accordance with the Construction Documents and the Truss Submittal Package. The term "Contractor" shall include those subcontractors who have a direct Contract with the Contractor to construct all or a portion of the construction.

Cover/Truss Index Sheet: Sheet that is signed and sealed, where required by the Legal Requirements, by the Truss Designer, and depending on the Legal Requirements shall be permitted to contain the following information: (1) Identification of the Building, including Building name and address, lot, block, subdivision, and city or county; (2) Identification of Construction Documents by drawing number(s) with revision date; (3) specified Building Code; (4) computer program used; (5) roof dead and live loads; (6) floor dead and live loads; (7) wind load criteria from a specifically defined code (e.g., ASCE 7) and any other design loads (such as ponding, mechanical loads, etc.); (8) name, address and license

number of Building Designer, if known; (9) a listing of the individual identification numbers and dates of each Truss Design Drawing referenced by the Cover/Truss Index Sheet; and (10) name, address, date of Cover/Truss Index Sheet and license number of Truss Designer.

Deferred Submittal: Those portions of the design that are not completed at the time of the application for the Building Permit and that are to be submitted to the Building Official within a specified period in accordance with the Legal Requirements.

Diagonal Bracing: Within a Truss system, structural member(s) installed along a portion of a Top Chord, Bottom Chord, or Web plane, at approximately 45 degrees to a Lateral Restraint member to provide a load path for the Lateral Restraint (See *BCSI-B1*, *BCSI-B2*, *BCSI-B3*, *BCSI-B7*, and *BCSI-B10*).

Jurisdiction: Governmental unit that is responsible for adopting and enforcing the Building Code.

Lateral Restraint: Also known as continuous lateral brace or CLB. A structural member installed at right angles to a chord or Web member of a Truss to reduce the laterally unsupported length of the Truss member (See *BCSI-B1*, *BCSI-B2*, *BCSI-B3*, *BCSI-B7*, and *BCSI-B10*).

Legal Requirements: Any applicable provisions of all statutes, laws, rules, regulations, ordinances, codes, or orders of the governing Jurisdiction.

Owner: Person having a legal or equitable interest in the property upon which a Building is to be constructed, and: (1) either prepares, or retains the Building Designer or Registered Design Professional to prepare the Construction Documents; and (2) either constructs, or retains the Contractor to construct the Building.

Permanent Building Stability Bracing: Lateral force resisting system for the Building that resists forces from gravity, wind, seismic and/or other loads.

Permanent Individual Truss Member Restraint: Restraint that is used to prevent local buckling of an individual Truss chord or Web member due to the axial forces in the individual Truss member (See *BCSI-B2* and *BCSI-B3*).

Person: Individual or organization that may exist in accordance with the Legal Requirements. (The term “Person” as used in this Chapter 2 may either appear as “Person” or “person.”)

Registered Design Professional: Architect or engineer, who is licensed to practice their respective design profession as defined by the Legal Requirements of the Jurisdiction in which the Building is to be constructed.

Special Inspector: A qualified Person approved by the Building Official as having the competence necessary to perform special inspections.

Standard: *National Design Standard for Metal Plate Connected Wood Truss Construction (ANSI/TPI 1).*

Structural Element: Single structural member (other than a Truss) that is specified in the Construction Documents.

Temporary Installation Restraint/Bracing: Lateral Restraint and Diagonal Bracing installed during construction for the purposes of holding Trusses in their proper location, plumb and in plane, until Permanent Individual Truss Member Restraint, Diagonal Bracing and Permanent Building Stability Bracing are completely installed (See *BCSI-B1*, *BCSI-B2*, *BCSI-B3*, *BCSI-B7*, and *BCSI-B10*).

Truss: Individual metal-plate-connected wood component manufactured for the construction of a Building.

Truss Design Drawing: Written, graphic and pictorial depiction of an individual Truss that includes the information required in Sections 2.3.5.5.

Truss Designer: Person responsible for the preparation of the Truss Design Drawings.

Truss Manufacturer: Person engaged in the fabrication of Trusses.

Truss Placement Diagram: Illustration identifying the assumed location of each Truss.

Truss Submittal Package: Package consisting of each individual Truss Design Drawing, and, as applicable, the Truss Placement Diagram, the Cover/Truss Index Sheet, Lateral Restraint and Diagonal Bracing details designed in accordance with generally accepted engineering practice, applicable *BCSI*-defined Lateral Restraint and Diagonal Bracing details, and any other structural details germane to the Trusses.

2.3 RESPONSIBILITIES

Where the Legal Requirements mandate a Registered Design Professional for buildings, the Building Designer and the Truss Designer shall be Registered Design Professionals.

2.3.1 Requirements of the Owner.

2.3.1.1 Building Permit.

Where required by Legal Requirements, including the Building Code, the Owner shall obtain a Building Permit.

If special inspections or structural observations related to Trusses are required as part of the Construction Documents and/or permitting process, these requirements shall be communicated in writing to the Contractor or Truss Manufacturer as appropriate.

2.3.1.2 Registered Design Professional Designation.

The Owner shall engage and designate on the Building Permit application the Registered Design Professional for the Building, if the Building Designer is required to be a Registered Design Professional.

2.3.1.3 Engagement with the Building Designer.

The Owner shall engage a Building Designer to prepare the Construction Documents and review the Truss Submittal Package.

The Truss Manufacturer and Truss Designer shall be notified in writing by either the Owner or Contractor if the Building Designer is changed or is unable to continue to perform their duties.

In the absence of an independent Building Designer, the Owner shall assume the role of Building Designer.

2.3.1.4 Engagement with the Contractor.

The Owner shall engage a Contractor to store, handle and install the Trusses for the Building, in compliance with any and all Legal Requirements.

2.3.1.5 Review and Coordinate Submittal Packages.

The Owner or Owner's representative shall be responsible for ensuring that the requirement of Section 2.3.4.2 is accomplished.

2.3.1.6 Long Span Truss Requirements.

2.3.1.6.1 Restraint/Bracing Design.

In all cases where a Truss clear span is 60 ft. (18 m) or greater, the Owner shall contract with any Registered Design Professional for the design of the Temporary Installation Restraint/Bracing and the Permanent Individual

Truss Member Restraint and Diagonal Bracing.

2.3.1.6.2 Special Inspection.

In all cases where a Truss clear span is 60 ft. (18 m) or greater, the Owner shall contract with a Special Inspector to perform special inspections. Special Inspections shall assure that the Trusses, including the Temporary Installation Restraint/Bracing and the Permanent Individual Truss Member Restraint and Diagonal Bracing are installed in accordance with the approved Construction Documents and the approved Truss Submittal Package.

2.3.1.7 Responsibility Exemptions.

The Owner is responsible for items listed in Section 2.3.1, and is not responsible for the requirements of other parties specified outside of Section 2.3.1.

2.3.2 Requirements of the Building Designer.

2.3.2.1 Construction Documents.

The Construction Documents shall be prepared by the Building Designer and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in detail that such documents conform to the Legal Requirements, including the Building Code.

2.3.2.2 Deferred Submittals.

The Building Designer shall list the Deferred Submittals on the Construction Documents. The Building Designer shall review Deferred Submittals in accordance with Section 2.3.2.3.

2.3.2.3 Review Submittal Packages.

The Building Designer shall review the Truss Submittal Package for compatibility with the Building design. All such submittals shall include a notation indicating that they have been reviewed and whether or not they have been found to be in general conformance with the design of the Building.

2.3.2.4 Required Information in the Construction Documents.

The Building Designer, through the Construction Documents, shall provide information sufficiently accurate and reliable to be used for facilitating the supply of the Structural Elements and other information for developing the design of the Trusses for the Building, and shall provide the following:

- (a) All Truss and Structural Element orientations and locations.
- (b) Information to fully determine all Truss profiles.
- (c) All Structural Element and Truss support loca-

tions and bearing conditions (including the allowable bearing stress).

- (d) The location, direction, and magnitude of all dead, live, and lateral loads applicable to each Truss including, but not limited to, loads attributable to: roof, floor, partition, mechanical, fire sprinkler, attic storage, rain and ponding, wind, snow (including snow drift and unbalanced snow), seismic; and any other loads on the Truss;
- (e) All anchorage designs and connections to the Structural Elements and the Permanent Building Stability Bracing required to resist uplift, gravity, and lateral loads.
- (f) Truss-to-Structural Element connections, but not Truss-to-Truss connections.
- (g) Criteria related to serviceability issues including:
 - (1) Allowable vertical, horizontal or other required deflection criteria.
 - (2) Any dead load, live load, and in-service creep deflection criteria for roofs subject to ponding loads.
 - (3) Any Truss camber requirements.
 - (4) Any differential deflection criteria from Truss-to-Truss or Truss-to-adjacent Structural Element.

User (non-mandatory) note: See Commentary section §2.3.2.4(h)(4) regarding methods to address differential deflection.

- (5) Any deflection and vibration criteria for floor Trusses including:
 - (i) Any strongback bridging requirements.
 - (ii) Any dead load, live load, and in-service creep deflection criteria for floor Trusses supporting stone or ceramic tile finishes.
- (6) Moisture, temperature, corrosive chemicals and gases expected to result in:
 - (i) Wood moisture content exceeding 19 percent,

- (ii) Sustained temperatures exceeding 150 degrees F, and/or
- (iii) Corrosion potential from wood preservatives or other sources that can be detrimental to Trusses.

2.3.2.5 Responsibility Exemptions.

The Building Designer is responsible for items listed in Section 2.3.2, and is not responsible for the requirements of other parties specified outside of Section 2.3.2.

2.3.3 Requirements for the Permanent Member Restraint/Bracing of Truss Systems.

2.3.3.1 Method of Restraint.

The method of Permanent Individual Truss Member Restraint/Bracing and the method of anchoring or restraining to prevent lateral movement of all Truss members acting together as a system shall be accomplished by:

2.3.3.1.1 Standard Industry Details.

Standard industry Lateral Restraint and Diagonal Bracing details in accordance with *BCSI-B3: Permanent Restraint/Bracing of Chords & Web Members* and/or *BCSI-B7: Temporary & Permanent Restraint/Bracing for Parallel Chord Trusses* of the Building Component Safety Information (BCSI).

2.3.3.1.2 Substitution with Reinforcement.

Permanent Individual Truss Member Restraint shall be permitted to be replaced with reinforcement designed to prevent buckling (e.g., buckling reinforcement by T-reinforcement or L-reinforcement, proprietary reinforcement, etc.).

2.3.3.1.3 Project Specific Design.

A project specific Truss member permanent Lateral Restraint/bracing design for the roof or floor Framing Structural System shall be permitted to be specified by the Building Designer or any Registered Design Professional.

2.3.3.2 Absence of Truss Restraint/Bracing Method or Details.

If a specific Truss member permanent bracing design for the roof or floor Framing Structural System is not provided by the Owner, Building Designer or any Registered Design Professional, the method of Permanent Individual Truss Member Restraint and Diagonal Bracing for the Truss Top Chord, Bottom Chord, and Web members shall be in accordance with *BCSI-B3* or *BCSI-B7*.

2.3.3.3 Trusses Spanning 60 Feet (18 m) or Greater.

For Trusses with clear spans 60 ft. (18 m) or greater, see Section 2.3.1.6.

2.3.4 Requirements of the Contractor.

2.3.4.1 Information Provided to the Truss Manufacturer.

The Contractor shall provide to the Truss Manufacturer a copy of all Construction Documents pertinent to the Building Structural System and the design of the Trusses (i.e., framing plans, specifications, details, structural notes), and the name of the Building Designer if not noted on the Construction Documents.

Amended Construction Documents upon approval through the plan review/permitting process shall be immediately communicated to the Truss Manufacturer.

2.3.4.2 Information Provided to the Building Designer.

The Contractor, after reviewing and/or approving the Truss Submittal Package, shall forward the Truss Submittal Package to the Building Designer for review.

2.3.4.3 Truss Submittal Package Review.

The Contractor shall not proceed with the Truss installation until the Truss Submittal Package has been reviewed by the Building Designer.

2.3.4.4 Means and Methods.

The Contractor is responsible for the construction means, methods, techniques, sequences, procedures, programs, and safety in connection with the receipt, storage, handling, installation, restraining, and bracing of the Trusses.

2.3.4.5 Truss Installation.

The Contractor shall ensure that the Building support conditions are of sufficient strength and stability to accommodate the loads applied during the Truss installation process. Truss installation shall comply with installation tolerances shown in *BCSI-B1*. Temporary Installation Restraint/Bracing for the Truss system and the permanent Truss system Lateral Restraint and Diagonal Bracing for the completed Building and any other construction work related directly or indirectly to the Trusses shall be installed by the Contractor in accordance with:

- (a) The Construction Documents, and/or
- (b) The Truss Submittal Package.

For Trusses clear spanning 60 ft. (18 m) or greater, see Section 2.3.1.6.

2.3.4.6 Pre-Installation Check.

The Contractor shall examine the Trusses delivered to the job site for:

- (a) Dislodged or missing connectors,
- (b) Cracked, dislodged or broken members, or
- (c) Any other damage that can impair the structural integrity of the Truss.

2.3.4.7 Post-Installation Check.

The Contractor shall examine the Trusses after they are erected and installed for:

- (a) Dislodged or missing connectors,
- (b) Cracked, dislodged or broken members, or
- (c) Any other damage that can impair the structural integrity of the Truss.

2.3.4.8 Truss Damage Discovery.

In the event that damage to a Truss is discovered the Contractor shall:

- (a) Ensure that the Truss not be erected, or
- (b) That any area within the Building supported by any such Truss already erected shall be appropriately shored or supported to prevent further damage from occurring and shall remain clear and free of any load imposed by people, plumbing, electrical, mechanical, bridging, bracing, etc. until field repairs have been properly completed per Section 2.3.4.9.

2.3.4.9 Truss Damage Responsibilities.

In the event of damage, the Contractor shall:

- (a) Contact the Truss Manufacturer and Building Designer to determine an adequate field repair, and
- (b) Construct the field repair in accordance with the written instructions and details provided by the Truss Manufacturer, Building Designer, and/or any Registered Design Professional.

2.3.4.10 Responsibility Exemptions.

The Contractor is responsible for items listed in Section 2.3.4, and is not responsible for the requirements of other parties specified outside of Section 2.3.4.

2.3.5 Requirements of the Truss Designer.

2.3.5.1 Preparation of Truss Design Drawings.

The Truss Designer is responsible for the preparation of the Truss Design Drawings based on the Truss design

criteria and requirements set forth in the Construction Documents or as otherwise set forth in writing by the Building Designer as supplied to the Truss Designer by the Contractor through the Truss Manufacturer.

2.3.5.2 Single Truss Component Design.

The Truss Designer shall be responsible for the design, in accordance with this Standard, of each singular Truss depicted on each Truss Design Drawing.

2.3.5.3 Truss Design Drawing Seal and Signature.

Where the Legal Requirements mandate a Registered Design Professional for buildings, each individual Truss Design Drawing shall bear the seal and signature of the Truss Designer.

Exception: When a Cover/Truss Index Sheet is used, it is the only document required to be signed and sealed by the Truss Designer.

2.3.5.4 Truss Placement Diagram.

When the Truss Placement Diagram serves only as a guide for Truss installation, it does not require the seal of the Truss Designer.

2.3.5.5 Information on Truss Design Drawings.

Truss Design Drawings shall include, at a minimum, the information specified below:

- (a) Building Code used for design, unless specified on Cover/Truss Index Sheet.
- (b) Slope or depth, span and spacing.
- (c) Location of all joints and support locations.
- (d) Number of plies if greater than one.
- (e) Required bearing widths.
- (f) Design loads as applicable, including:
 - (1) Top Chord live load (for roof Trusses, this shall be the controlling case of live, snow or rain load);
 - (2) Top Chord dead load;
 - (3) Bottom Chord live load;
 - (4) Bottom Chord dead load;
 - (5) Additional loads and locations;

- (6) Environmental load design criteria (wind speed, snow, rain, seismic, and all applicable factors as required to calculate the Truss loads); and

- (7) Other lateral loads, including drag strut loads.

- (g) Adjustments to Wood Member and Metal Connector Plate design values for conditions of use.

- (h) Maximum reaction force and direction, including maximum uplift reaction forces where applicable.

- (i) Metal Connector Plate type, manufacturer, size, and thickness or gauge, and the dimensioned location of each Metal Connector Plate except where symmetrically located relative to the joint interface.

- (j) Size, species and grade for each Wood Member.

- (k) Truss-to-Truss connection and Truss field assembly requirements.

- (l) Calculated span to deflection ratio and/or maximum vertical and horizontal deflection for live load and for live plus dead load and K_{CR} as applicable per Section 7.6.

- (m) Maximum axial tension and compression forces in the Truss members.

- (n) Fabrication tolerance per Section 6.4.10.

- (o) Required Permanent Individual Truss Member Restraint location.

- (p) Truss Designer

2.3.5.6 Responsibility Exemptions.

The Truss Designer is responsible for items listed in Section 2.3.5, and is not responsible for the requirements of other parties specified outside of Section 2.3.5.

2.3.6 Requirements of the Truss Manufacturer.

2.3.6.1 Truss Design Criteria and Requirements.

The Truss Manufacturer shall obtain the Truss design criteria and requirements from the Construction Documents.

2.3.6.2 Communication to Truss Designer.

The Truss Manufacturer shall communicate the Truss design criteria and requirements to the Truss Designer.

2.3.6.3 Alternate Truss Designs.

If an alternative or partial set of Truss design(s) is proposed by either the Truss Manufacturer or the Truss Designer, such alternative set of design(s) shall be sent to and reviewed by the Building Designer for the Building prior to manufacturing. Where the Legal Requirements mandate a Registered Design Professional for buildings, these alternative set of design(s) do not require the seal of the Truss Designer until accepted by the Building Designer, whereupon these alternative Truss Design Drawings shall be sealed by the Truss Designer.

2.3.6.4 Truss Placement Diagram.

Where required by the Construction Documents or Contract, the Truss Manufacturer shall prepare the Truss Placement Diagram that identifies the assumed location for each individually designated Truss and references the corresponding Truss Design Drawing. The Truss Placement Diagram shall be permitted to include identifying marks for other products including Structural Elements, so that they can be more easily identified by the Contractor during field erection. When the Truss Placement Diagram serves only as a guide for Truss installation and requires no engineering input, it does not require the seal of any Registered Design Professional including in cases where the Legal Requirements mandate a Registered Design Professional for buildings.

2.3.6.5 Required Documents.

The Truss Manufacturer shall supply to the Contractor the Truss Submittal Package, including the Truss Design Drawings, a Truss Placement Diagram, if required by the Construction Documents or Contract, and the required Permanent Individual Truss Member Restraint location and the method to be used per Section 2.3.3.

2.3.6.6 Special Application Conditions.

The Truss Manufacturer shall be allowed to provide detail drawings to the Contractor to document special application conditions.

2.3.6.7 Truss Submittal Packages.

Where required by the Construction Documents or Contract, Legal Requirements or the Building Official, the Truss Manufacturer shall provide the appropriate Truss Submittal Package to one or more of the following: Building Official; Building Designer and/or Contractor for review and/or approval per Section 2.3.4.2.

2.3.6.8 Reliance on Construction Documents.

The Truss Manufacturer shall be permitted to rely on the accuracy and completeness of information furnished in the Construction Documents or otherwise furnished in writing by the Building Designer and/or Contractor.

2.3.6.9 Fabrication Tolerance.

The Truss Manufacturer shall determine the value for the fabrication tolerance to be used in the design of the Trusses (see Section 6.4.10).

2.3.6.10 Manufacturer Quality Criteria.

The Truss Manufacturer shall manufacture the Trusses in accordance with the final Truss Design Drawings, using the quality criteria required by this Standard unless more stringent quality criteria is provided by the Owner in writing or through the Construction Documents.

2.3.6.11 In-Plant Truss Inspections.

Truss inspections, as required by the Jurisdiction, shall be performed at the manufacturer's facility using the manufacturer's In-Plant Quality Assurance Program monitored by an inspection agency approved by the Jurisdiction, and shall satisfy any Quality Control/quality assurance requirements for the Trusses, and shall satisfy any designated in-plant special inspection requirements for the Trusses.

2.3.6.12 Responsibility Exemptions.

The Truss Manufacturer is responsible for items listed in Section 2.3.6, and is not responsible for the requirements of other parties specified outside of Section 2.3.6.

2.4 CONTRACTS**2.4.1 Defer to Construction Documents.**

This Chapter of the Standard is not intended to take precedence over the Construction Documents, where a Contract between parties incorporates by reference the Construction Documents, and therefore the Construction Documents shall apply as between the parties to the Contract.

2.4.2 Defer to Contract.

This Chapter of the Standard is not intended to take precedence over a Contract as a Contract shall be permitted to contain provisions that take precedence over the Standard and/or the Construction Documents. A party shall not exclude in a Contract a responsibility established by this Standard or the Construction Documents unless that responsibility is assigned to a qualified party and that party agrees to that assignment.

Any changes made to the Construction Documents by Contract shall be submitted, reviewed and approved by the Building Official.

2.4.3 Incorporation into Contract.

A Contract shall be permitted to incorporate this Chapter of the Standard to establish the Responsibilities of the parties to such Contract.

Ridgway Roof Truss Co., Gainesville, FL - 32601, Run: 25.40 S Jan 8 2026 Print: 25.4.0 S Jan 8 2026 MiTek Industries, Inc. Tue Jun 30 07:58:40 Page: 1
ID:DmJrADDHEdVlSibufpeC53z717P-Dt96tFx6Re2eBVW7zRXEW6aVcnAV5ssLdVEpnPz1Jsz

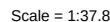


Plate Offsets (X, Y): [2:0-2-9,0-0-4], [2:0-2-8,Edge], [14:0-2-9,0-0-4], [14:0-2-8,Edge], [18:0-2-8,0-1-4]

LUMBER
TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2
OTHERS 2x4 SP No.3

BRACING
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS All bearings 16-0-0.
(lb) - Max Horiz 2=114 (LC 10)
Max Uplift All uplift 100 (lb) or less at joint(s)
16, 17, 19, 20, 22, 23, 24, 25
except 2=215 (LC 12), 14=212 (LC 12)
Max Grav All reactions 250 (lb) or less at joint (s)
16, 17, 19, 20, 21, 22, 23, 24, 25
except 2=270 (LC 1), 14=269 (LC 1)

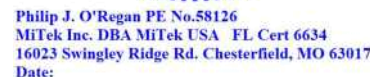
FORCES (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.

- 5) All plates are 2x4 (||) MT20 unless otherwise indicated.
- 6) Gable requires continuous bottom chord bearing.
- 7) Gable studs spaced at 1-4-0 oc.
- 8) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 9) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-06-00 tall by 2-00-00 wide will fit between the bottom chord and any other members.
- 10) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint (s) 22, 23, 24, 25, 20, 19, 17, 16 except (jt=lb) 2=215, 14=212, 2=215.

LOAD CASE(S) Standard

NOTES

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-22; Vult=130mph (3-second gust)
Vasd=101mph; TCDL=4.2psf; BC DL=6.0psf; h=30ft;
B=45ft; L=24ft; eave=2ft; Cat. II; Exp C; Enclosed;
MWFRS (directional) and C-C Zone3 zone; cantilever left and right exposed ; end vertical left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- 3) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- 4) Building Designer / Project engineer responsible for verifying applied roof live load shown covers rain loading requirements specific to the use of this truss component.



June 30, 2026



Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see **ANSI/TP1 Quality Criteria and DS-22** available from Truss Plate Institute (www.tpinst.org) and **BCSI Building Component Safety Information** available from the Structural Building Component Association (www.sbcsccomponents.com)

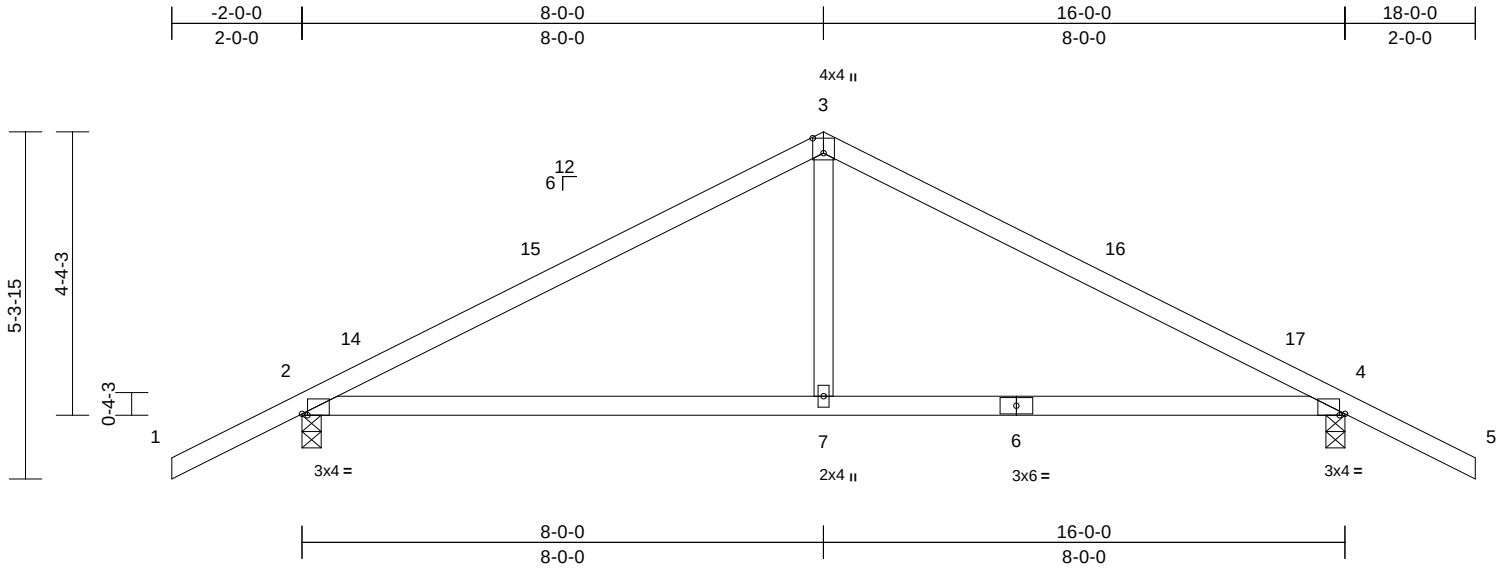
MiTek®
16023 Swingley Ridge Rd.
Chesterfield, MO 63017
314.434.1200 / MiTek-US.com

Job	Truss	Truss Type	Qty	Ply	Jenkins Utility Bldg	T41706699
260311 6-12-26 JAJ	R02	Common	12	1	Job Reference (optional)	

Ridgway Roof Truss Co., Gainesville, FL - 32601,

Run: 25.40 S Jun 11 2026 Print: 25.4.0 S Jun 11 2026 MiTek Industries, Inc. Mon Jun 29 09:05:54
ID:s41NhKMoPQbuZVCMKs0bbz717D-RfC?PsB70Hq3NSgPqnL8w3ulTXbGKwRCDoi7J4zJC?f

Page: 1



Scale = 1:35.3

Plate Offsets (X, Y): [2:0-1-0,Edge], [3:0-2-12,0-2-0], [4:0-1-0,Edge]

Loading	(psf)	Spacing	2-0-0	CSI	DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.25	TC	0.81	Vert(LL)	0.12	7-10	>999	240	244/190
TCDL	10.0	Lumber DOL	1.25	BC	0.68	Vert(CT)	-0.23	7-13	>851	180	
BCLL	0.0*	Rep Stress Incr	YES	WB	0.14	Horz(CT)	0.01	4	n/a	n/a	
BCDL	10.0	Code	FBC2023/TPI2014	Matrix-MS							
										Weight: 63 lb	FT = 20%

LUMBER

TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2
WEBS 2x4 SP No.3

BRACING

TOP CHORD Structural wood sheathing directly applied or 3-3-3 oc purlins.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS

(size) 2=0-3-8, 4=0-3-8
Max Horiz 2=-122 (LC 10)
Max Uplift 2=-321 (LC 12), 4=-321 (LC 12)
Max Grav 2=760 (LC 1), 4=760 (LC 1)

FORCES

(lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/54, 2-3=-888/361, 3-4=-888/361, 4-5=0/54
BOT CHORD 2-7=-127/707, 4-7=-127/707
WEBS 3-7=0/376

NOTES

- Unbalanced roof live loads have been considered for this design.
- Designed to ASCE 7-22 basic load combinations for allowable stress design unless otherwise noted.
- Wind: ASCE 7-22; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=6.0psf; h=30ft; B=45ft; L=24ft; eave=4ft; Cat. II; Exp C; Enclosed; MWFRS (directional) and C-C Zone3 2-0-0 to 1-0-0, Zone1 1-0-0 to 8-0-0, Zone2 8-0-0 to 12-2-15, Zone1 12-2-15 to 18-0-0 zone; cantilever left and right exposed; end vertical left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- Building Designer / Project engineer responsible for verifying applied roof live load shown covers rain loading requirements specific to the use of this truss component.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.

- * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-06-00 tall by 2-00-00 wide will fit between the bottom chord and any other members.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 321 lb uplift at joint 4 and 321 lb uplift at joint 2.

LOAD CASE(S) Standard



Philip J. O'Regan PE No.58126
MiTek Inc. DBA MiTek USA FL Cert 6634
16023 Swingley Ridge Rd. Chesterfield, MO 63017
Date:

June 30,2026

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 1/2/2023 BEFORE USE.

Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see **ANSI/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute (www.tpinst.org) and **BCSI Building Component Safety Information** available from the Structural Building Component Association (www.sbcsccomponents.com)

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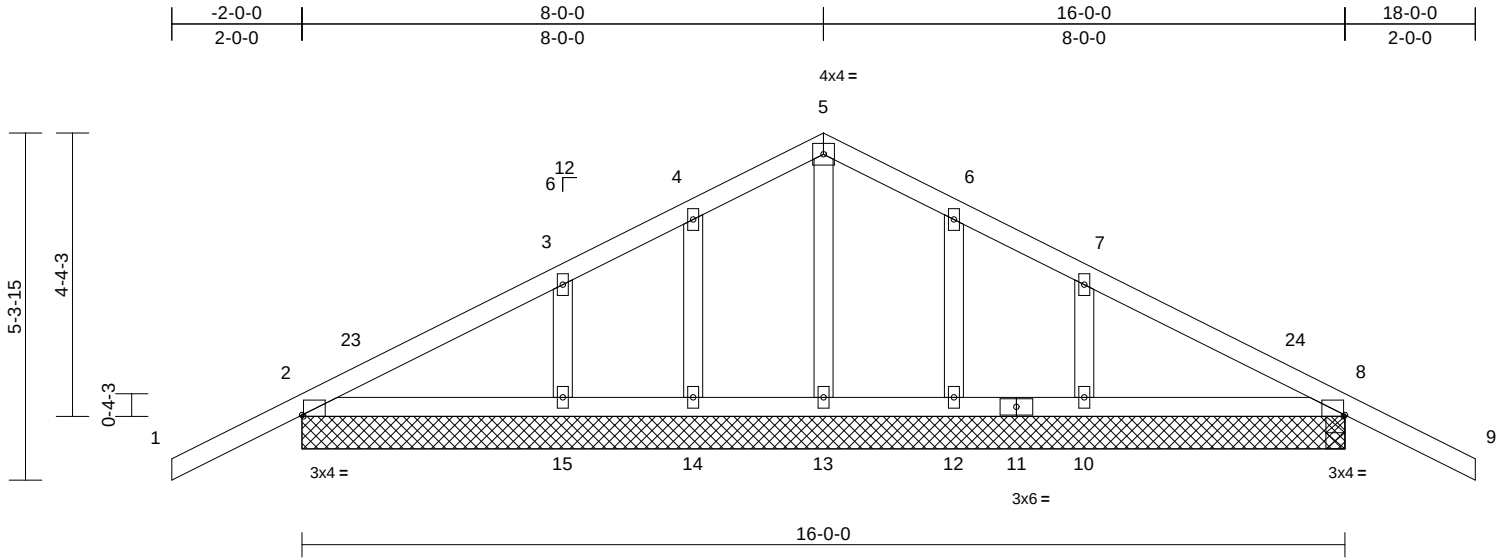
16023 Swingley Ridge Rd.
Chesterfield, MO 63017
314.434.1200 / MiTek-US.com

Job	Truss	Truss Type	Qty	Ply	Jenkins Utility Bldg	T41706700
260311 6-12-26 JAJ	R03	Common	2	1	Job Reference (optional)	

Ridgway Roof Truss Co., Gainesville, FL - 32601,

Run: 25.40 S Jun 11 2026 Print: 25.4.0 S Jun 11 2026 MiTek Industries, Inc. Mon Jun 29 09:05:54
ID: Smtge6Xb6cBaiauBG6I9Xz717?-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCdoi7J4zJC?f

Page: 1



Scale = 1:35.3

Plate Offsets (X, Y): [2:0-0-4,Edge], [8:0-0-4,Edge]

Loading	(psf)	Spacing	2-0-0	CSI		DEFL	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL (roof)	20.0	Plate Grip DOL	1.25	TC	0.63	Vert(LL)	-0.01	10-22	>999	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.25	BC	0.43	Vert(CT)	-0.02	10-22	>999	180		
BCLL	0.0*	Rep Stress Incr	NO	WB	0.07	Horz(CT)	0.01	13	n/a	n/a		
BCDL	10.0	Code	FBC2023/TPI2014	Matrix-MS							Weight: 77 lb	FT = 20%

LUMBER

TOP CHORD 2x4 SP No.2
BOT CHORD 2x4 SP No.2
OTHERS 2x4 SP No.3

BRACING

TOP CHORD Structural wood sheathing directly applied or 4-6-1 oc purlins.
BOT CHORD Rigid ceiling directly applied or 4-7-8 oc bracing.

REACTIONS

(size) 2=16-0-0, 8=0-3-8, 10=16-0-0, 12=16-0-0, 13=16-0-0, 14=16-0-0, 15=16-0-0
Max Horiz 2=122 (LC 33)
Max Uplift 2=-1029 (LC 35), 8=-1029 (LC 36), 10=-102 (LC 35), 12=-98 (LC 36), 14=-98 (LC 35), 15=-102 (LC 36)
Max Grav 2=943 (LC 44), 8=957 (LC 33), 10=267 (LC 18), 12=128 (LC 48), 13=150 (LC 17), 14=128 (LC 47), 15=267 (LC 17)

FORCES

(lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=0/54, 2-3=-1755/1689, 3-4=-955/995, 4-5=-527/617, 5-6=-526/623, 6-7=-957/1011, 7-8=-1704/1720, 8-9=0/54
BOT CHORD 2-15=-1441/1623, 14-15=-819/904, 13-14=-379/531, 12-13=-379/504, 10-12=-819/931, 8-10=-1494/1596
WEBS 5-13=-101/0, 4-14=-104/138, 3-15=-188/190, 6-12=-104/132, 7-10=-200/176

NOTES

- Unbalanced roof live loads have been considered for this design.
- Designed to ASCE 7-22 basic load combinations for allowable stress design unless otherwise noted.

- Wind: ASCE 7-22; Vult=130mph (3-second gust) Vasd=101mph; TCDL=4.2psf; BCDL=6.0psf; h=30ft; B=45ft; L=24ft; eave=4ft; Cat. II; Exp C; Enclosed; MWFRS (directional) and C-C Zone3 -2-0-0 to 1-0-0, Zone1 1-0-0 to 8-0-0, Zone2 8-0-0 to 12-0-0, Zone1 12-0-0 to 18-0-0 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- Building Designer / Project engineer responsible for verifying applied roof live load shown covers rain loading requirements specific to the use of this truss component.
- All plates are 2x4 (||) MT20 unless otherwise indicated.
- Gable studs spaced at 2-0-0 oc.
- This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-06-00 tall by 2-00-00 wide will fit between the bottom chord and any other members.
- Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 1029 lb uplift at joint 2, 98 lb uplift at joint 14, 102 lb uplift at joint 15, 98 lb uplift at joint 12, 102 lb uplift at joint 10, 1029 lb uplift at joint 8 and 1029 lb uplift at joint 2.
- This truss has been designed for a total drag load of 200 plf. Lumber DOL=(1.33) Plate grip DOL=(1.33) Connect truss to resist drag loads along bottom chord from 0-0-0 to 16-0-0 for 200.0 plf.

LOAD CASE(S) Standard



Philip J. O'Regan PE No.58126
MiTek Inc. DBA MiTek USA FL Cert 6634
16023 Swingley Ridge Rd. Chesterfield, MO 63017
Date:

June 30,2026

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 1/2/2023 BEFORE USE.

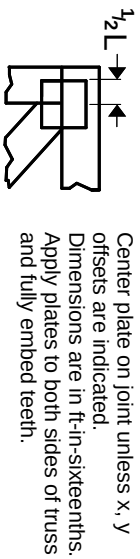
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see **ANSI/TPI1 Quality Criteria and DSB-22** available from Truss Plate Institute (www.tpinet.org) and **BCSI Building Component Safety Information** available from the Structural Building Component Association (www.sbcsccomponents.com)

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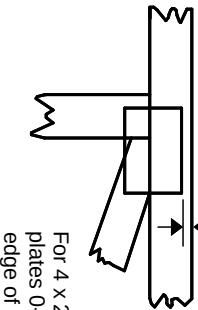
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Chesterfield, MO 63017
314.434.1200 / MiTek-US.com

Symbols

PLATE LOCATION AND ORIENTATION



0- $\frac{1}{16}$ "



For 4 x 2 orientation, locate plates 0- $\frac{3}{16}$ " from outside edge of truss.

—
—
This symbol indicates the required direction of slots in connector plates.

* Plate location details available in MITek software or upon request.

PLATE SIZE

4 X 4

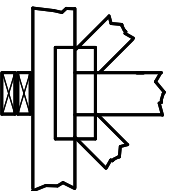
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

LATERAL BRACING LOCATION



Indicated by symbol shown and/or by text in the bracing section of the output. Use T or I bracing if indicated.

BEARING



Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number/letter where bearings occur. Min size shown is for crushing only.

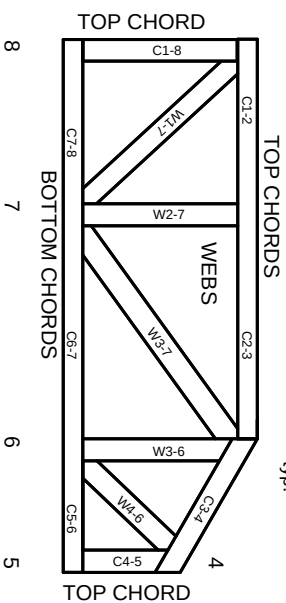
Industry Standards:

ANSI/TP1.1: National Design Specification for Metal Plate Connected Wood Truss Construction.
DSB-22: Design Standard for Bracing.
BCSI: Building Component Safety Information, Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses.

Numbering System

6-4-8 dimensions shown in ft-in-sixteenths (Drawings not to scale)

1 2 3 Joint ID typ.



JOINTS ARE GENERALLY NUMBERED/LETTERED CLOCKWISE AROUND THE TRUSS STARTING AT THE JOINT FARTHEST TO THE LEFT.

CHORDS AND WEBS ARE IDENTIFIED BY END JOINT NUMBERS/LETTERS.

Product Code Approvals

ICC-ES Reports:

ESR-1988, ESR-2362, ESR-2685, ESR-3282
ESR-4722, ESL-1388

Design General Notes

Trusses are designed for wind loads in the plane of the truss unless otherwise shown.

Lumber design values are in accordance with ANSI/TP1 1 section 6.3. These truss designs rely on lumber values established by others.

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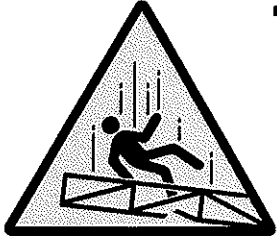
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MITek Engineering Reference Sheet: MIL-7473 rev. 1/12/2023

General Safety Notes

Failure to Follow Could Cause Property Damage or Personal Injury

1. Additional stability bracing for truss system, e.g. diagonal or X-bracing, is always required. See BCSI.
2. Truss bracing must be designed by an engineer. For wide truss spacing, individual lateral braces themselves may require bracing, or alternative Tor I bracing should be considered.
3. Never exceed the design loading shown and never stack materials on inadequately braced trusses.
4. Provide copies of this truss design to the building designer, erection supervisor, property owner and all other interested parties.
5. Cut members to bear tightly against each other.
6. Place plates on each face of truss at each joint and embed fully. Knots and wane at joint locations are regulated by ANSI/TP1 1.
7. Design assumes trusses will be suitably protected from the environment in accord with ANSI/TP1 1.
8. Unless otherwise noted, moisture content of lumber shall not exceed 19% at time of fabrication.
9. Unless expressly noted, this design is not applicable for use with fire retardant, preservative treated, or green lumber.
10. Camber is a non-structural consideration and is the responsibility of truss fabricator. General practice is to camber for dead load deflection.
11. Plate type, size, orientation and location dimensions indicated are minimum plating requirements.
12. Lumber used shall be of the species and size, and in all respects, equal to or better than that specified.
13. Top chords must be sheathed or purlins provided at spacing indicated on design.
14. Bottom chords require lateral bracing at 10 ft. spacing, or less, if no ceiling is installed, unless otherwise noted.
15. Connections not shown are the responsibility of others.
16. Do not cut or alter truss member or plate without prior approval of an engineer.
17. Install and load vertically unless indicated otherwise.
18. Use of green or treated lumber may pose unacceptable environmental, health or performance risks. Consult with project engineer before use.
19. Review all portions of this design (front, back, words and pictures) before use. Reviewing pictures alone is not sufficient.
20. Design assumes manufacture in accordance with ANSI/TP1 1 Quality Criteria.
21. The design does not take into account any dynamic or other loads other than those expressly stated.



TRUSS & COMPONENT WARNING NOTICE

TRUSS Y COMPONENTE AVISO DE ADVERTENCIA



USE federal and state OSHA-compliant fall protection whenever installing Trusses and components six feet (6') or greater above the ground.

FAILURE to follow these warnings and precautions may result in serious injury or death.

UTILICE protección contra caídas que cumpla con las normas federales y estatales de OSHA siempre que instale Trusses y componentes a seis pies (6') o más del suelo.

EL NO seguir estas advertencias y precauciones puede provocar lesiones graves o la muerte.



SCAN QR CODE FOR
MORE INFORMATION
ESCANEAR EL CÓDIGO
QR PARA
MÁS INFORMACIÓN

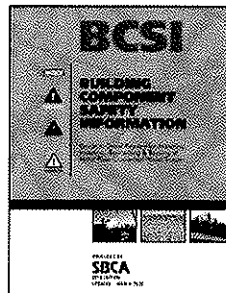
Safety Information:

Risk of Serious Injury or Death Could Result from:

- Falling when installing and working among Trusses and components ("Trusses").
- The collapse or rolling of Trusses not completely installed and braced.
- Walking on or supporting yourself from Trusses or gable end frames lying flat.
- Stepping or walking on:
 - The top chord of any floor or roof Truss during installation until the Truss is part of a fully installed and braced Truss system;
 - The bottom chord of any floor or roof Truss at any time during or after installation; and
 - Any floor or roof Truss positioned in a horizontal orientation.

Additional Warnings and Precautions:

- DO NOT stand on Truss overhangs until structural sheathing and required blocking has been applied.
- Framing should not be considered to be structurally sound, stable, or safe until all hardware, restraints, and bracing are properly and completely installed.
- Read BCSI Guidelines and BCSI Summary Sheets for detailed instructions on handling, storing, installing, and bracing of Trusses and components.



Información de Seguridad:

El Riesgo de Lesiones Graves o Muerte Podría Resultar de:

- Caída al instalar y trabajar entre Trusses y componentes ("Trusses").
- El colapso o el balanceo de las Trusses no están completamente instaladas y acoradas.
- Caminar o sobre apoyarse de las Trusses o los marcos de extremo acostados.
- Pisar o caminar sobre:
 - La parte superior de cualquier Truss de piso o techo durante la instalación hasta que la Truss sea parte de un sistema de Truss totalmente instalado y con refuerzo;
 - Las partes inferior de cualquier Truss de piso o techo en cualquier momento durante o después de la instalación; y
 - Cualquier Truss de piso o techo colocada en una orientación horizontal.

Advertencias y precauciones adicionales:

- NO SE pare en los bordes de la Truss hasta que se haya aplicado el revestimiento estructural y el bloqueo requerido.
- El encuadre no debe considerarse estructuralmente sólido, estable o seguro hasta que todos el hardware, las restricciones, y los restaduras son instalado de forma adecuada y completa.
- Lea las directrices de BCSI y las hojas de resumen de BCSI para obtener instrucciones detalladas sobre el manejo, el almacenamiento, la instalación y el refrestado de las Trusses.

For more information, visit www.componentwarningnotice.com. • ©SBCA 2024 • www.sbcacomponents.com

SBCA
CWN 20241001

JOBSITE PACKAGE

IMPORTANT DOCUMENTS ENCLOSED

PLEASE REVIEW



WARNING

The handling, storing, installing, restraining and diagonal bracing of structural building components requires specialized training, clearly implemented procedures, and careful planning and communication among the contractor, crane operator and installation crew. Handling and installing components without appropriate training, planning and communication greatly increases the probability of an accident resulting in property damage, serious personal injury and/or death.

Prior to component installation, the documents should be examined and disseminated to all appropriate personnel, in addition to proper training and a clear understanding of the installation plan, any applicable fall protection requirements, and the intended restraint and bracing requirements. Trusses with clear spans of 60 feet or greater in length are very dangerous to install and may require complex temporary and permanent bracing. Please consult a Registered Design Professional.

Examine the building, the building's structural framing system, bearing locations and related installation conditions. Begin component installation only after any unsatisfactory conditions have been corrected. Do not cut, modify or repair components. Report any damage before installation.

The enclosed documents are offered as minimum guidelines only. Nothing contained in this jobsite package should be construed in any manner as expanding the scope of responsibility of, or imposing any additional liabilities on, the component manufacturer.

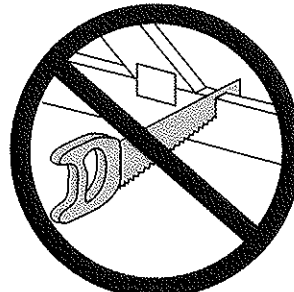
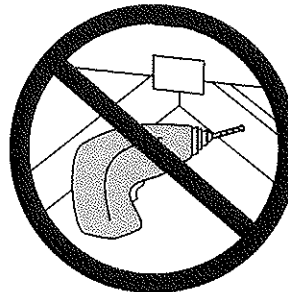
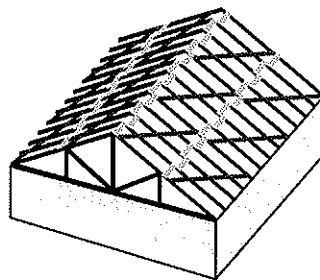
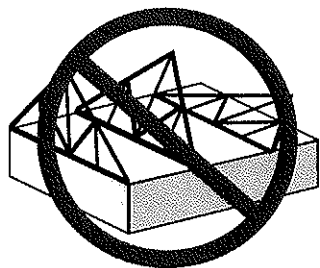
¡ADVERTENCIA!

El manejo, almacenamiento, instalación, restricción y arrioste diagonal de componentes estructurales de construcción requieren entrenamiento especializada, procedimientos claramente implementados y planificaron y comunicación clara entre el contratista, operador de grúa, y los obreros de instalación. El manejar e instalar los componentes sin entrenamiento suficiente, planificación y comunicación adecuadas aumenta la probabilidad de un accidente que resulta en daño a propiedad, herida seria o muerte.

Antes de la instalación de componentes, los documentos adjuntos deben ser examinados y difundidos a todo el personal apropiado, además del entrenamiento pertinente y un claro entendimiento del plan de instalación, de todo requisito aplicable de la protección contra la caída y de los requisitos previstos de arrioste y restricción. La instalación de trusses con tramos despejados y más de 60 pies de largo es muy peligrosa y puede requiere el arrioste temporal y permanente complejo. Por favor, consulte a un Profesional de Diseño Registrado.

Examine la estructura, el sistema armazón estructural de edificio, ubicaciones de soporte e las condiciones de instalación correspondientes y comenzar con la instalación de los componentes sólo después de haber corregido toda condición insatisfactoria. No corte, modifique ni repare los componentes y informe cualquier daño descubierto antes de proceder a la instalación.

Los documentos adjuntos se ofrecen solamente como directrices mínimas. Nada de lo incluido en este paquete debe interpretarse de manera que exceda el alcance de la responsabilidad del fabricante de componentes, ni en forma tal que imponga responsabilidades adicionales sobre éste.



FOR DESIGN RESPONSIBILITIES SEE REVERSE

The text appearing below has been paraphrased and reproduced from ANSI/TPI 1-2014, Chapter 2, with permission from the publisher, the Truss Plate Institute (TPI) (tpinst.org). For reference, the numbers in parentheses refer to specific ANSI/TPI 1 sections. Refer to ANSI/TPI 1 Chapter 2 for complete text and definitions. For information on design responsibilities contact your Component Manufacturer or SBCA at 608-274-4849 or sbcindustry.com.

CONSTRUCTION RELATED ITEMS

The Contractor shall not proceed with the Truss installation until the Truss Submittal Package has been reviewed by the Building Designer (2.3.4.2). The Building Designer shall review the Truss Submittal Package for compatibility with the building design. All such submittals shall include a notation indicating that they have been reviewed and whether or not they have been found to be in general conformance with the design of the Building (2.3.2.3).

The method of Permanent Individual Truss Member Restraint/Bracing and the method of anchoring or restraining to prevent lateral movement of all Truss members acting together as a system shall be accomplished by: (a) standard industry Lateral Restraint and Diagonal Bracing details in accordance with BCSI-B3 and/or BCSI-B7 (2.3.3.1.1), (b) Permanent Individual Truss Member Restraint shall be permitted to be replaced with reinforcement designed to prevent buckling (e.g., buckling reinforcement by T-reinforcement or L-reinforcement, proprietary reinforcement, etc.) (2.3.3.1.2), or a project specific Truss member permanent Lateral Restraint/Diagonal Bracing design for the roof or floor Building Structural System shall be permitted to be specified by the Building Designer or any Registered Design Professional (RDP) (2.3.3.1.3).

If a specific T member permanent bracing design for the roof or floor Framing Structural System is not provided by the Owner, Building Designer, or any RDP, the method of Permanent Individual Truss Member Restraint and Diagonal Bracing for the Truss Top Chord, Bottom Chord, and Web members shall be in accordance with BCSI-B3 or BCSI-B7 (2.3.3.2).

The Contractor is responsible for the construction means, methods, techniques, sequences, procedures, programs, and safety in connection with the receipt, storage, handling, installation, restraining, and bracing of the Trusses (2.3.4.4). The Contractor shall ensure that the Building support conditions are of sufficient strength and stability to accommodate the loads applied during the Truss installation process. Truss installation shall comply with installation tolerances shown in BCSI-B1. Temporary Installation Restraint/Bracing for the Truss system and the permanent Truss system Lateral Restraint and Diagonal Bracing for the completed building and any other construction work related directly or indirectly to the Trusses shall be installed by the Contractor in accordance with the Construction Documents and/or the Truss Submittal Package (2.3.4.5).

The Contractor shall examine the trusses delivered to the job site and after the Trusses are erected and installed for dislodged or missing connectors, cracked, dislodged or broken members, or any other damage that may impair the structural integrity of the Truss (2.3.4.6/2.3.4.7). In the event that damage to a Truss is discovered that would likely impair the structural integrity of the Truss, the Contractor shall ensure that the Truss not be erected or that any area within the building supported by any such Truss already erected shall be appropriately shored or supported to prevent further damage from occurring and shall remain clear and free of any load imposed by people, plumbing, electrical, mechanical, bridging, bracing, etc. until field repairs have been properly completed (2.3.4.8). In the event of damage, the Contractor shall contact the Truss Manufacturer to determine an adequate field repair and construct the field repair in accordance with the written instructions and details provided by any RDP (2.3.4.9).

TRUSS MANUFACTURER RESPONSIBILITIES

Where required by the Construction Documents or Contract, Legal Requirements or the Building Official, the Truss Manufacturer shall provide the appropriate Truss Submittal Package, including the Truss Design Drawings, a Truss Placement Diagram, and the required Permanent Individual Truss Member Restraint and the method to be used (2.3.6.5) to one or more of the following: Building Official; Building Designer and/or Contractor for review and/or approval (2.3.6.7). The Truss Manufacturer shall also be allowed to provide detail drawings to the Contractor to document special application conditions (2.3.6.6).

The Truss Placement Diagram identifies the assumed location for each individually designated Truss and references the corresponding Truss Design Drawing. The Truss Placement Diagram shall be permitted to include identifying marks for other products including Structural Elements, so that they can be more easily identified by the Contractor during field erection. When the Truss Placement Diagram serves only as a guide for Truss installation and requires no engineering input or is not prepared by a RDP, it does not require the seal of any RDP including cases where the Legal Requirements mandate a RDP for the Buildings (2.3.6.4).

In preparing the Truss Submittal Package, the Truss Manufacturer shall be permitted to rely on the accuracy and completeness of information furnished in the Construction Documents or otherwise furnished in writing by the Building Designer and/or Contractor (2.3.6.8).

The Truss Manufacturer shall determine the fabrication tolerance to be used in the truss design (2.3.6.9) and manufacture the trusses in accordance with the final Truss Design Drawings, using the quality criteria required by ANSI/TPI 1-2014 unless more stringent quality criteria is provided by the Owner in writing or through the Construction Documents (2.3.6.10).

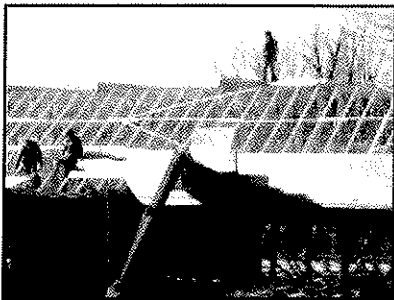
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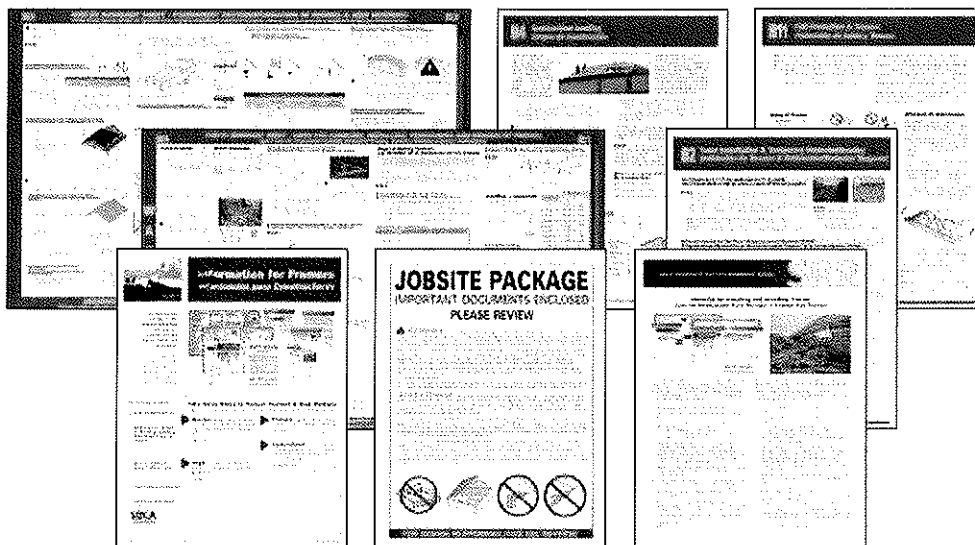


Information for Framers

Información para Constructores

The documents provided in the **JOBSITE PACKAGE** will help you perform your job quickly, safely and accurately.

Los documentos provistos en el PAQUETE DE OBRA le ayudarán en hacer su trabajo rápidamente, sin peligro, y con precisión.



Standard Jobsite Package shown

This Package Contains:

Este paquete contiene:

- ☐ **Truss Design Drawings**
Dibujos del Diseño de Truss
- ☐ **BCSI Summary Sheets for Handling, Installing, Restraining & Bracing Trusses**
BCSI Hojas Resumen para el Manejo, Instalación, Restricción y Arrioste de los Trusses
- ☐ **Take off, Summary Sheet or Bill of Lading**
Descontar, Hoja de Resumen o Conocimiento de Embarque
- ☐ **Truss Placement Diagram**
Diagrama de la Colocación de Truss
- ☐ **Additional Information**
Información Adicional

Take these Steps to Protect Yourself & Your Workers:

Tome estas medidas para protegerse usted mismo y sus colaboradores:

Review these documents so you will have a better understanding of the components supplied for the job.

Revise estos documentos para que usted tenga un entendimiento mejor de los componentes provistos para el trabajo.

Urge all workers to follow these proper handling and installation guidelines.

Inste a todos trabajadores a sigan estas pautas del manejo e instalación apropiada.

Protect everyone from possible accidents from improper handling.

Proteja todos de accidentes posibles por el manejo incorrecto.

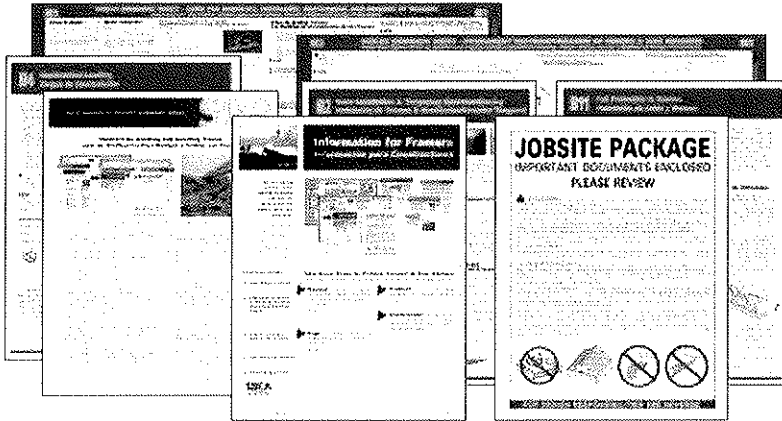
Understand the importance of these guidelines and the steps necessary to keep safe and get the job done right.

Comprenda la importancia de estas pautas y las medidas necesarias para mantener seguro y hacer el trabajo correctamente.

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Components Association

6300 Enterprise Ln
Madison, WI 53719
608-274-4849 • 608-274-3329 (fax)
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Checklist for Handling and Installing Trusses **Lista de Verificación Para Manejar e Instalar Los Trusses**



Review all the information provided in the Jobsite Package to ensure compliance with industry recommendations. Property damage, serious bodily injury and/or death are possible when handling and installing trusses without following the recommendations presented in the Jobsite Package. This is particularly true when working with trusses with clear spans 60' and greater.

Use the following checklist when handling and erecting trusses.

- ☐ Inspect the trusses at the time of delivery and after installation for:
 - (1) Conformance with the Truss Design Drawings
 - (2) Dislodged/missing connector plates
 - (3) Cracked, dislodged or broken members
 - (4) Any other damage that may impair the structural integrity of the trusses.

Notify the truss manufacturer if truss repairs are needed. After installation, if damage to the trusses is discovered that could weaken them, temporarily brace or support the trusses to prevent further damage and make sure the area remains clear of plumbing, electrical, mechanical runs, etc. until the required repairs have been properly completed.

DO NOT cut, drill, relocate, add or remove any truss member or metal connector plate until you have received instructions from the truss manufacturer.

- ☐ Protect trusses from weather, corrosion, lateral bending, damage and deterioration when stored at the jobsite. When trusses are stored at the site, use blocking, stringers, pallets, platforms or other means of support to keep the trusses off the ground or in a braced upright position to avoid damage.
- ☐ Carefully review the truss design drawings (TDD) and the truss placement diagram (TPD), if provided by contract, and all Jobsite Package documents prior to handling and installing trusses.
- ☐ Examine the building, the building's structural framing system, bearing locations and related installation conditions. Begin installing trusses only after any unsatisfactory conditions have been corrected.

Revise toda la información provista en el Paquete de obra para asegurarse que cumplen con las recomendaciones de la industria. Daño a propiedad, herida seria y/o muerte son posibles cuando manejar e instalar trusses sin siguiendo las recomendaciones presentados en del Paquete de obra. Especialmente cuando trabajar con trusses de 60 pies de largo o más.

Use la siguiente lista de verificación cuando se manejan o se levantan los trusses.

- ☐ Examine los trusses cuando se los entreguen y después de la instalación para:
 - (1) Conformidad con los Dibujos de Diseño del Truss
 - (2) Placas de conexión fuera de lugar o perdidas
 - (3) Miembros rotos, descolocados o partidos
 - (4) Cualquier otro daño que pueda perjudicar la integridad estructural de los trusses.

Avisé el fabricante de trusses si reparaciones al truss son necesarios. Después de la instalación, si daño a los trusses está descubierto que pueden debilitarlos, arriestre o soporte los trusses temporalmente para prevenir más daño y asegúrese que el área queda libre de tuberías, las componentes eléctricas o mecánicas, etc. hasta que todos los reparaciones requeridas son completados correctamente.

NO corte, perfore, reubique, añada o quita ningún miembro del truss o conector de metal hasta que haya recibido instrucciones del fabricante de trusses.

- ☐ Proteja los trusses del clima, de la corrosión de torceduras laterales, daño y deterioros cuando los guarda en la obra. Cuando trusses son guardado en sitio, use bloqueados, paletas, plataformas u otros tipos de soporte para almacenarlos fuera de la tierra o en posición vertical para evitar que se dañen.
- ☐ Revise cuidadosamente los dibujos de diseño del truss (TDD), el diagrama de instalación de trusses (TPD) si está provisto, y todos los documentos del Paquete de obra antes de manejar e instalar los trusses.
- ☐ Examine el edificio, el sistema del armazón estructural, las

- ☐ Properly connect all beams and components that support trusses prior to installing the trusses.
- ☐ Girder trusses may consist of more than one truss. Review the TDD to determine the proper number of plies and the correct attachment methods to be used at the jobsite.
- ☐ Use a spreader bar 1/2 to 2/3 of the truss span for trusses over 30' but less than 60' and 2/3 to 3/4 of the truss span for trusses up to and over 60'.
- ☐ Install lateral restraint and diagonal bracing in accordance with the guidelines in the Jobsite Package to prevent trusses from toppling during installation. Erect trusses using the design spacing indicated, keeping the trusses vertical and parallel to one another. Anchor trusses securely at bearing points. Install trusses no more than plus or minus 1/4" from the TPD location.
- ☐ Refer to the construction documents, the TDDs or the TPD (if required by the contract) for the hanger locations. Hangers shall be correctly attached. Refer to hanger manufacturer's specifications for installation information.
- ☐ Install all permanent individual truss member restraint and bracing or member reinforcement depicted on the TDDs, BCSI-B3 and the construction documents.
- ☐ Comply with the owner's, or the owner's retained registered design professional's, permanent building stability bracing, anchorage, connections and field assembly requirements. This information is typically provided in the construction documents.
- ☐ Install structural sheathing as soon as possible. Trusses hold their profiles best when they have been properly plumbed, restrained and braced with structural sheathing. Sheath early... sheath often!
- ☐ During construction, distribute material and equipment loads (e.g., plywood, drywall, roofing, tools, etc.) on the trusses to stay within the design load limits for each truss. Make sure the trusses are adequately restrained and braced BEFORE placing any construction loads on them. Only install HVAC units, fire sprinklers, etc., on trusses if the trusses have been designed to accommodate these specific loads. Review the TDD for the assumed loads and locations.

NOTE: Temporarily braced structures are NOT suitable for use or occupancy. Restrict access to construction personnel only. DO NOT inhabit or store anything of value in temporarily braced structures.



Under industry guidelines, trusses that have been field altered on the jobsite or overloaded during the installation phase of construction may null or void the truss manufacturer's limited warranty. Check the truss manufacturer's limited warranty for specific information.

ubicaciones de los soportes y las condiciones relacionadas con la instalación. Comience a instalar los trusses sólo después de haber resuelto cualquier condición desfavorable.

- ☐ Conecte correctamente todas las vigas y componentes que apoyan cerchas antes de instalar las trusses.
- ☐ Los trusses de travesaño pueden consistir en más de un truss. Revise los TDDs para determinar el número adecuado de capas y los métodos de conexión correctos para ser usados en la obra.
- ☐ Use una barra de extensión a 1/2 hasta 2/3 del vano del truss para los trusses que tengan entre 30 pies y 60 pies. Use una barra de extensión 2/3 hasta 3/4 del vano del truss para los trusses hasta más largo de 60 pies.
- ☐ Instale restricción lateral y arriostre diagonal de acuerdo con las directrices en el Paquete de obra para evitar que los trusses se caigan durante la instalación. Levante los trusses usando el espacio de diseño indicado, y mantenga los trusses verticales y paralelas con respecto al otro. Arriostre los trusses de forma segura en los soportes. Instale los trusses a una distancia no más de 1/4 pulgadas de la ubicación en el TPD.
- ☐ Refiera a los documentos de construcción, el TDD o el TPD (si requerido por el contrato) para las ubicaciones de los conectores. Conectores deben ser sujetados correctamente. Refiera a las especificaciones del fabricante de los conectores para información de instalación.
- ☐ Instale todas restricciones permanentes de miembros individuales del truss o refuerzas de miembros secundarios mostrados en el TDD, BCSI-B3 y los documentos de construcción.
- ☐ Cumpliese con los requisitos de arriostre permanente de estabilidad del edificio, restricciones, conexiones, y del ensamblaje en campo del propietario o del profesional de diseño registrado que es empleado por el propietario. Esta información es provista típicamente en los documentos de construcción.
- ☐ Instale el entablado estructural cuanto antes. Los trusses se sostienen mejor cuando han sido apropiadamente colocados a plomadas, restringidas, arriostradas y sujetados al entablado estructural correctamente. ¡Aplique el entablado temprano... aplíquelo con frecuencia!
- ☐ Durante la construcción, distribuya los materiales y cargas de equipo (ej. contrachapado, herramientas, materiales, etc.) en los trusses para quédese entre las límites de capacidad para cada truss. Asegúrese que los trusses son restringidos y arriostrados adecuadamente ANTES de poner algunas cargas de construcción encima de los. Solamente instale unidades de HVAC, aspersores del fuego, etc., en los trusses si los trusses son diseñados para contenerlos. Revise los TDD para las cargas y ubicaciones supuestos.

NOTA: Estructuras que son arriostrados temporalmente NO SON apropiados para el uso o la ocupación. Restrinja la entrada a solamente los obreros. NO habitar o guardar alguna cosa de valor entre de estructuras que son arriostrados temporalmente.

Bajo las guías industriales, los trusses que han sido alterados en la obra o sobrecargados durante la fase de instalación de la construcción, pueden anular o invalidar la garantía limitada que ofrece la compañía fabricante de sus trusses. Para información específica, revise la garantía que brinda la compañía fabricante.

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B1 Handling, Installing, Restraining & Bracing of Trusses Manejo, Instalación, Restricción y Arriostre de los Trusses

General Notes

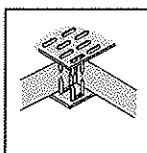
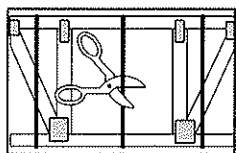
Trusses are not marked in any way to identify the frequency or location of temporary lateral restraint and diagonal bracing. Follow the recommendations for handling, installing and temporary restraining and bracing of trusses. Refer to BCSI – Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses* for more detailed information.



Truss Design Drawings may specify locations of permanent lateral restraint or reinforcement for individual truss members. Refer to the BCSI-B3* for more information. All other permanent bracing design is the responsibility of the building designer.

⚠ DANGER The consequences of improper handling, erecting, installing, restraining and bracing can result in a collapse of the structure, or worse, serious personal injury or death.

⚠ CAUTION Exercise care when removing banding and handling trusses to avoid damaging trusses and prevent injury. Wear personal protective equipment for the eyes, feet, hands and head when working with trusses.

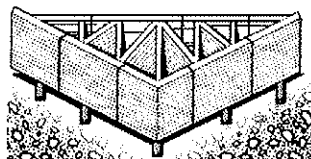


¡CAUTELA! Utilice cautela al quitar las ataduras o los pedazos de metal de sujetar para evitar daño a los trusses y prevenir la herida personal. Lleve el equipo protector personal para ojos, pies, manos y cabeza cuando trabaja con trusses.

Handling

NOTICE Avoid lateral bending.

NOTICE The contractor is responsible for properly receiving, unloading and storing the trusses at the jobsite. Unload trusses to smooth surface to prevent damage.



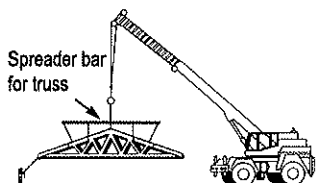
Trusses may be unloaded directly on the ground at the time of delivery or stored temporarily in contact with the ground after delivery. If trusses are to be stored for more than one week, place blocking of sufficient height beneath the stack of trusses at 8' (2.4 m) to 10' (3 m) on center (oc).

If trusses are to be stored for more than one week, cover bundles to protect from the environment.

Refer to BCSI* for more detailed information pertaining to handling and jobsite storage of trusses.

⚠ CAUTION Use special care in windy weather or near power lines and airports.

Use proper rigging and hoisting equipment.



Use equipo apropiado para levantar e improvisar.

Notas generales

Los trusses no están marcados de ningún modo que identifique la frecuencia o localización de restricción lateral y arriostre diagonal temporales. Use las recomendaciones de manejo, instalación, restricción y arriostre temporal de los trusses. Vea el folleto BCSI – Guía de Buena Práctica para el Manejo, Instalación, Restricción y Arriostre de los Trusses de Madera Conectados con Placas de Metal* para información más detallada.

Los dibujos de diseño de los trusses pueden especificar las localizaciones de restricción lateral permanente o refuerzo en los miembros individuales del truss. Vea la hoja resumen BCSI-B3* para más información. El resto de los diseños de arriostres permanentes son la responsabilidad del diseñador del edificio.

¡PELIGRO! El resultado de un manejo, levantamiento, instalación, restricción y arriostre incorrecto puede ser la caída de la estructura o aún peor, heridos o muertos.

Manejo

Evite la flexión lateral.

El contratista tiene la responsabilidad de recibir, descargar y almacenar adecuadamente los trusses en la obra. Descargue los trusses sobre una superficie lisa para prevenir el daño.

Los trusses pueden ser descargados directamente en el suelo en aquel momento de entrega o almacenados temporalmente en contacto con el suelo después de entrega. Si los trusses estarán guardados para más de una semana, ponga bloques de altura suficiente debajo de la pila de los trusses a 8 hasta 10 pies en centro (oc).

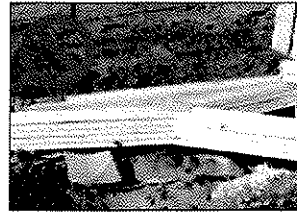
Para trusses guardados por más de una semana, cubra los paquetes para protegerlos del ambiente.

Vea el folleto BCSI* para información más detallada sobre el manejo y almacenado de los trusses en el sitio de trabajo.

¡CAUTELA! Utilice cuidado especial en días ventosos o cerca de cables eléctricos o de aeropuertos.

⊘ **DO NOT** store unbraced bundles upright.

⊘ **DO NOT** store on uneven ground.



NO almacene verticalmente los trusses sueltos.

NO almacene en tierra desigual.

Hoisting and Placement of Truss Bundles

⊘ **DO NOT** overload the crane.

⊘ **NEVER** use banding to lift a bundle.

A single lift point may be used for bundles of top chord pitch trusses up to 45' (13.7 m) and parallel chord trusses up to 30' (9.1 m). Use at least two lift points for bundles of top chord pitch trusses up to 60' (18.3 m) and parallel chord trusses up to 45' (13.7 m). Use at least three lift points for bundles of top chord pitch trusses >60' (18.3 m) and parallel chord trusses >45' (13.7 m).

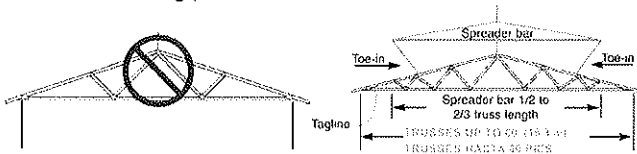
⚠ WARNING Do not overload supporting structure with truss bundles.

Place truss bundles in stable position.

Mechanical Hoisting Recommendations for Single Trusses

NOTICE Using a single pick-point at the peak can damage the truss.

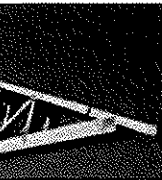
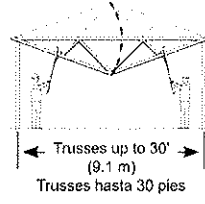
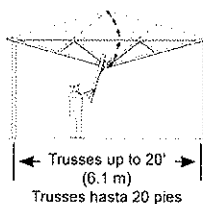
Hold each truss in position with the erection equipment until top chord temporary lateral restraint is installed and the truss is fastened to the bearing points.



Installation of Single Trusses By Hand

Trusses 20' (6.1 m) or less, support near peak.

Trusses 30' (9.1 m) or less, support at quarter points.



Recomendaciones para levantar paquetes de trusses

NO sobrecargue la grúa.

NUNCA use las ataduras para levantar un paquete.

Puede usar un solo lugar de levantar para paquetes de trusses de la cuerda superior hasta 45' y trusses de cuerdas paralelas de 30' o menos. Use por lo menos dos puntos de levantar con grupos de trusses de cuerda superior inclinada hasta 60' y trusses de cuerdas paralelas hasta 45'. Use por lo menos dos puntos de levantar con grupos de trusses de cuerda superior inclinada mas de 60' y trusses de cuerdas paralelas mas de 45'.

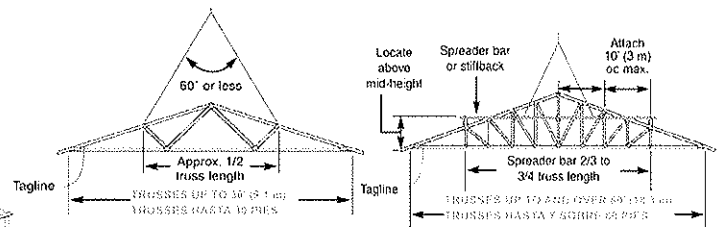
¡ADVERTENCIA! No sobrecargue la estructura apoyada con el paquete de trusses.

Puse paquetes de trusses en una posición estable.

Recomendaciones para levantar trusses individuales

El uso de un solo lugar en el pico para levantar puede hacer daño al truss.

Sostenga cada truss en posición con equipo de grúa hasta que la restricción lateral temporal de la cuerda superior esté instalado y el truss está asegurado en los soportes.



Recomendaciones de levantamiento de trusses individuales por la mano

Soporte cerca del pico los trusses de 20 pies o menos.

Soporte en los puntos de cuarto los trusses de 30 pies o menos.

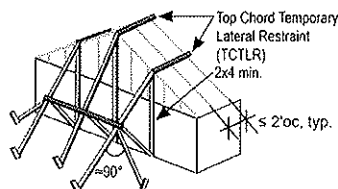
Temporary Restraint and Bracing

NOTICE Refer to BCSI-B2* for more information.

Locate ground braces directly in line with all rows of top chord temporary lateral restraint (see table on next page).



⊘ **DO NOT** walk on unbraced trusses.



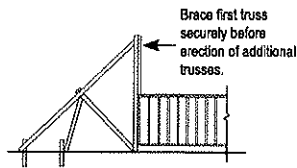
Restricción y arriostre temporal

Vea el resumen BCSI-B2* para más información.

Coloque los arriostres de tierra para el primer truss directamente en línea con cada una de las filas de restricción lateral temporal de la cuerda superior (ver tabla en la página siguiente).

NO camine sobre trusses sueltos.

- ⚠ **DO NOT** stand on truss overhangs until Structural Sheathing has been applied to the truss and overhangs.



Steps to Setting Trusses

- 1) Install ground bracing.
- 2) Set first truss and attach securely to ground bracing.
- 3) Set next 4 trusses with short member temporary lateral restraint (see below).
- 4) Install top chord diagonal bracing (see below).
- 5) Install web member plane diagonal bracing to stabilize the first five trusses (see below).
- 6) Install bottom chord temporary lateral restraint and diagonal bracing (see below).
- 7) Repeat process with groups of four trusses until all trusses are set.

NOTICE: Refer to BCSI-B2* for more information.

Restraint/Bracing for all Planes of Trusses

Minimum lumber used for lateral restraint and diagonal bracing is 2x4 stress-graded lumber. Attach to each truss with at least 2-10d (0.128x3"), 2-12d (0.128x3.25") or 2-16d (0.131x3.5") nails.

This restraint and bracing method is for all trusses except 3x2 and 4x2 parallel chord trusses (PCTs). See top of next column for temporary restraint and bracing of PCTs.

1) Top Chord Plane

Truss Span Longitudud de Tramo	Top Chord Temporary Lateral Restraint (TCTLR) Spacing Espaciamiento del Arriostre Temporal de la Cuerda Superior
Up to 30' (9.1 m)	10' (3 m) oc max.
30' - 45' (9.1 m) - (13.7 m)	8' (2.4 m) oc max.
45' - 60' (13.7 m) - (18.3 m)	6' (1.8 m) oc max.
60' - 80' (18.3 m) - (24.4 m)*	4' (1.2 m) oc max.

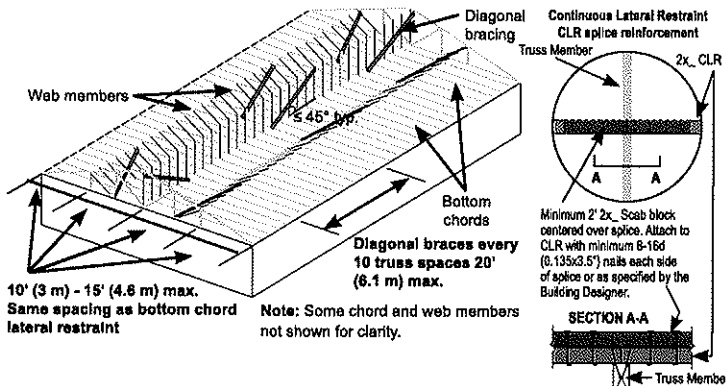
*Consult a Registered Design Professional for trusses longer than 60' (18.3 m).

NOTICE: Refer to BCSI-B3* for Gable End Frame restraint/bracing/reinforcement information.

Repeat diagonal braces for each set of 4 trusses.

2) Web Member Plane

NOTICE: LATERAL RESTRAINT & DIAGONAL BRACING ARE VERY IMPORTANT



NO se pare en voladizos cerchas hasta Revestimiento estructural ha sido aplicado a la armadura y voladizos.

Las medidas de la instalación de los trusses

- 1) Instale los arriostres de tierra.
- 2) Instale el primero truss y ate seguramente al arriostre de tierra.
- 3) Instale los próximos 4 trusses con restricción lateral temporal de miembro corto (vea abajo).
- 4) Instale el arriostre diagonal de la cuerda superior (vea abajo).
- 5) Instale arriostre diagonal para los planos de los miembros secundarios para estabilice los primeros cinco trusses (vea abajo).
- 6) Instale la restricción lateral temporal y arriostre diagonal para la cuerda inferior (vea abajo).
- 7) Repita este procedimiento en grupos de cuatro trusses hasta que todos los trusses estén instalados.

Vea el resumen BCSI-B2* para más información.

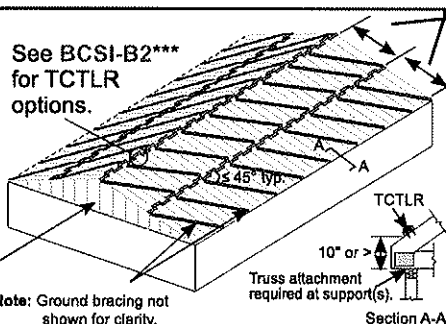
Restricción/Arriostre para todos planos de trusses

La madera 2x4 clasificada por estrés es la madera mínima utilizada para restricción lateral y arriostramiento diagonal. Atarlas a cada braguero con al mínimo 2 clavos 10d (0.128x3"), 12d (0.128x3.25") o 16d (0.131x3.5").

Este método de restricción y arriostre es para todo trusses excepto trusses de cuerdas paralelas (PCTs) 3x2 y 4x2. Vea la parte superior de la columna para la restricción y arriostre temporal de PCTs.

Cuerda superior

*Consulte a un Profesional Registrado de Diseño para trusses más de 60 pies.



Vea el BCSI-B2* para las opciones de TCTLR.

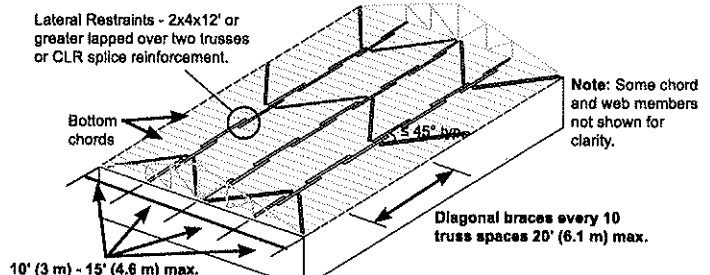
Para información sobre restricción/arriostre/refuerzo para Armazones Hastiales vea el resumen BCSI-B3*

Repita los arriostres diagonales para cada grupo de 4 trusses.

Plano de los miembros secundarios

¡LA RESTRICCIÓN LATERAL Y EL ARRIOSTRE DIAGONAL SON MUY IMPORTANTES!

3) Bottom Chord Plane — Cuerda inferior

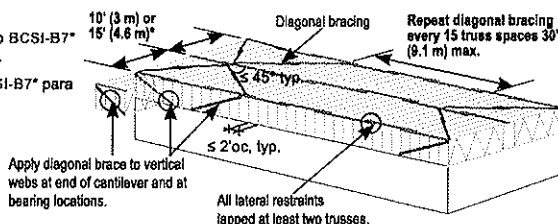


Restraint & Bracing for 3x2 and 4x2 Parallel Chord Trusses

NOTICE

Refer to BCSI-B7* for more information.

Vea el resumen BCSI-B7* para más información.



*Top chord temporary lateral restraint spacing shall be 10' (3 m) oc max. for 3x2 chords and 15' (4.6 m) oc for 4x2 chords.

Restricción y arriostre para trusses de cuerdas paralelas 3x2 y 4x2

Instalación

Tolerancias para Fuera-de-Plano.

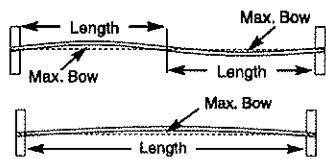
Tolerancias para Fuera-de-Plomada.

Carga de construcción

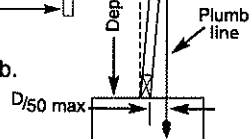
NO proceda con la construcción hasta que todas las restricciones laterales y los arriostres estén colocados en forma apropiada y segura.

Installing

Tolerancias for Out-of-Plane.



Tolerancias for Out-of-Plumb.



Out-of-Plane	
D/50	D (ft.)
1/4"	1'
(6 mm)	(0.3 m)
1/2"	2'
(13 mm)	(0.6 m)
3/4"	3'
(19 mm)	(0.9 m)
1"	4'
(25 mm)	(1.2 m)
1-1/4"	5'
(32 mm)	(1.5 m)
1-1/2"	6'
(38 mm)	(1.8 m)
1-3/4"	7'
(45 mm)	(2.1 m)
2"	≥8'
(51 mm)	(≥2.4 m)

Out-of-Plane	
Max. Bow	Truss Length
3/4"	12.5'
(19 mm)	(3.8 m)
7/8"	14.6'
(22 mm)	(4.5 m)
1"	16.7'
(25 mm)	(5.1 m)
1-1/8"	18.8'
(28 mm)	(5.7 m)
1-1/4"	20.8'
(32 mm)	(6.3 m)
1-3/8"	22.9'
(35 mm)	(7.0 m)
1-1/2"	25.0'
(38 mm)	(7.6 m)
1-3/4"	29.2'
(45 mm)	(8.9 m)
2"	≥33.3'
(51 mm)	(≥10.1 m)

NO exceda las alturas máximas de montón. Vea el resumen BCSI-B4* para más información.

NUNCA apile los materiales cerca de un pico, a centro de la luz, en cantilevers o aleros.

NO sobrecargue pequeños grupos o trusses individuales.

Coloque las cargas sobre tantos trusses como sea posible.

Coloque las cargas sobre las paredes soportantes.

Construction Loading

- DO NOT** proceed with construction until all lateral restraint and bracing is securely and properly in place.
- DO NOT** exceed maximum stack heights in table at right. Refer to BCSI-B4* for more information.
- NEVER** stack materials near a peak, at mid-span, on cantilevers or overhangs.

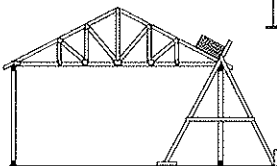
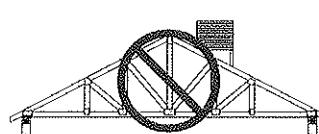
Maximum Stack Height for Material on Trusses	
Material	Height
Gypsum Board	12" (305 mm)
Plywood or OSB	16" (406 mm)
Asphalt Shingles	2 bundles
Concrete Block	8" (203 mm)
Clay Tile	3-4 tiles high



- DO NOT** overload small groups or single trusses.

Place loads over as many trusses as possible.

Position loads over load bearing walls.



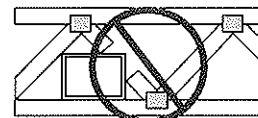
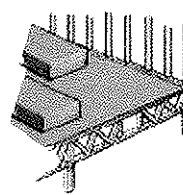
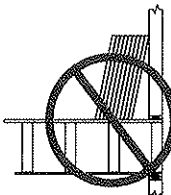
Truss bracing not shown for clarity.

Alteraciones

Vea el resumen BCSI-B5.*

NO corte, altere o perforo ningún miembro estructural de un truss, a menos que esté específicamente permitido en el dibujo del diseño del truss.

Trusses que se han sobrecargado durante la construcción o han sido alterados sin la autorización previa del Fabricante de Trusses, pueden hacer nulo y sin efecto la garantía limitada del Fabricante de Trusses.



Alterations

NOTICE

Refer to BCSI-B5.*

- DO NOT** cut, alter, or drill any structural member of a truss unless specifically permitted by the truss design drawing.

NOTICE

Trusses that have been overloaded during construction or altered without the Truss Manufacturer's prior approval may render the Truss Manufacturer's limited warranty null and void.

*Contact the component manufacturer to obtain the referenced document or consult a Registered Design Professional for more information on this subject.

SBCA

6300 Enterprise Lane • Madison, WI 53719
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This document summarizes the information provided in Section B1 of the 2018 Edition of Building Component Safety Information BCSI – Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses. Copyright © 2004-2019 Structural Building Components Association. All rights reserved. This guide or any part thereof may not be reproduced in any form without the written permission of the publishers. This document should appear in more than one color. Printed in the United States of America.

B2 Truss Installation & Temporary Restraint/Bracing Instalación de Trusses & Restricción/Arriostre Temporal

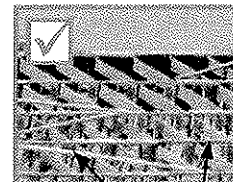
For Trusses Up to 2'-0" On Center and 80'-0" in Length
Para trusses hasta 2 pies en centro y hasta 80 pies de longitud

NOTICE Section 2303.4.1.3 of the 2018 International Building Code (IBC) requires the temporary installation restraint/bracing for all trusses with clear spans 60 feet (18.3 m) or greater to be designed by a registered design professional.

Sección 2303.4.1.3 del International Building Code (IBC) de 2018 requiere que la instalación temporal de restricción/arriostre para todos armazones con lapso libre de 60 pies (18.3 m) o más se diseña por un profesional de diseño registrado.

DANGER Disregarding handling, installing, restraining and bracing safety recommendations is the principal cause of truss erection/installation accidents.

PELIGRO El no seguir las recomendaciones de manejo, instalación, restricción y arriostre es la causa principal de los accidentes durante la erección/instalación de trusses.

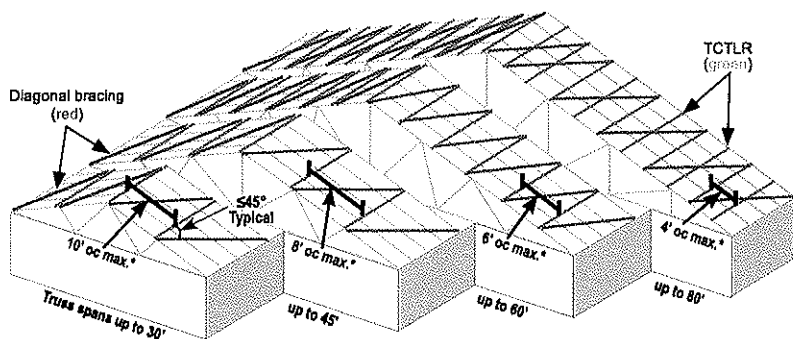


NOTICE Lateral restraint is NOT adequate by itself. Diagonal bracing is also required.
La Restricción Lateral NO es adecuada sin el Arriostre Diagonal.

Always diagonally brace for safety!
¡Siempre arriostre diagonalmente para seguridad!

Diagonal bracing
Lateral restraint

Maximum Spacing For Top Chord Temporary Lateral Restraint (TCTLR) El espaciamiento máximo para la restricción lateral temporal de la cuerda superior (TCTLR)



The graphic at left shows the maximum on center (oc) spacing of TCTLR based on truss span from the table in Step 2 on page 2.

- Ground bracing not shown for clarity.
- Apply diagonal bracing or structural sheathing immediately. For spans over 60' applying structural sheathing immediately is the preferred method.

El dibujo a la izquierda muestra el espaciamiento máximo en el centro del TCTLR basado en los tramos de trusses de la tabla en el Paso 2 en la página 2.

- No se muestra el arriostre de tierra para claridad.
- Aplique inmediatamente el Arriostre Diagonal o el Entablado Estructural (structural sheathing). Para tramos más de 60 pies el método preferido es entablarlos inmediatamente.

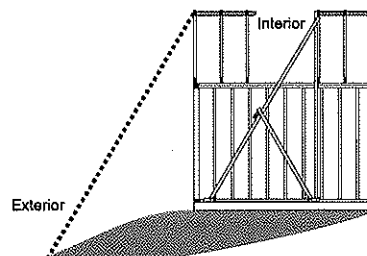
Check These Items Before Starting Truss Erection/Installation and Correct as Needed Revise estos puntos antes de empezar la erección/instalación y corrijalos cuando es necesario

- ✓ Building dimensions match the construction documents.
Las dimensiones del edificio concuerdan con los documentos de construcción.
- ✓ Bearing supports (e.g., walls, columns, headers, beams, etc.) are accurately and securely installed, plumb and properly braced.
Los soportes que sostienen cargas (ej., paredes, columnas, vigas de cabecera, vigas, etcétera) son instalados seguramente y con precisión, y son nivelados y arriostrados apropiadamente.
- ✓ Hangers, tie-downs, restraint and bracing materials are on site and accessible.
Los colgadores (hangers), soportes de anclaje (tie-downs) y materiales de restricción y arriostre están accesibles en la obra.
- ✓ Erection/installation crew is aware of installation plan and lateral restraint/diagonal bracing requirements.
El personal de erección/instalación es consciente del plan de instalación y los requisitos de restricción/arriostre.
- ✓ Multi-ply trusses, including girders, are correctly fastened together prior to lifting into place.
Los trusses de varias capas, incluyendo travesaños, son fijados juntos correctamente antes de levantarlos en lugar.
- ✓ Any truss damage is reported to truss manufacturer. Refer to BCSI-B5. Do not install damaged trusses unless instructed to do so by the building designer, truss designer or truss manufacturer.
Reporte cualquier daño a los trusses al fabricante de trusses. Consulte el resumen BCSI-B5. No instale trusses dañados a menos que se lo indique el diseñador del edificio, el diseñador del truss o el fabricante del truss.

- ✓ Trusses are the correct dimension.
Los trusses son la dimensión correcta.
- ✓ Tops of bearing supports are flat, level and at the correct elevation.
Las partes superiores de los soportes de cojinete son planas, niveladas y a la elevación correcta.
- ✓ Jobsite is clean and neat, and free of obstructions.
La obra está limpia, ordenada y sin obstrucciones.

The ground bracing procedure is based on site and building configuration.

El procedimiento de arriostre de tierra para el primer truss es basado en el terreno y la configuración del edificio.

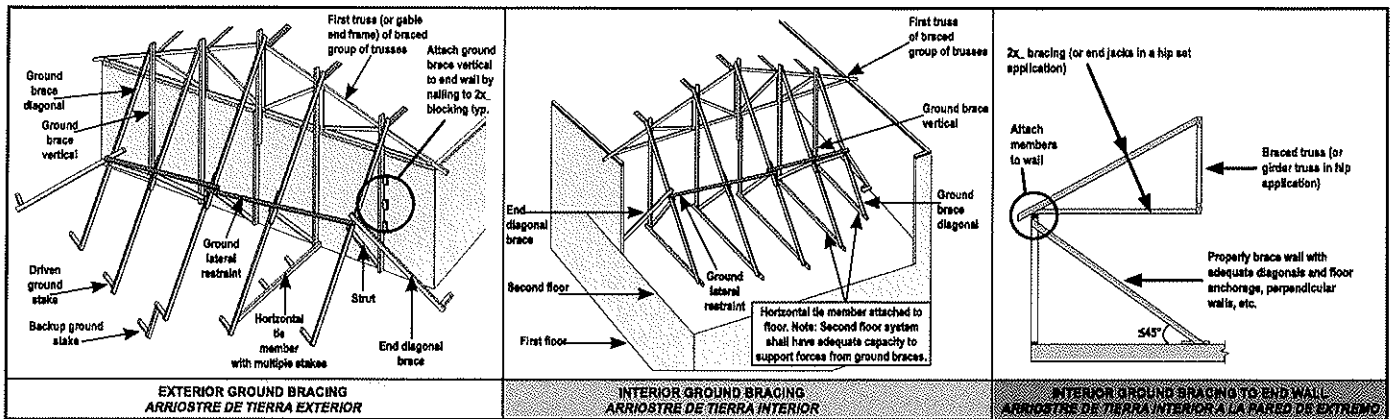


If ground level is too far from truss for exterior ground bracing, use interior ground bracing.

Si el nivel del suelo es demasiado lejos para usar arriostre de tierra exterior, use arriostre de tierra interior.

Steps to Setting Trusses Pasos para el montaje de trusses

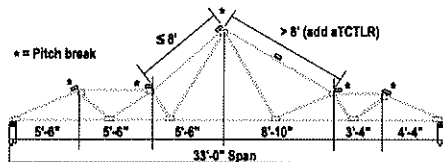
1. Establish Ground Bracing Procedure: Exterior or Interior Establezca el procedimiento de arriostre de tierra: exterior o interior



2. Determine the Locations for TCTLR and Ground Braces Determine las ubicaciones para TCTLR y los arriostres de tierra

Use truss span to determine spacing for top chord temporary lateral restraint (TCTLR) from table at right.

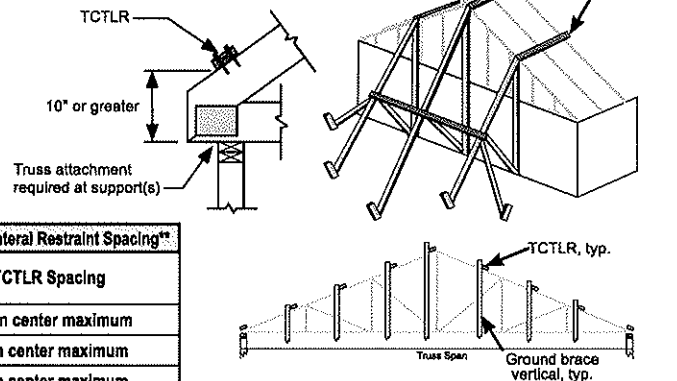
Use el tramo del truss para determinar el espaciamiento para restricción lateral temporal de la cuerda superior (TCTLR) en la tabla a la derecha.



Locate additional TCTLR at each pitch break.
Localice TCTLR adicional en cada rotura de inclinación.

Locate additional TCTLR over bearings if the heel height is 10" or greater.

Localice TCTLR adicional sobre los soportes si la altura del talón (heel height) es de 10 pulgadas o más.



Maximum Top Chord Temporary Lateral Restraint Spacing*	
Truss Span	TCTLR Spacing
Up to 30'	10' on center maximum
30' - 45'	8' on center maximum
45' - 60'	6' on center maximum
60' - 80**	4' on center maximum

*Consult a registered design professional for trusses longer than 60'.
**For trusses spaced greater than 2' oc, see also BCSI-B10.

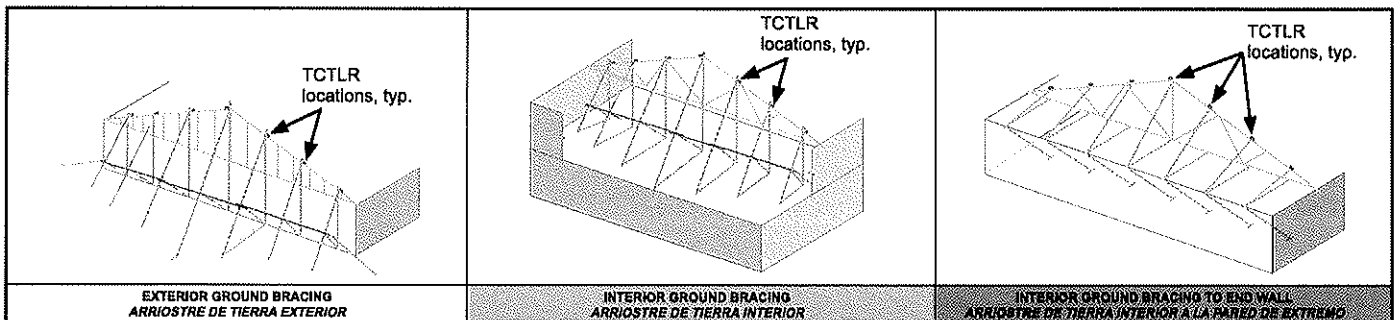
Locate a ground brace vertical at each TCTLR location.

Localice un arriostre de tierra vertical en cada lugar de TCTLR.

3. Set First Truss and Fasten Securely to Ground Braces Coloque el primer truss y fíjelo seguramente a los arriostres de tierra

Set first truss (or gable end frame) and fasten securely to ground braces and to the wall, or as directed by the building designer. Examples of first truss installed include:

Coloque el primer truss (o amazón hastial) y fíjelo seguramente a las verticales de arriostre de tierra y a la pared, o como se dirige el diseñador del edificio. Ejemplos del primer truss instalado incluyen:



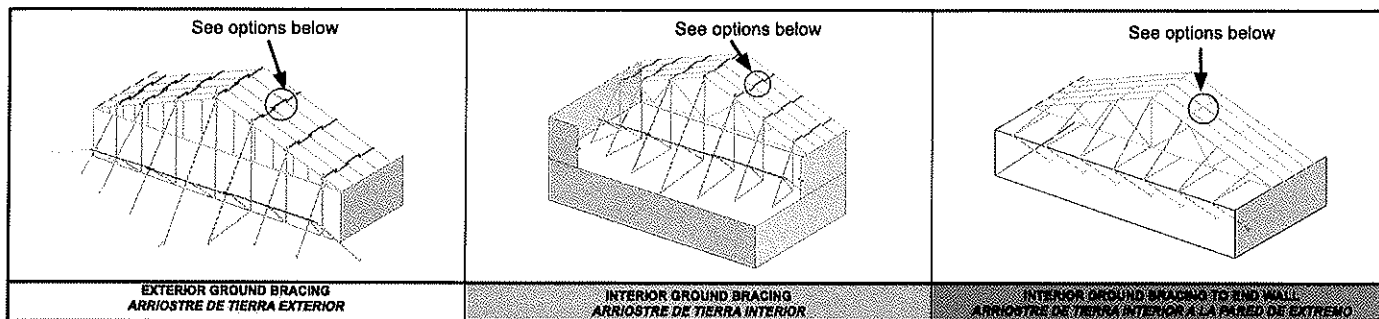
CAUTION First truss must be attached securely to all bearings and to all required ground braces prior to removing the hoisting supports.

COMETILA El primer truss debe estar firmemente sujeto a todos los soportes y a todos los arriostres de tierra requeridos, antes de quitar los soportes de levantamiento.

4 Set Trusses 2, 3, 4 & 5 with TCTLR in Line with Ground Bracing Coloque los trusses 2, 3, 4 y 5 con TCTLR en línea con los arriostres de tierra

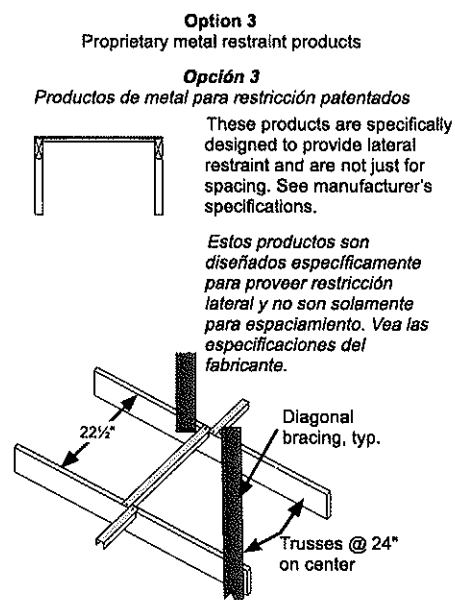
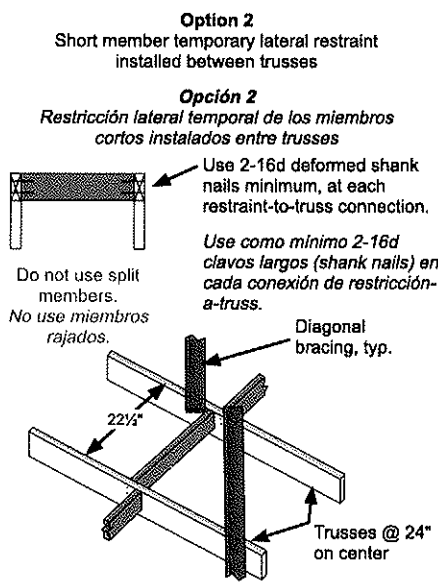
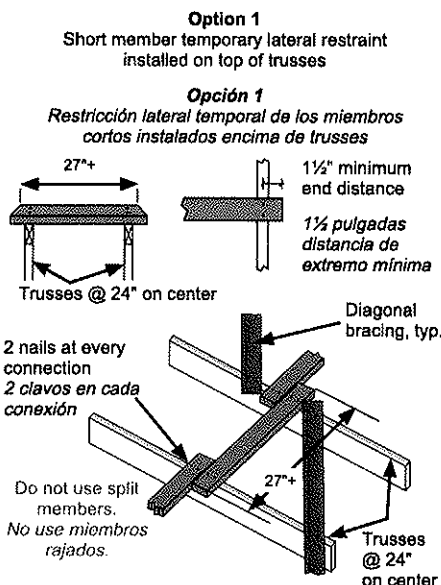
Attach trusses securely at all bearings, shimming bearings as necessary. Examples of first five trusses set include:

Sujete seguramente los trusses a todos los soportes, rellenar sólidamente los soportes como sea necesario. Ejemplos de los primeros cinco trusses colocados incluyen:



NOTICE The following three (3) Short Member Temporary Lateral Restraint options require that the diagonal bracing be installed continuously. See figure for Option B in Step 8 on page 5.

Las siguientes tres opciones para instalar la Restricción Lateral Temporal de los Miembros Cortos requieren que el arriostre diagonal esté instalado continuamente. Vea la figura de Opción B en el Paso 8 en la página 5.



CAUTION Each truss must be attached securely at all bearing locations and all TCTLR installed before removing the hoisting supports.

CAUTELA Cada truss debe estar firmemente sujeto en todas las ubicaciones de soportes y todas las TCTLR instaladas antes de quitar los soportes de levantar.

LATERAL RESTRAINT/BRACING MATERIAL AND CONNECTIONS CONEXIONES Y MATERIALES DE RESTRICCIÓN/ARRIOSTRE LATERAL

Minimum size of bracing and lateral restraint material is 2x4 stress-graded lumber or approved proprietary metal restraint/bracing, unless otherwise specified by the building designer.

El tamaño del material de restricción lateral y arriostre debe ser por lo menos 2x4 madera graduada por esfuerzo o restricción/arriostre de metal patentado aprobado, a menos que especifique el diseñador del edificio.

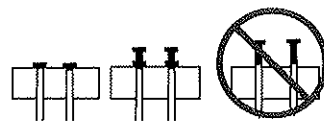
All bracing and lateral restraint members must be connected to each truss with at least 2 nails (see minimum sizes below), except for the short member restraints shown in Step 4, Option 2 (see above), which require 2-16d deformed-shank (i.e., ring- or screw-shank) nails.

Todos los miembros de restricción lateral y arriostre tienen que ser conectados a cada truss con un mínimo de 2 clavos (ver los tamaños mínimos mostrados abajo) excepto para las restricciones de miembros cortos mostrados en el Paso 4, Opción 2 (vea arriba), cuales requieren 2-16d clavos con largos deformados (Ej. Largos de anillos o tornillos).

Drive nails flush. If the temporary restraint and bracing is to be removed when the permanent bracing is installed, use double-headed nails for ease of removal.

Clave los clavos al raso. Si la restricción temporal y el arriostre se quitan en el momento de la instalación del arriostre permanente, use clavos de dos cabezas para quitarlos más fácilmente.

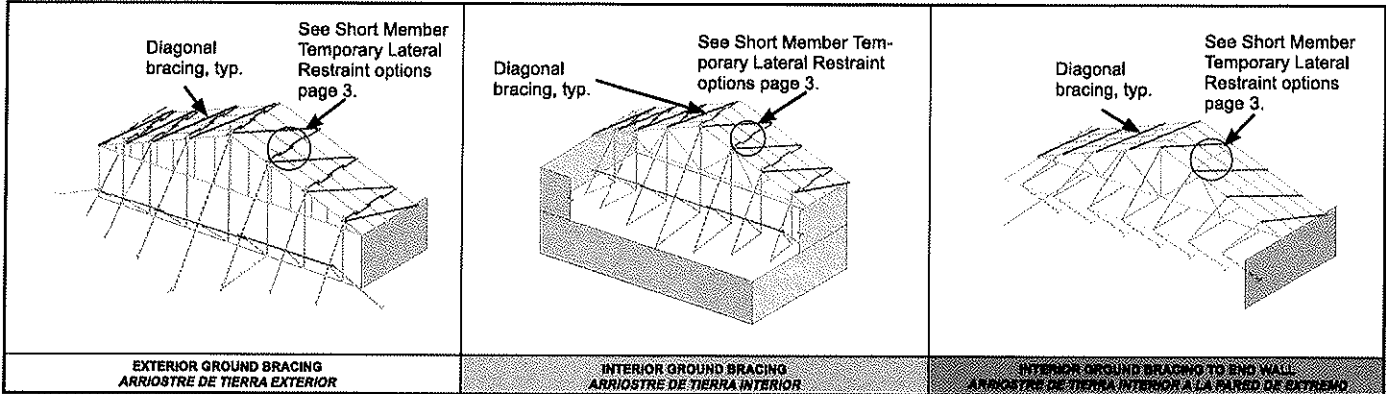
10d (0.128x3")
12d (0.128x3.25")
16d (0.131x3.5")



5. Install Top Chord Diagonal Bracing Instale el arriostre diagonal de la cuerda superior

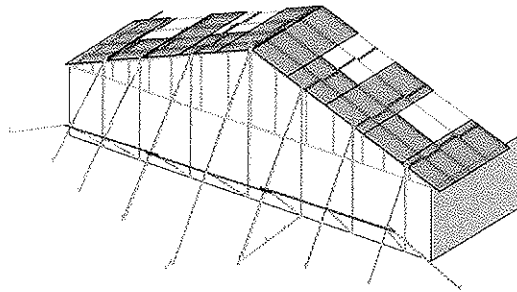
Attach diagonal bracing to the first five trusses. Examples of diagonal bracing on first five trusses include:

Coloque el arriostre diagonal a los primeros cinco trusses. Ejemplos de arriostre diagonal en los primeros cinco trusses incluyen:



Or start applying structural sheathing. Example of structural sheathing installed on first five trusses.

O bien, empiece a aplicar el entablado estructural. Ejemplo de entablado estructural instalado en los primeros cinco trusses.



6. Install Web Member Diagonal Bracing Instale el arriostre diagonal de miembros secundarios

Temporary web member diagonal bracing acts with the top chord and bottom chord temporary lateral restraint and diagonal bracing to form triangulation perpendicular to the plane of the truss and prevents trusses from leaning or dominoing.

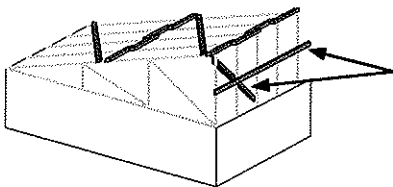
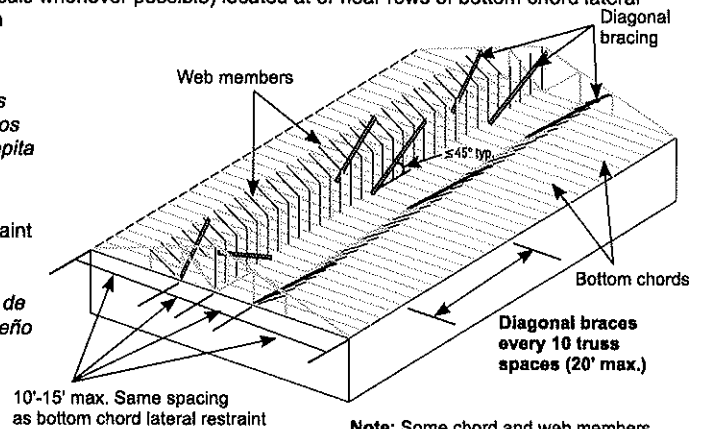
El arriostre diagonal temporal de los miembros secundarios trabaja con la restricción lateral y el arriostre diagonal temporales de la cuerda superior e inferior para formar una triangulación perpendicular al plano del truss y evita que los trusses se inclinen o caigan como dominós.

Install diagonal bracing at about 45° to the horizontal on web members (verticals whenever possible) located at or near rows of bottom chord lateral restraint. Web diagonal bracing must extend from the top chord to the bottom chord. Repeat at the intervals shown in the figure below.

Instale el arriostre diagonal a aproximadamente 45 grados en los miembros secundarios (verticales cuando sea posible) colocados en o cerca de las filas de restricción lateral de la cuerda inferior. Arriostre diagonal para los miembros secundarios tiene que extender de la cuerda superior a la cuerda inferior. Repita a los intervalos mostrados en la figura a la derecha.

NOTICE The requirements for web permanent individual truss member restraint are specified on the truss design drawing (TDD). Refer to BCSI-B3 for more information.

Los requisitos para la restricción permanente de miembros individuales de truss para miembros secundarios son especificados en el dibujo del diseño de truss. Vea el resumen BCSI-B3 para más información.



NOTICE Mono trusses, deep flat trusses and other types of trusses with deep ends also require temporary lateral restraint and diagonal bracing on the vertical web member at the deep end of the truss.

Los trusses de una sola pendiente, trusses planos y profundos y otros tipos de trusses con extremos profundos también requieren restricción lateral temporal y arriostre diagonal en los miembros secundarios largos en el extremo profundo del truss.

7. Install Bottom Chord Lateral Restraint and Diagonal Bracing

7. Instale la restricción lateral y el arriostre diagonal de la cuerda inferior

Bottom chord temporary lateral restraint and diagonal bracing stabilizes the bottom chord plane during installation and helps maintain proper spacing of the trusses.

La Restricción lateral temporal y el arriostre diagonal de la cuerda inferior estabilizan el plano de la cuerda inferior durante la instalación y asiste en mantener el espaciado apropiado de los trusses.

Install rows of temporary lateral restraint at 15' on center maximum. Remove, if desired, after the permanent ceiling diaphragm is in place.

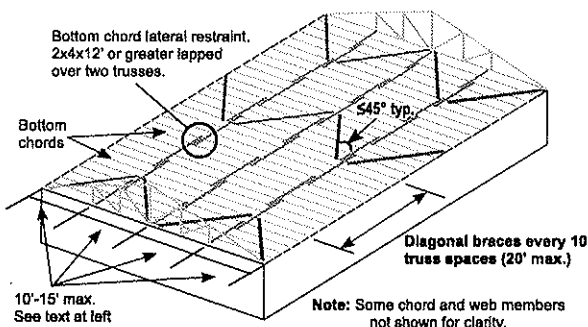
Instale filas de restricción lateral temporal a 15 pies en el centro como máximo. Quítelos, si así lo desea, después que de el diafragma permanente del techo esté colocado.

Install rows of permanent lateral restraint at 10' on center maximum. Required spacing may be less; check the TDD and/or with the building designer.

Instale filas de restricción lateral permanente a 10 pies en el centro como máximo. El espaciado especificado puede ser menor; verifique el dibujo del diseño de truss con el diseñador del edificio.

Install diagonal bracing at intervals of 20' maximum along the run of trusses.

Instale el arriostre diagonal a intervalos de 20 pies máximo a lo largo de la línea de trusses.



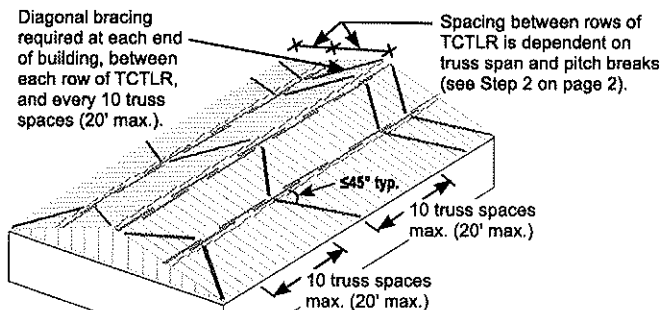
8. Repeat Steps 4 Through 7 with Groups of Four Trusses Using Option A or B

8. Repita los pasos 4 a 7 con grupos de cuatro trusses usando la opción A o la opción B

Option A: Install the next four trusses using short member temporary lateral restraint Options 1 - 3 per Step 4 on page 3. Add long-length (minimum 2x4x12') continuous lateral restraint (CLR) to tie trusses together. Overlap the ends of the CLR at least 2 trusses. Install diagonal bracing at intervals of 20' maximum along the run of trusses (see Figure below).

Instale los siguientes cuatro trusses utilizando las opciones 1-3 por el Paso 4 en la página 3 de la restricción lateral de miembros cortos. Añade la restricción lateral continua (CLR) de longitud-largo (mínimo 2x4x12') para atar junto los trusses. Solaparse las puntas del CLR a mínimo de dos trusses. Instale el arriostre diagonal cada 20 pies máximo a lo largo de la línea de trusses (vea la Figura abajo).

NOTE: The maximum diagonal brace spacing provided in this Option assumes ground bracing is properly installed and in place. El espaciado máximo de arriostre diagonal en esta Opción asume que el arriostre de tierra está en sitio y es instalado correctamente.



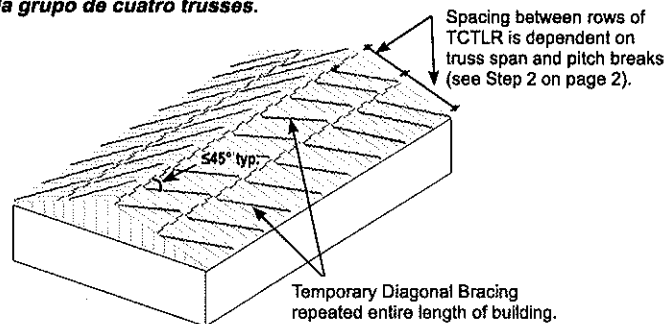
Note: Ground Bracing not shown for clarity.

Option B: Install diagonal bracing on each group of four trusses that have been set with short member temporary lateral restraint per Step 4 on page 3.

Instale el arriostre diagonal en cada grupo de cuatro trusses que han sido colocados con la restricción lateral temporal de miembros cortos por el paso 4 en la página 3.

WARNING: After the initial group of five trusses are installed and braced (i.e., lateral restraint and diagonal bracing), **DO NOT** set more than four trusses when using short member temporary lateral restraint before you **STOP**, and diagonally brace as shown. **Option B is NOT permissible without diagonal bracing being installed with each group of four trusses.**

¡ADVERTENCIA! Después de que el primer grupo de cinco trusses sea instalado y arriostrado (Ej. restricción lateral y arriostre diagonal), **NO** coloque más de cuatro trusses cuando se usa la restricción lateral temporal de los miembros cortos antes que usted **PARA**, y arriostrelo diagonalmente como mostrado. **Esta opción B NO funciona sin el arriostre diagonal aplicado a cada grupo de cuatro trusses.**



ENSURE THAT ALL TRUSSES ARE PROPERLY DIAGONALLY BRACED.

ASEGÚRESE QUE TODOS LOS TRUSSES ESTÉN ARRIOSTRADOS DIAGONALMENTE APROPIADAMENTE.

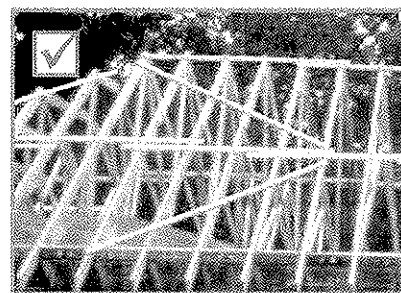
Apply structural sheathing early and often.

Aplique el entablado estructural temprano y con frecuencia.

DO NOT wait until all trusses are set to apply structural sheathing. **NO ESPERE** hasta que todos los trusses estén colocados para aplicar el entablado estructural.

CAUTION: Remove only as much top chord temporary lateral restraint and diagonal bracing as necessary to nail down the next sheet of structural sheathing. **DO NOT** exceed truss design load with construction loads. (SEE BCSI-B4)

CAUTELA: Quite sólo tanta restricción lateral temporal y arriostre diagonal de la cuerda superior como sea necesario para clavar la siguiente lámina de entablado estructural. **NO EXCEDA** la carga de diseño de truss con cargas de construcción. (VEA BCSI-B4)



Alternate Installation Method: Build It On the Ground and Lift It Into Place Método alternativo de instalación: construirlo en la tierra y levantarlo en lugar

Ensure level bearing; set, position, plumb and properly restrain and brace the trusses as modules on the ground.
Asegúrese que el soporte es nivelado; colocar, posicionar, nivelar y restringir y arriostrar apropiadamente el grupo de trusses en la tierra.

Apply structural sheathing for stability. Begin at the heel and alternate 4'x8' and 4'x4' sheets up to the peak.
Aplice el entablado estructural para estabilidad. Empezar en el talón y alterne láminas de 4 pies x 8 pies y 4 pies x 4 pies hasta el pico.

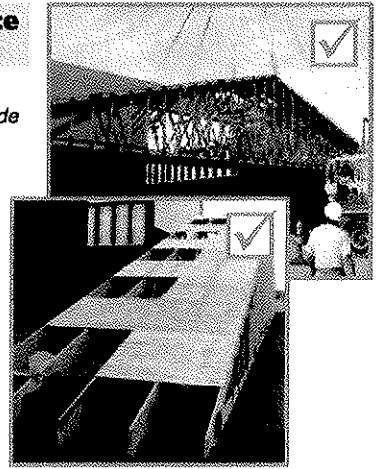
Be sure to install all top chord, web member and bottom chord lateral restraint and bracing prior to lifting the module.

Asegúrese de instalar toda la restricción y arrioste de la cuerda superior, el miembro secundario, y la cuerda inferior antes de levantar el módulo.

CAUTION Additional restraint and bracing may be required to safely lift units into place.
CAUTELA La restricción y arrioste adicional pueden ser requeridos para levantar los módulos en sitio sin peligro.

Be sure to get proper guidance from a registered design professional to insure modules are designed and installed safely and properly.

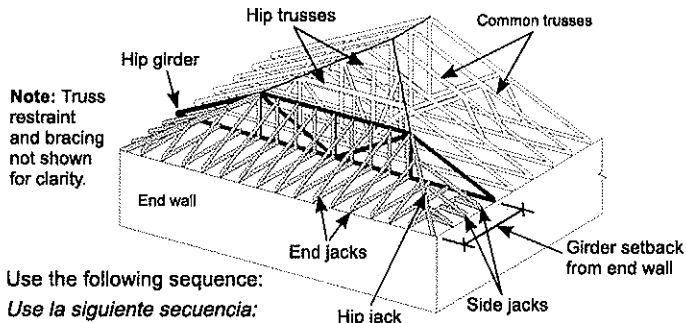
Asegúrese de obtener consejos apropiados por un profesional registrado de diseño para asegurar que los módulos son diseñados y instalados apropiadamente y sin peligro.



Hip Set Assembly and Bracing Ensamblaje y arrioste del grupo de cadera

Permanently connecting the end jacks to the end wall and girder as early in the installation process as possible dramatically increases the stability of the hip girder and the safety of the structure.

Conectando permanentemente los gatos extremos a la pared extremo y el travesaño tan temprano en el proceso de instalación como sea posible aumenta drásticamente la estabilidad del travesaño de cadera (hip girder) y la seguridad de la estructura.



Use the following sequence:

Use la siguiente secuencia:

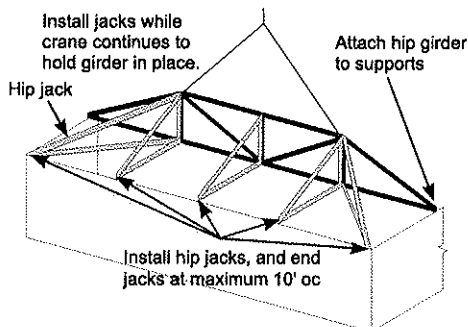
Step 1 Position the hip girder on the bearing walls at the specified end wall setback and permanently attach to supports.

Posicione el travesaño de cadera en las paredes de soporte al "setback" especificado de la pared extrema y sujete a los soportes permanentemente.

NOTICE Whenever possible, connect multi-ply girder trusses together and install the end jack hangers (if required) prior to erection/ installation. All plies of a multi-ply girder shall be attached per the fastening schedule on the TDD before attaching any framing members or applying any loads.

Siempre que sea posible, conecte los trusses de travesaño de varias-capas juntos y instale los colgadores de gato extremo (si es necesario) antes de la erección/instalación. Todas las capas de un travesaño de varias capas se adjuntarán según el horario de fijar en el dibujo del diseño de truss antes de sujetar cualquier miembro de arrioste o de aplicar cualquier carga.

Step 2 Install hip jacks, and end jacks at maximum 10' on center, while crane continues to hold girder in place.



Instale los gatos de cadera y los gatos extremos a 10 pies máximo en centro mientras la grúa continúa mantener el travesaño en lugar.

Note: Attach jack trusses to top chord and bottom chord of girder truss. The connection to the top chord is important as it helps to stabilize the top chord of the girder.

Sujete los trusses de gatos a la cuerda superior y la cuerda inferior del truss de travesaño. La conexión por encima es importante porque ayuda a estabilizar la cuerda superior del travesaño.

Step 3 Install all remaining end and side jacks with all permanent truss-to-bearing connections (e.g., hangers and tie-downs).

Instale todos los gatos extremos y gatos de rincón restantes con todas las conexiones permanentes de truss-a-soporte (Ej. colgadores y soportes de anclaje).

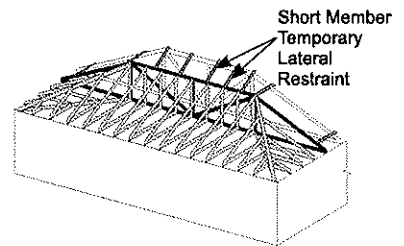
Step 4 Install the next hip truss with 2x4 short member temporary lateral restraints. Attach each short member temporary lateral restraint to the top chord of the hip girder and adjacent hip truss with two nails at each connection.

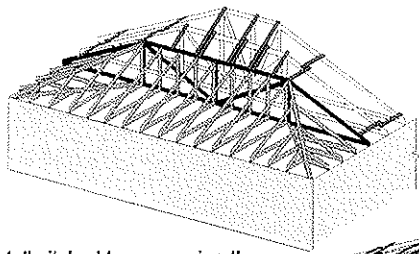
The short member temporary lateral restraints should be long enough to extend at least 1 1/2" past the top chord of each truss. Place short member temporary lateral restraints at pitch breaks and at intervals along the top chords in accordance with Step 2 on page 2.

Instale el próximo truss de cadera con 2x4 restricciones laterales temporales para miembros cortos. Sujete cada restricción lateral temporal del miembro corto a la cuerda superior del travesaño de cadera y al truss de cadera contiguo con dos clavos a cada conexión. Las restricciones laterales temporales para miembros cortos deben ser lo suficientemente largas como para extender a un mínimo de 1 1/2" pasado de la cuerda superior de cada truss. Coloque la restricción lateral temporal de miembros cortos a roturas del pendiente y a intervalos por las cuerdas superiores según el Paso 2 en la página 2.

Step 5 Install remaining hip trusses. For the flat portion of each hip truss, use short member temporary lateral restraints that are at least double the length of the first set of short member temporary lateral restraints (see Figure on next page). For the sloped chords of the trusses, install short member temporary lateral restraints according to one of the three options in Step 4 on page 3.

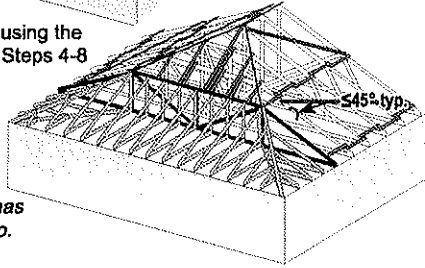
Instale los restantes de los trusses de cadera. Para la parte plana de cada truss de cadera use restricciones laterales temporales de miembros cortos que son por lo menos dobles la longitud del primer grupo de restricciones temporales laterales de miembros cortos (vea la figura en la próxima página). Para las cuerdas pendientes de los trusses, instale las restricciones laterales temporales de miembros cortos según uno de las tres opciones en Paso 4 en la página 3.





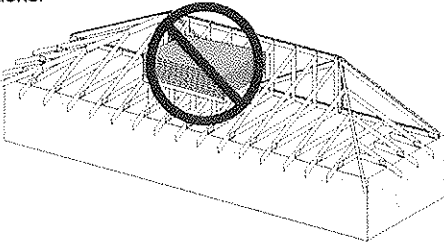
Step 6 Install pitched trusses using the guidelines provided in Steps 4-8 on pages 3-5 of this document.

Instale los trusses pendientes usando las pautas provistas en Pasos 4-8 en páginas 3-5 de este documento.



DO NOT stack materials or stand at locations that will cause instability, such as on cantilevers, overhangs, end jacks, or near truss-to-girder truss connections.

NO apile los materiales, ni se pare en sitios de posible inestabilidad, como en voladizos, salientes, o cerca de las conexiones de tipo cercha-a truss.



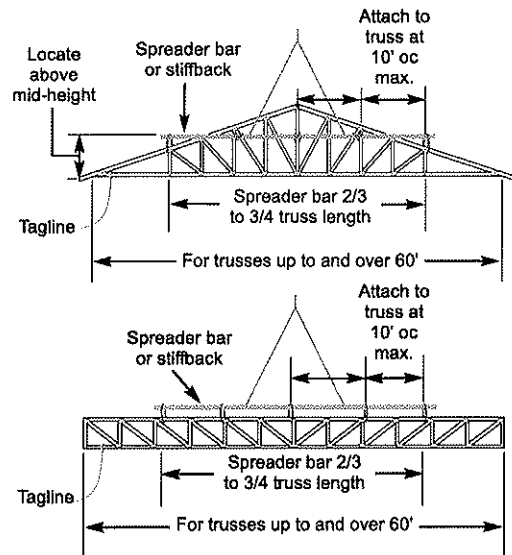
Long Span Truss Installation Instalación de trusses de tramos largos

DANGER Trusses with clear spans of 60' or greater are extremely dangerous to install and require more detailed safety and handling measures than shorter span trusses.

PELIGRO Trusses de 60 pies de largo o más son extremadamente peligrosos a instalar y requieren medidas de seguridad y manejo más detalladas que trusses de vanos más cortos.

Before Starting Antes de empezar

- Hire a registered design professional to design the temporary restraint/bracing, the permanent individual truss member restraint/bracing and to supervise the erection process. This is a requirement in the IBC.
Contrata un Profesional Registrado de Diseño para proveer un plan de restricción/arrioste temporal de los permanentes miembros individuales de braguero y para supervisar el proceso de erección. Esto es el requisito en algunos códigos de construcción.
- Develop a safe, effective truss installation method and inform all crew members of their roles.
Elabore un método seguro y efectivo de la instalación de trusses e informe a todos las miembros del personal de sus papeles.
- Use personnel who have experience installing trusses 60' and greater in span.
Utilice instaladores quienes tienen experiencia en instalar trusses de 60 pies o más de tramo.
- Ensure that the walls and supporting structure are stable and adequately restrained and braced.
Asegúrese que las paredes y la estructura soportante son estables y adecuadamente restringidas y arriostadas.
- Have all necessary lifting equipment and building materials on hand. Make sure the crane operator understands the special hoisting requirements of long span trusses (see BCSI-B1).
Tenga todo el equipo de levantar y los materiales de construcción necesarios a la mano. Asegúrese que el operador de grúa entiende los requisitos especiales de levantar los trusses de tramos largos (vea BCSI-B1).



Tips For Safe and Efficient Installations Consejos para instalaciones seguras y eficientes

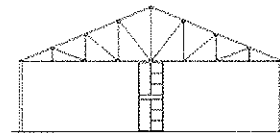
Assemble the first five trusses with all structural sheathing, restraint and bracing, either as the trusses are installed or built as a unit on the ground and lifted into place.

Ensamble los primeros cinco trusses con todo el entablado estructural, restricción y arrioste, ya sea cuando los trusses son instalados o se los construyen como una unidad en la tierra y se los levantan en su lugar.

Keep trusses straight during hoisting to minimize bending out-of-plane.
Mantenga los trusses derechos durante el levantamiento para minimizar el doblado fuera-de-plano.

Add a temporary center support to provide greater stability and leave in place until all permanent building stability bracing is installed.

Agregue un soporte temporal en el centro para proveer más estabilidad y quedarlo en lugar hasta que todo el arrioste de estabilidad permanente de construcción es instalado.



Apply structural sheathing to the top chord as the trusses are being installed.

Aplique el entablado estructural a la cuerda superior mientras los trusses estén instalados.



Install all permanent individual truss member restraint and bracing immediately.

Instale todo el arrioste y restricción permanente de miembros de trusses individuales inmediatamente.

Field Assembly and Other Special Conditions Ensamblaje de campo y otras condiciones especiales

Certain sizes or shapes of trusses require some assembly at the jobsite. Refer to the TDDs for specific instructions on assembly methods, unless the construction documents indicate otherwise.

Ciertos tamaños o formas de trusses requieren algún ensamblaje en la obra. Consulte a los dibujos del diseño de truss para instrucciones específicas sobre métodos de montaje, a menos que los documentos de construcción indiquen lo contrario.

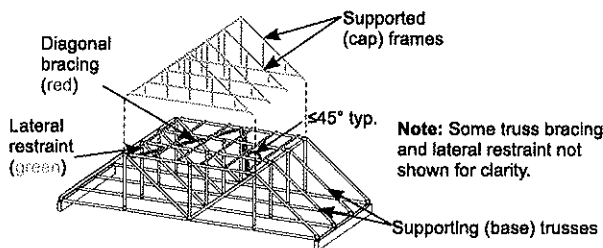
The contractor is responsible for proper field assembly.

El contratista es responsable para el ensamblaje de campo apropiado.

Piggyback Trusses Trusses de piggyback

The supporting (base) trusses shall be completely installed with all truss member AND permanent building stability bracing, as required, BEFORE installing the supported (cap) frames.

Los trusses soportantes serán completamente instalados con todos miembros de trusses Y el arrioste de estabilidad permanente de construcción como es requerido ANTES de instalar los armazones (cap) soportados.



WARNING Adequately restrain and brace the flat portion of the supporting trusses to prevent buckling.
¡ADVERTENCIA! Restrinja y arrioste adecuadamente la parte plana de los trusses soportantes para prevenir la distorsión.

For more information on how to permanently laterally restrain and diagonally brace piggyback truss assemblies refer to BCSI-B3.*

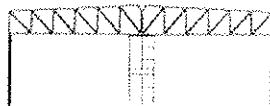
*Para más información sobre como restringir lateralmente permanentemente y arriostar diagonalmente sistemas de trusses de piggyback refiere al BCSI-B3.**

Field Spliced Trusses

Trusses empalmados en campo

Splicing can be performed on the ground before installation or the truss sections can be supported by temporary shoring after being hoisted into place and the splices installed from a safe working surface.

Empalmado puede ser hecho en el suelo antes de la instalación o las secciones de trusses pueden ser soportados por "shoring" temporal después de que son levantados en lugar y los empalmes se instalen desde una superficie de trabajo segura.



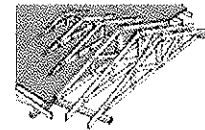
Field-spliced trusses with temporary center support

Valley Set Frame Installation

Instalación de armazón de conjunto de valle

The top chords of the supporting trusses must be braced properly. This can be accomplished by attaching structural sheathing or with rows of lateral restraint, spaced no more than the maximum on center spacing specified on the TDD, and diagonal bracing.

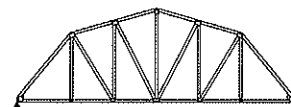
Las cuerdas superiores de los trusses de soporte tienen que ser arriostados apropiadamente. Esto puede ser hecho por sujetar el entablado estructural o con filas de restricción lateral, espaciados no más que el máximo en el espaciamiento del centro que es especificado en el dibujo del diseño de truss, y arrioste diagonal.



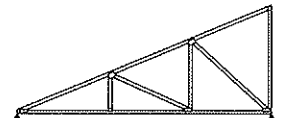
Valley sets as over-framing

This document applies to all sloped and flat chord trusses built with the wide-face of the lumber oriented vertically. Examples include:

Este documento aplica a todos trusses de cuerda pendiente y plana contruidos con la cara-ancha de la madera orientada verticalmente, tales como:



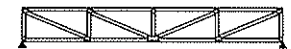
Gambrel truss



Mono truss



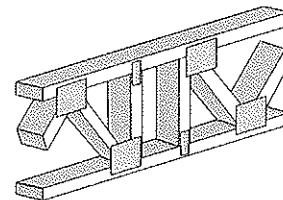
Scissors truss



Parallel chord truss

For parallel chord trusses manufactured with 3x2 or 4x2 lumber, see BCSI-B7.*

*Para los trusses de cuerdas paralelas fabricados con madera 3x2 o 4x2, vea el resumen BCSI-B7.**



For trusses spaced more than 2'-0" on center, see BCSI-B10.*

*Para los trusses espaciados más de 2 pies en el centro, vea el Resumen BCSI B10.**

*Contact the component manufacturer for more information or consult a registered design professional for assistance.

This document summarizes the information provided in Section B2 of the 2018 Edition of Building Component Safety Information BCSI - Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses. Copyright © 2004 - 2020 Structural Building Components Association. All Rights Reserved. This guide or any part thereof may not be reproduced in any form without the written permission of the publishers. Printed in the United States of America.

SBCA

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Permanent Restraint/Bracing of Chords & Web Members

Restricción/Arriostre Permanente de las Cuerdas y los Miembros Secundarios

⚠ WARNING Disregarding permanent restraint/bracing is a major cause of truss field performance problems and has been known to lead to roof or floor system collapse.

NOTICE Section 2303.4.1.3 of the 2015 International Building Code (IBC) requires the permanent individual truss member restraint/bracing for all trusses with clear spans 60 feet (18.3 m) or greater to be designed by a registered design professional.

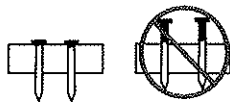
Restraint/Bracing Materials & Fasteners

Commonly used restraint/bracing materials include wood structural panels, gypsum board sheathing, stress-graded lumber, proprietary metal products, and metal purlins and straps.

MINIMUM ATTACHMENT REQUIREMENTS FOR LUMBER RESTRAINT/BRACING ¹		
Lumber Size	Minimum Nail Size	Minimum Number of Nails per Connection
2x4 stress-graded	10d (0.128x3")	2
	12d (0.128x3.25")	
	16d (0.131x3.5")	
2x6 stress-graded	10d (0.128x3")	3
	12d (0.128x3.25")	
	16d (0.131x3.5")	

¹ Other attachment requirements may be specified by the building designer or truss designer.

² The grade/size and attachment for bracing materials such as wood structural panels, gypsum board sheathing, proprietary metal restraint/bracing products, and metal purlins and straps are provided by the building designer.



Permanent Bracing for the Various Planes of a Truss

Permanent bracing is important because it,

- prevents out-of-plane buckling of truss members,
- helps maintain proper truss spacing, and
- resists and transfers lateral loads from wind and seismic forces.

Trusses require permanent bracing within ALL of the following planes:

- Top chord plane
- Bottom chord plane
- Web member plane

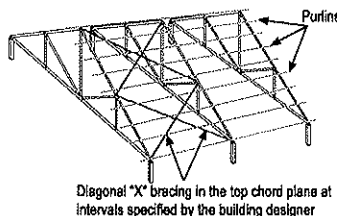
⚠ CAUTION The truss, or a portion of its members, will buckle (i.e., fail) at loads far less than design without permanent bracing.

Permanent Bracing for the Top Chord Plane

Use plywood, oriented strand board (OSB), or wood or metal structural purlins that are properly braced. Attach to each truss.

The Truss Design Drawing (TDD) provides information on the assumed support for the top chord.

Fastener size and spacing requirements and grade for the sheathing, purlins and bracing are provided in the building code and/or by the building designer.



¡ADVERTENCIA! Descuidar el arriostre/restricción permanente es una causa principal de problemas de rendimiento del truss en campo y se sabe que puede provocar el derrumbamiento del sistema del techo o piso.

Sección 2303.4.1.3 del International Building Code (IBC) de 2015 requiere que la instalación temporal de restricción/arriostre para todos armazones con lapso libre de 60 pies (18.3 m) o más se diseña por un profesional del diseño registrado.

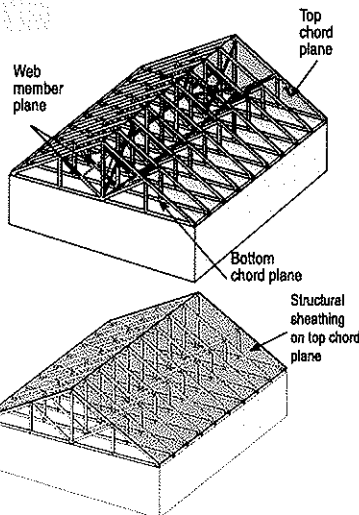
Materiales y cierres de restricción/arriostre

Materiales comunes de arriostar/restringir incluyen paneles estructurales de madera, entablado de yeso, madera graduada por esfuerzo, productos de metal patentados, y vigas de soporte y tiras de metal.

Arriostre permanente para varios planos de un truss

El arriostre permanente es importante porque,

- impide el torcer fuera-de-plano de los miembros del truss,
- ayuda en mantener espaciamiento apropiado de los trusses, y
- resiste y pasa las cargas laterales de viento y fuerzas sísmicas aplicadas al sistema del truss.



Trusses requieren arriostre permanente dentro de TODOS los siguientes planos:

- Plano de la cuerda superior
- Plano de la cuerda inferior
- Plano del miembro secundario

¡PRECAUTELA! Sin el arriostre permanente, del truss, o una parte de los miembros, torcerán (ej. fallarán) de cargas muchas menos que las cargas que el truss es diseñado a llevar.

Arriostre permanente para el plano de la cuerda superior

Use contrachapado, panel de fibras orientado (OSB), o vigas de soporte de madera o metal que estén arriostros apropiadamente. Sujete a cada truss.

El Dibujo del Diseño de Truss (TDD) provee información sobre el soporte supuesto para la cuerda superior.

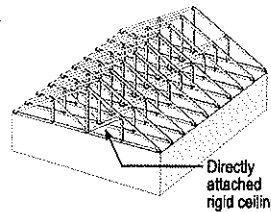
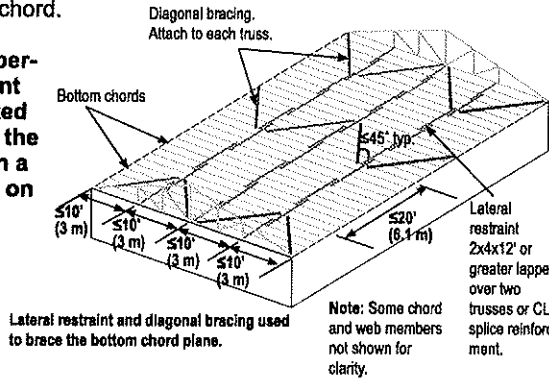
El tamaño de cierre y requisitos de espaciamiento y grado para el entablado, vigas de soporte y arriostre son provistos en el código del edificio y/o por el diseñador del edificio.

Permanent Bracing for the Bottom Chord Plane

Use rows of continuous lateral restraint with diagonal bracing, gypsum board sheathing or some other ceiling material capable of functioning as a diaphragm.

The TDD provides information on the assumed support for the bottom chord.

Install bottom chord permanent lateral restraint at the spacing indicated on the TDD and/or by the building designer with a maximum of 10' (3 m) on center.

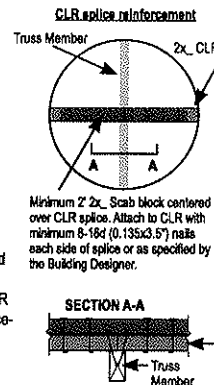


Arriestre permanente para el plano de la cuerda inferior

Use filas de restricción lateral continua con arriestre diagonal, entablado de yeso o cualquier otro material para techo que pueda funcionar como un diafragma.

El TDD provee información sobre el soporte supuesto para la cuerda inferior.

Instale restricción lateral permanente de la cuerda inferior al espaciamiento indicado en el TDD y/o por el diseñador del edificio con un máximo de 10 pies en el centro.



Permanent Bracing for the Web Member Plane

Web member permanent bracing collects and transfers buckling restraint forces and/or lateral loads from wind and seismic forces. The same bracing can often be used for both functions.

Individual Web Member Permanent Restraint & Bracing

Check the TDD to determine which web members (if any) require restraint to resist buckling.

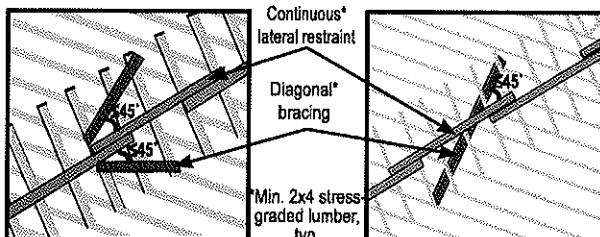
Restrain and brace with,
A. Continuous lateral restraint & diagonal bracing, or
B. Individual member web reinforcement.

A. Continuous Lateral Restraint (CLR) & Diagonal Bracing

Attach each row of CLR at the locations shown on the TDD.

Install the diagonal bracing at an angle of less-than-or-equal-to 45° to the CLR and position so that it crosses the web in close proximity to the CLR. Attach the diagonal brace as close to the top and bottom chords as possible and to each web it crosses. Repeat every 20' (6.1 m) or less.

EXAMPLES OF DIAGONAL BRACING WITH CONTINUOUS LATERAL RESTRAINT



Arriestre permanente para el plano del miembro secundario

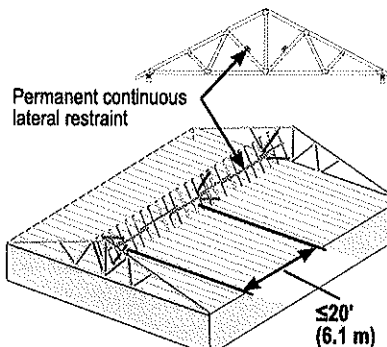
Arriestre permanente de los miembros secundarios recogen y pasan fuerzas de restricción de torcer y/o cargas laterales de viento y fuerzas sísmicas. A menudo el mismo arriestre puede ser usado para ambas funciones.

Restricción y arriestre permanente de miembros secundarios individuales

Revisa el TDD para determinar cuáles miembros secundarios (si los hay) requieren restricción para resistir el torcer.

Restrinja y arriestre con,
A. Restricción lateral continua y arriestre diagonal, o
B. Refuerzo de miembros secundarios individuales.

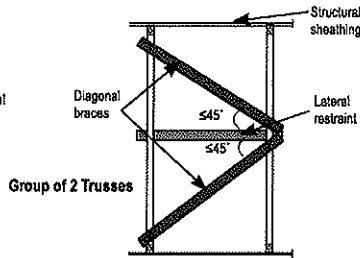
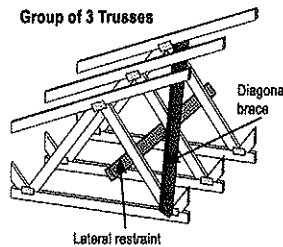
A. Restricción Lateral Continua (CLR) y arriestre diagonal



Sujete cada fila de CLR en las ubicaciones que se muestran en el TDD.

Instale el arriestre diagonal a un ángulo menos de o igual a 45° al CLR y colóquelo para que cruce la cuerda muy cerca del CLR. Sujete el arriestre diagonal tan cerca de las cuerdas superiores y inferiores como sea posible y a cada cuerda que lo cruza. Repita cada 20 pies (6.1 m) o menos.

Lateral restraint & diagonal bracing can also be used with small groups of trusses (i.e., three or less). Attach the lateral restraint & diagonal brace to each web member they cross.



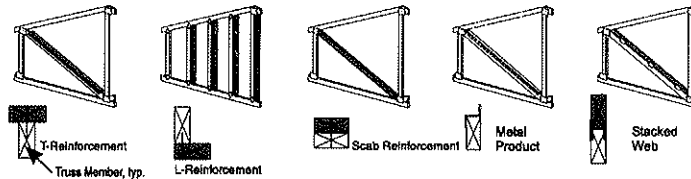
Restricción lateral y arrioste diagonal también puede ser usado con grupos pequeños de trusses (ej. tres o menos). Sujete la restricción lateral y el arrioste diagonal a cada miembro secundario que los cruzan.

ALWAYS DIAGONALLY BRACE THE CONTINUOUS LATERAL RESTRAINT!

¡SIEMPRE ARRIOSTRE LA RESTRICCIÓN LATERAL CONTINUA DIAGONALMENTE!

B. Individual Web Member Reinforcement

T-, L-, Scab, I-, U-Reinforcement, proprietary metal reinforcement and stacked web products provide an alternative for resisting web buckling.



T-, L-, costra, I-, U-Refuerzo, refuerzo de metal patentando y productos de miembros secundarios amontonados proveen una alternativa para resistir el torcer de los miembros secundarios.

The following table may be used unless more specific information is provided.

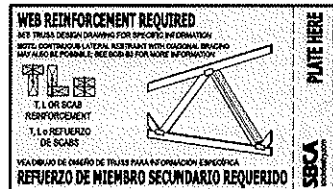
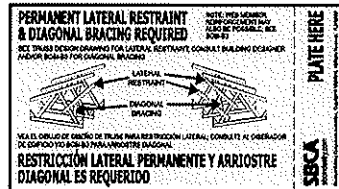
WEB REINFORCEMENT FOR SINGLE PLY TRUSSES ¹							
Specified CLR	Size of Truss Web	Type A Size of Web Reinforcement				Grade of Web Reinforcement	Minimum Length of Web Reinforcement
		T	L	Scab ²	I or U		
1 Row	2x4	2x4	2x4	2x4		Same species and grade or better than web member	90% of Web or extend to within 6" of end of web member, whichever is greater
	2x6	2x6	2x6	2x6			
	2x8	2x8	2x8	2x8			
	2x4	---	---	---	2-2x4		
2 Rows	2x6	---	---	---	2-2x6		16d (0.131x3.5") nails @ 6" on-center ³
	2x8	---	---	---	2-2x8		
	2x4	---	---	---	2-2x4		

¹Maximum allowable web length is 14'.

²For Scab Reinforcement use 2 rows of 16d (0.120x3") nails at 6" on-center to attach reinforcement to web

La siguiente tabla puede ser usada a menos que información más específica está provista.

Some truss manufacturers provide additional assistance by using tags to mark the web members that require lateral restraint or reinforcement.

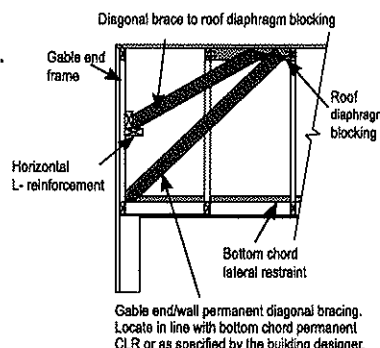
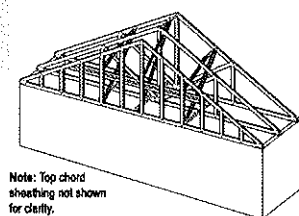


Algunos fabricantes de trusses marcan en el truss las ubicaciones de refuerzo o restricción lateral de miembros secundarios con etiquetas similares a las de la izquierda.

Web Member Plane Permanent Building Stability Bracing to Transfer Wind & Seismic Forces

The web member restraint or reinforcement specified on a TDD is required to resist buckling due to axial forces caused by the in-plane loads applied to the truss. Additional restraint and bracing within the web member plane may also be required to transfer lateral forces due to wind and/or seismic loads applied perpendicular to the plane of the trusses. This restraint and bracing is typically specified by the building designer.

Some truss designers provide general design tables and details to assist the building designer in determining the bracing required to transfer lateral loads due to wind and/or seismic forces from the gable end frame into the roof and/or ceiling diaphragm.



Gable end/wall permanent diagonal bracing. Locate in line with bottom chord permanent CLR or as specified by the building designer.

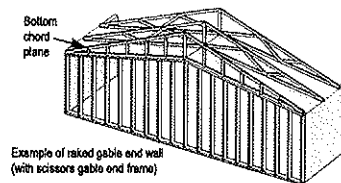
Arrioste de estabilidad permanente del edificio del plano de miembros secundarios para desplazar fuerzas de viento y fuerzas sísmicas

La restricción o refuerzo de miembros secundarios especificada en un TDD es requerido para resistir la deformación bajo fuerzas axiales causadas por cargas verticales aplicadas al truss. Restricción adicional y el aparato ortopédico dentro del plano miembro de banda también puede ser necesaria para transferir fuerzas laterales debidas al viento y / o cargas sísmicas aplicadas perpendicular al plano de las cerchas. Esta restricción y arrioste es típicamente provisto por el diseñador del edificio.

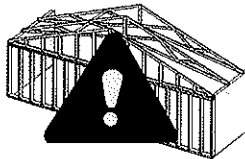
Algunos diseñadores de trusses proveen tablas y detalles de diseño generales para asistir el diseñador del edificio en determinar el arrioste requerido para pasar cargas laterales debidas a fuerzas de viento y/o fuerzas sísmicas del armazón hastial al diafragma del techo.

Gable End Frames and Sloped Bottom Chords

The gable end frame should always match the profile of the adjacent trusses to ensure the top of the end wall aligns with, and can be braced by, the ceiling diaphragm.



CAUTION Using a flat bottom chord gable end frame with adjacent trusses that have sloped bottom chords is prohibited by some building codes as adequate bracing of this condition is difficult and sometimes impossible. Special end wall bracing design considerations are required by the building designer if the gable end frame profile does not match the adjacent trusses.

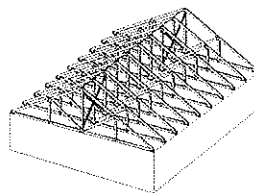


Permanent Bracing for Special Conditions

Sway Bracing

"Sway" bracing is installed at the discretion of the building designer to help stabilize the truss system and minimize the lateral movement due to wind and seismic loads.

Sway bracing installed continuously across the building also serves to distribute gravity loads between trusses of varying stiffness.



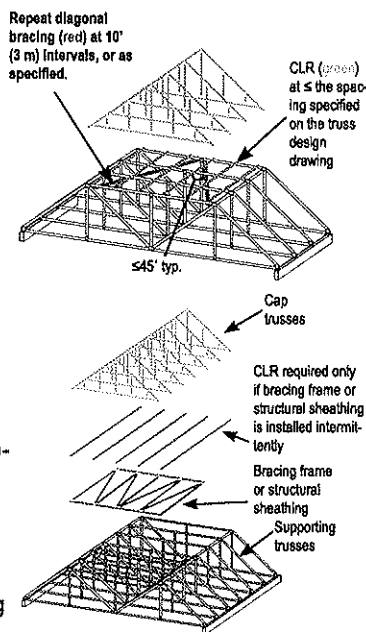
Permanent Restraint/Bracing for the Top Chord in a Piggyback Assembly

Provide restraint and bracing by:

- using rows of minimum 4x2 stress-graded lumber CLR and diagonal bracing, or
- connecting the CLR into the roof diaphragm, or
- adding structural sheathing or bracing frames, or
- some other equivalent means.

Refer to the TDD for the maximum assumed spacing between rows of lateral restraint (e.g. purlins) attached to the top chord of the supporting truss.

The TDD provides the assumed thickness of the restraint and minimum connection requirements between the cap and the supporting truss or restraint.



If diagonal bracing is used to restrain the CLR(s), repeat at **10' (3 m) intervals, or as specified** in the construction documents.

Armazones Hastiales Y Cuerdas Inferiores Pendientes

El armazón hastial siempre debe encajar el perfil de los trusses contiguos para permitir la instalación de restricción y arrioste apropiada de la cuerda inferior a menos que arrioste especial es diseñado para soportar la pared de extremo.

CAUTELA El uso de un armazón hastial de la cuerda inferior con trusses contiguos cuales tienen cuerdas inferiores pendientes es prohibido por algunos códigos de edificios porque arrioste adecuado de esta condición es difícil y a veces imposible. Consideraciones especiales de diseño para el arrioste de la pared de extremo son requeridos por el diseñador del edificio si el perfil del armazón hastial no coincide con los trusses contiguos.

Arrioste permanente para condiciones especiales

Arrioste de "Sway"

Arrioste de "sway" está instalado por la discreción del diseñador del edificio para ayudar en estabilizar el sistema de trusses y para minimizar el movimiento lateral debido a cargas de viento y cargas sísmicas.

Arrioste de "sway" que es instalada continuamente al través del edificio también es usado para distribuir las cargas de gravedad entre trusses de rigidez variando.

Restricción/Arrioste permanente para la cuerda superior en un ensamblaje de piggyback

Provee restricción y arrioste por:

- creando filas de 4x2 CLR de madera graduada por esfuerzo y arrioste diagonal, o
- conectando el CLR al diafragma del echo, o
- añadiendo entablado estructural o armazones de arrioste, o
- algunos otros métodos equivalentes.

Consulte el TDD para el espaciamiento máximo supuesto para sujetar la restricción lateral (p. ej., vigas) a la cuerda superior del truss soportante.

El TDD provee el grosor supuesto de la restricción y los requisitos de conexión mínimos entre la capa y el truss soportante o la restricción.

Si arrioste diagonal se utiliza para restringir el/los CLR(s), repita en **intervalos de 10 pies o como sea especificado** en los documentos de construcción.

*Contact the component manufacturer to obtain the referenced document or consult a Registered Design Professional for more information on this subject.

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B4 Construction Loading

Cargas de Construcción

Construction loads are those loads imposed on the unfinished building as a result of the construction process. Typical construction loads include the weight of the workers, equipment, and building materials, to name a few. For example, a bundle of plywood sheathing or gypsum board stacked on trusses temporarily creates construction loads.



Cargas de construcción son las cargas que están impuestas a los edificios incompletos como resultado del proceso de construcción. Cargas de construcción típicas incluyen el peso de los trabajadores, el equipo y los materiales de construcción, etcétera. Por ejemplo, un paquete de entablado contrachapado o tabla de yeso apilados temporalmente sobre los trusses crean cargas de construcción.

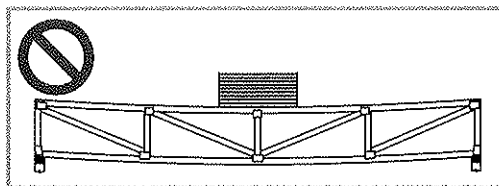
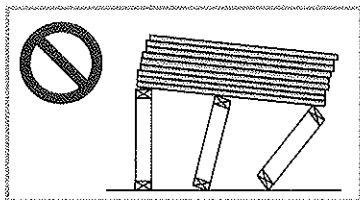
Make sure the truss assembly is properly restrained and braced according to the guidelines in BCSI-B1*, BCSI-B2* and BCSI-B7*, as applicable, before placing any construction loads on them. Construction loads shall only be placed on fully restrained and braced structures.

WARNING Stacking excessive amounts of construction materials on floor or roof trusses is an unsafe practice. Property damage, personal injury and/or death are possible if this warning is not heeded.

NOTICE Trusses that have been over-stressed due to construction overloading will usually show excessive sagging (deflection) and at least a portion of this deflection will remain after the load has been removed. In more severe cases, broken truss members and/or failed truss joints may result.

Construction Loading DO's and DON'Ts

- ⊘ **DON'T** stack materials on unbraced trusses.
- ⊘ **DON'T** overload the trusses.
- ⊘ **DON'T** exceed stack heights listed in the table below.



Maximum Stack Height for Material on Trusses ^{1,2} Maximua Altura de Montón para Material encima de los Trusses	
Material – Material	Height – Altura
Gypsum Board – Tabla de Yeso	12" – 12 pulgadas
Plywood or OSB – Madera Contrachapada u OSB	16" – 16 pulgadas
Asphalt Shingles – Teja de Asfalto	2 bundles – 2 paquetes
Concrete Block – Bloque de Hormigón	8" – 8 pulgadas
Clay Tile – Teja de Arcilla	3-4 tiles – 3-4 azulejos

¹ This table is based on trusses designed with a live load of 40 psf or greater. For other loading conditions, contact a Registered Design Professional.

² Limit stacking periods to approximately one week, unless alternative information is provided by the Building Designer, Truss Designer or Truss Manufacturer.

Asegúrese que el montaje del truss está adecuadamente restringido y arriostrado según las pautas en BCSI-B1*, BCSI-B2* y BCSI-B7* antes de colocar alguna carga de construcción en la estructura. Solamente coloquen cargas de construcción arriba de estructuras cuales son restringidos y arriostrados completamente.

¡ADVERTENCIA! Apilando cantidades excesivas de cargas de construcción sobre trusses de piso o techo es una práctica peligrosa. Daño a la propiedad, herida personal y/o muerte son posibles si no se atiende esta advertencia.

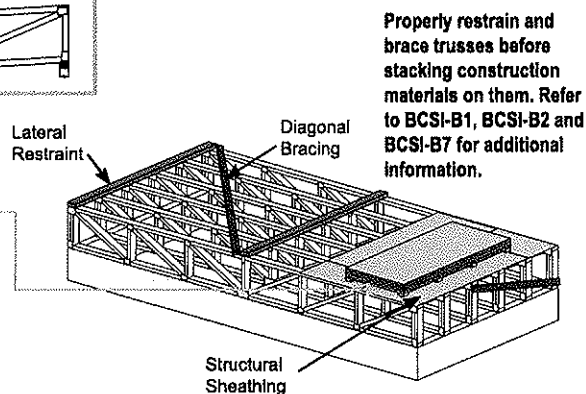
NOTICE Los trusses que han sido sobrecargados debido a cargas de construcción excesivas usualmente demuestran una desviación excesiva, y por lo menos una parte de esta desviación se quedará aún después de que se haya quitado la carga. En casos más severos, miembros quebrados del truss y/o juntas falladas pueden resultar.

Que HACER y NO HACER Con Las Cargas De Construcción

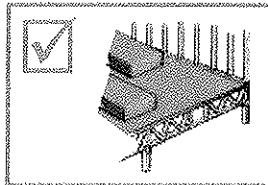
NO apile materiales sobre trusses que no esten arriostrados.

NO sobrecargue los trusses.

NO exceda la altura de montón indicada en la tabla que sigue.

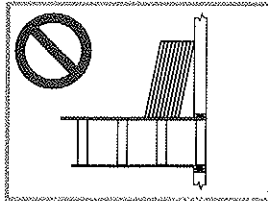


DO distribute loads over as many trusses as possible. Position stacks of materials flat with the longest dimension perpendicular to the trusses, as shown.



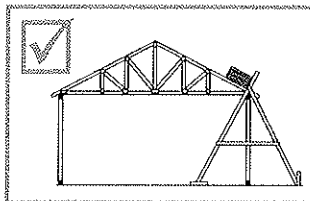
Si distribuye cargas sobre el mayor número de trusses que sea posible. Posicione perpendicular a los trusses los montones de materiales llanos con la dimensión más larga como se indica el dibujo.

DON'T allow the stack to lean against walls, or stack materials so they overload single or small groups of trusses.



NO permite que el montón se incline contra ninguna pared, ni apile materiales para que sobrecarguen uno u grupos pequeños de trusses.

Si amontone materiales al lado de los soportes exteriores o directamente sobre los soportes interiores de estructuras que están restringidas y arriostradas apropiadamente.



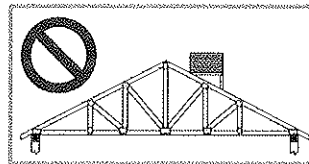
DO stack materials along exterior supports or directly over interior supports of properly restrained and braced structures.

NO amonte los materiales en o cerca de la mitad del braguero. Nunca sobrepase alturas de montón indicadas en la tabla (véase la página 1) a menos que se proporcione información alternativa por el Diseñador del Edificio, el Diseñador del Braguero, o el Fabricante del Braguero.

NO deje caer cargas arriba de los trusses. El impacto puede dañar los trusses aunque si sea pequeña la carga.

Note: Truss bracing not shown for clarity.

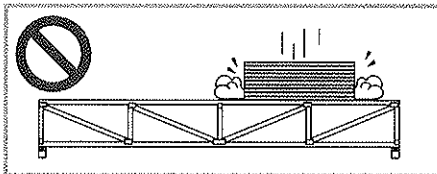
DON'T stack materials at or near the midspan of the truss. **Never** exceed stack heights provided in the table (see page 1) unless alternative information is provided by the Building Designer, Truss Designer or Truss Manufacturer.



Si deje materiales de construcción encima del equipo de levantar hasta el momento de la instalación, si es posible.

NO amontone materiales en un lugar que puede producir inestabilidad como en voladiza, salientes o cerca de las conexiones de trusses-a-travesaño.

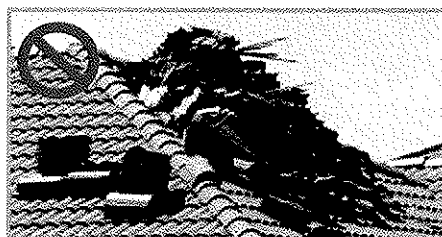
DON'T drop materials on trusses. The impact can damage the trusses even if the weight of the material is light.



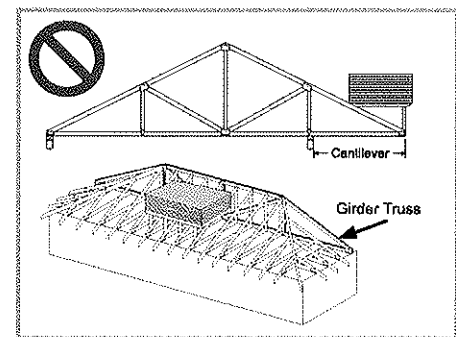
NO apile teja de sobra y/o otros residuos de construcción sobre los trusses.



DO leave construction materials on lifting equipment until installation, if possible.



DON'T pile cut-off tile and/or other construction waste on trusses.



DON'T stack materials at locations that will produce instability, such as on cantilevers, overhangs or near truss-to-girder connections.

***Contact the component manufacturer to obtain the referenced document or consult a Registered Design Professional for more information on this subject.

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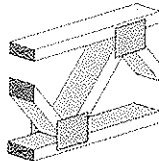
B7

Handling, Installing & Bracing of 3x2 & 4x2 Parallel Chord Trusses

Hoja resumen de la guía de buena práctica para el manejo, instalación y arriostre de los trusses de cuerdas paralelas de 3x2 y 4x2

General Notes

The restraint and bracing recommendations provided in this document address Parallel Chord Trusses (PCT) built with the wide-face of the lumber oriented horizontally. Refer to BCSI-B2* for restraint and bracing recommendations for PCT built with the wide-face of the lumber oriented vertically.



Refer to BCSI – Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses* for more detailed information on the handling, installing, restraining and bracing of all truss types and configurations.

Truss Design Drawings specify locations of permanent lateral restraint for individual truss members. Refer to the BCSI-B3* for more information. All other permanent bracing design is the responsibility of the building designer.

WARNING The consequences of improper handling, erecting, installing and bracing of PCT can result in a collapse of the structure, or worse, serious personal injury or death.



CAUTION Wear personal protective equipment for the eyes, feet, hands and head when working with trusses.

Storage & Handling

NOTICE The contractor is responsible for properly receiving, storing and handling the trusses at the jobsite.

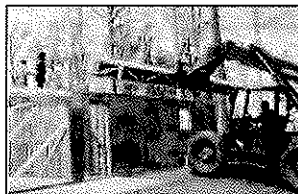
NOTICE Avoid lateral bending.

Trusses may be unloaded directly on the ground at the time of delivery or stored temporarily in contact with the ground after delivery. If trusses are to be stored for more than one week, place blocking of sufficient height beneath the stack of trusses at 8' (2.4 m) to 10' (3 m) on-center (oc) and cover bundles to prevent moisture gain but allow for ventilation.

Keep trusses banded together until installation begins.

CAUTION Use special care in windy weather or near power lines and airports.

Use proper rigging and hoisting equipment.



Notas generales

Las recomendaciones de restricción y arriostre provistas en este documento tratan los Trusses de Cuerdas Paralelas (PCT) fabricados con la cara-ancha de la madera orientada horizontalmente. Refiera al BCSI-B2* para las recomendaciones de restricción y arriostre para PCT construido con la cara-ancha de la madera orientada verticalmente.

Refiera al BCSI – Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses* para información más detallada sobre el manejo, instalación, restricción y arriostre de todos tipos de trusses y todas configuraciones.

Los Dibujos del Diseño de Truss pueden especificar las ubicaciones de restricción lateral permanente para miembros individuos del truss. Refiera al BCSI-B3* para más información. Todo otro diseño de arriostre permanente es la responsabilidad del diseñador del edificio.

¡ADVERTENCIA! El resultado del manejo, levantamiento, instalación, restricción y arriostre incorrecto de PCT puede ser la caída de la estructura, o aún peor, heridos o muertos.

¡CAUTELA! Lleve equipo protector personal para los ojos, los pies, las manos y la cabeza cuando trabaje con trusses.

Almacenamiento y manipulación

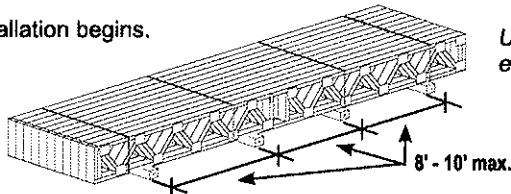
El contratista tiene la responsabilidad de recibir, descargar y almacenar adecuadamente los trusses en la obra.

Evite la flexión lateral.

Trusses pueden ser descargados directamente en el piso en el momento de la entrega o almacenados temporalmente en contacto con el piso después de la entrega. Para trusses almacenados por más de una semana, ponga un sistema de bloques de altura suficiente debajo de la pila de trusses a 8' hasta 10' en el centro (oc) y cubra los paquetes para prevenir el aumento de humedad pero permitir la ventilación.

Guarde los trusses atados juntos hasta que la instalación empiece.

¡CAUTELA! Utilice cuidado especial en condiciones ventosas o cerca de cables eléctricos o de aeropuertos.



Use equipo apropiado para levantar e improvisar.

Hoisting Recommendations for Truss Bundles

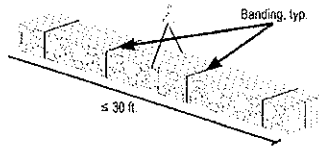
⊘ **DON'T** overload the crane or lift.

⊘ **NEVER** use banding to lift a bundle.

A single lift point may be used for securely banded bundles of trusses up to 30' (9.1 m).

Place truss bundles in a stable position.

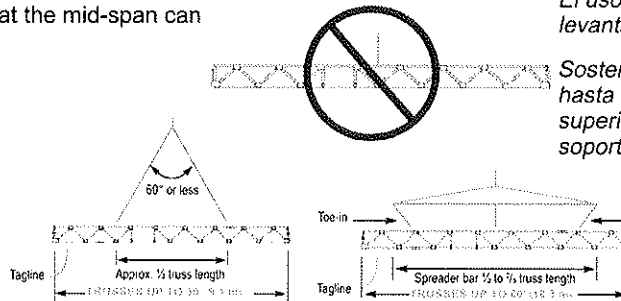
WARNING Do not over load supporting structure with truss bundle.



Hoisting Recommendations for Single Trusses

NOTICE Using a single pick at the mid-span can damage the truss.

Hold each truss in position with the erection equipment until top chord temporary lateral restraint is installed and the truss is fastened to the bearing supports.



Recommendations for Lifting Single Trusses by Hand

Trusses 20' (6.1 m) or less can be raised into position by lifting at or near the center.

Trusses with spans less than or equal to 30' (9.1 m) should be raised into position by lifting at or near each end.

CAUTION Seek help if lifting by hand as trusses can be heavy and awkward.

Installation & Temporary Restraint & Bracing

Make sure bottom chord bearing PCT are installed with the correct side up and in the correct orientation. Refer to the Truss Design Drawing.

Standard End Bearing Details

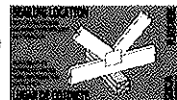


Many truss manufacturers use supplemental tags such as the ones shown here to instruct and warn the contractor to correctly install the PCT.

⊘ **DO NOT** walk on unbraced trusses.

WARNING Lateral restraint and diagonal bracing of PCT are very important.

Use a minimum of 2x4 stress-graded lumber for lateral restraint and diagonal bracing and attach to each truss with a minimum of 2-10d (0.128x3") nails, unless otherwise specified.



Recomendaciones para levantar paquetes de Trusses

NO sobrecargue la grúa o ascensor.

NUNCA use las ataduras para levantar un paquete.

Se puede usar un solo punto de levantamiento para paquetes firmemente atados juntos de trusses hasta 30 pies.

Coloque los paquetes de trusses en una posición estable.

¡ADVERTENCIA! No sobrecargue la estructura soportante con el paquete de trusses.

Recomendaciones para levantar trusses individuales

El uso de un solo lugar en el medio-tramo o para levantar puede hacer daño al truss.

Sostenga cada truss en posición con equipo de grúa hasta que la restricción lateral temporal de la cuerda superior esté instalado y el truss está sujetado a los soportes.

Recomendaciones para levantar trusses individuales por la mano

Los trusses de 20' o menos pueden ser levantados en lugar por levantando en o cerca del pico.

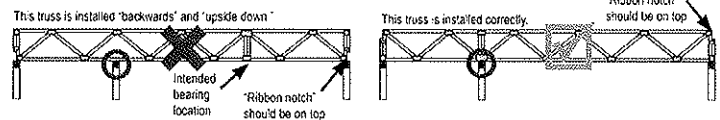
Trusses con tramos menores o iguales a 30' deben slevantarse en su lugar por levantando en o cerca del centro.

¡CAUTELA! Busque ayuda si levantando a mano ya que los trusses pueden ser pesados y difíciles.

Instalación y restricción y arriostre temporal

Asegúrese que los PCT para el soporte de la cuerda inferior son instalados con el lado correcto hacia arriba y en la orientación correcta. Refiera al Dibujo del Diseño de Truss.

Common Installation Errors



Muchos fabricantes de trusses usan placas suplementarias, como se ilustra aquí, para instruir y advertir el contratista que instale el PCT correctamente.

NO camine en trusses sueltos.

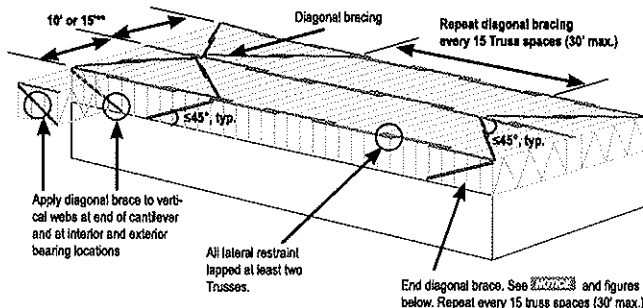
¡ADVERTENCIA! La restricción lateral y el arriostre diagonal de PCT son muy importantes.

Utilice el mínimo de 2x4 madera graduada por esfuerzo para la restricción lateral y arriostre diagonal y sujetar a cada truss con un mínimo de 2-10d (0.128x3") clavos, a menos que se especifique lo contrario.

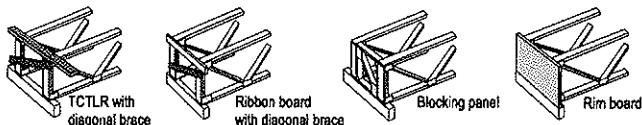
Steps to Setting Trusses

- 1) Set first truss and attach securely to supporting structure.
- 2) Set next four trusses at end of bay, properly nailing the trusses at all bearing locations. Secure the ends of bottom chord bearing trusses with diagonal bracing, blocking or rim board as each truss is installed (see figures below).
- 3) Brace the five-truss-assembly by attaching structural sheathing to the top chords or by adding 2x4 lateral restraint and diagonal bracing.
- 4) Continue setting trusses, making sure to properly attach each truss at the bearing locations.
- 5) Restrain and brace the trusses as they are being installed by attaching structural sheathing, or rows of top chord lateral restraint, at the spacing provided in the table and with diagonal bracing to the top chord (and end vertical web if bottom chord bearing truss) at intervals of no more than 30' (9.1 m) along the run of trusses.

Maximum Spacing for Top Chord Temporary Lateral Restraint (TCTLR)	
Chord Size	TCTLR Spacing
3 x 2	10' on-center**
4 x 2	15' on-center**



NOTE: End diagonal braces, with TCTLR or ribbon (band) board, blocking panels, or Rim board are examples of framing components that provide stability to bottom chord bearing PCT during installation. Install one of these types of components at both ends of the truss system and repeat every fifteen truss spaces (30' maximum) as shown above.



Permanent Restraint & Bracing

Permanently restrain and brace the top chords of the PCT with properly sized and attached structural sheathing.

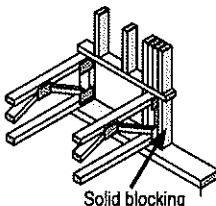
Permanently restrain and brace the bottom chords of the PCT with directly applied gypsum board ceiling or with rows of lateral restraint installed at 10' on-center along the truss span and diagonal bracing installed at no more than 20' intervals along the run of trusses, unless otherwise specified.

Install structural sheathing, ribbon board with structural sheathing, blocking panels, or rim board (see figures above) at the bearing locations of bottom chord bearing PCT as specified by the building designer to transfer lateral diaphragm forces to the shearwalls.

Install solid blocking directly beneath load bearing columns to maintain load path through floor to support below.

Strongbacking

Strongbacking enhances truss performance by limiting differential deflection between adjacent trusses and reducing vibration. Use the following guidelines when installing strongbacking:



Las medidas de la instalación de los trusses

- 1) Coloque el primer truss y sujetarlo seguramente a la estructura soportante.
- 2) Coloque los próximos cuatro trusses al extremo del espacio, clavando apropiadamente los trusses en todos lugares de cojinetes. Asegure los extremos de los trusses soportantes de la cuerda inferior con el arriostre diagonal, el sistema de bloques o la tabla de borde a medida que se instala cada truss (vea las figuras en la próxima columna).
- 3) Arriostre este ensamblaje de cinco trusses por sujetar el entablado estructural a las cuerdas superiores o por añadir 2x4 restricción lateral y arriostre diagonal (vea las tablas y figures en la próxima columna).

4) Continué la colocación de los trusses, y asegure de sujetar apropiadamente cada truss en las ubicaciones de cojinetes.

5) Restringe y arriostre los trusses mientras ellos son instalados por sujetar el entablado estructural, o filas de restricción lateral de la cuerda superior al espaciamiento provisto en la tabla en la próxima columna con arriostre diagonal a la cuerda superior (y el miembro secundario vertical del extremo, si es un truss soportante de la cuerda inferior) en intervalos de no más de 30' al lado de la línea de trusses.

Los diagonales extremos, con TCTLR o tabla de listón (banda), paneles de

bloquear, o tabla de borde (vea las figuras a la izquierda) son ejemplos de componentes de arriostramiento que proveen estabilidad a los PCTs soportantes de la cuerda inferior durante la instalación. Instale uno de estos tipos de componentes en ambos extremos del sistema de truss y repite cada 15 espacios de truss (30' máximo), como se muestra más arriba.

Restricción y arriostre permanente

Restringe y arriostre permanentemente las cuerdas superiores del PCT con el entablado estructural sujetado del tamaño apropiado.

Restringe y arriostre permanentemente las cuerdas inferiores del PCT con techo de panel de yeso aplicado directamente o con filas de restricción lateral instaladas a 10' en-centro al lado del tramo de truss y arriostre diagonal instalado a intervalos no mayores de 20' al lado de la línea de trusses, a menos que se especifique lo contrario.

Instale el entablado estructural, tabla de listón con entablado estructural, paneles de bloqueo, o tabla de borde (vea las figuras más arriba) en los lugares de cojinetes del truss soportante de la cuerda inferior como especificado por el diseñador del edificio para transferir las fuerzas laterales del diafragma a las paredes cortantes.

Instale un sistema de bloqueo sólido directamente debajo de las columnas soportantes para mantener la trayectoria de carga a través del suelo para soportar abajo.

Strongbacking

Strongbacking aumenta el desempeño de los trusses por limitar el desvío diferencial entre trusses contiguos y reducir la vibración. Utilice las siguientes pautas para instalar strongbacking:

Use a minimum of 2x6 (nominal) lumber oriented with the wide-face vertical.

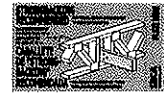
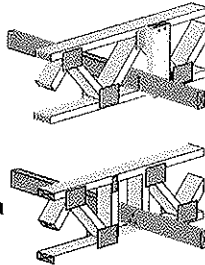
Strongbacking shall be installed at $\leq 10'$ on center with one row located near the midspan of the truss when possible.

Attach strongbacking to each truss. Attach to vertical webs or field-installed vertical 2x4s with a minimum of three (3) 10d (0.131x3.0") nails.

Strongbacking shall be continuous. If required to be cut, removed, or modified, continuity with the adjoining floor sections must be maintained as determined by the designer specifying the strongbacking. Attach the ends of each row of strongbacking to a wall or other secure end restraint.

Refer to Chapter B7 of BCSI*, and finish flooring specifications for additional information concerning strongbacking installed to control deflection and vibration.

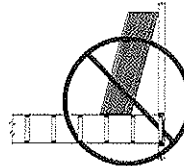
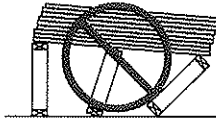
Many truss manufacturers include a supplemental tag to further assist the contractor in correctly installing strongbacking.



- Use madera de 2x6 mínimo (nominal) orientada con la cara-ancha vertical.
- El poste de soporte debe colocarse a $\leq 10'$ en el centro con una hilera ubicada en el medio vano de la armadura cuando sea posible.
- Sujete el strongbacking a cada truss. Sujete a los miembros verticales o costras con un mínimo de tres (3) 10d (0.131x3.0") clavos.
- La colocación de postes de soporte debe ser continua. En caso de que deban cortarse, retirarse o modificarse, será necesario mantener la continuidad con las secciones adyacentes del piso según las especificaciones del diseñador de los postes de soporte. Fije los extremos de cada hilera de postes de soporte a una pared u otro apoyo firme.
- Refiera al Capítulo B7 de BCSI*, y termina las especificaciones del piso para información adicional con respecto a strongbacking instalado para controlar el desvío y la vibración.
- Muchos fabricantes de trusses incluyen una placa suplementaria para asistir aún más el contratista en la instalación correcta de strongbacking.

Construction Loading

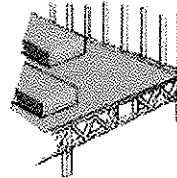
- ① **DO NOT** proceed with construction until all lateral restraint and diagonal bracing is securely and properly in place.
- ① **DO NOT** exceed maximum stack heights in table at right.
- ① **NEVER** overload small groups or single trusses.
- ① **DO NOT** lean stacks of materials against walls.



- ① **DO NOT** drop loads of any material on trusses. Position load over as many trusses as possible with longest dimension of material perpendicular to trusses.

Place material next to outside load bearing wall or directly over interior bearing wall.

Refer to BCSI-B4* for more information about construction loading.



Maximum Stack Height for Material on Trusses	
Material	Height
Gypsum Board	12" (305 mm)
Plywood or OSB	18" (406 mm)
Asphalt Shingles	2 bundles
Concrete Block	8" (203 mm)
Clay Tile	3-4 lbs high

NO deje caer cargas de ningunos materiales en los trusses.

Coloque la carga sobre tantos trusses como sea posible con la dimensión más larga perpendicular a los trusses.

Coloque el material al lado de la pared soportante de cargas exterior o directamente sobre la pared soportante interior.

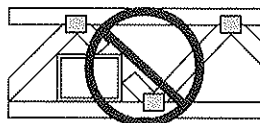
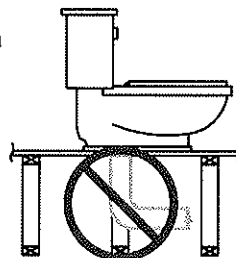
Refiera al BCSI-B4* para más información sobre cargas de construcción.

Alterations

- ① **DO NOT** cut, alter, or drill any structural member of a truss unless specifically permitted by the Truss Design Drawing.

NOTICE Trusses that have been overloaded during construction or altered without the Truss Manufacturer's prior approval will render the Truss Manufacturer's limited warranty null and void.

NOTICE Refer also to BCSI-B5* Truss Damage, Jobsite Modifications & Installation Errors.



Alteraciones

NO corte, altere o perfore ningún miembro estructural de un truss a menos que esté específicamente permitido en el Dibujo del Diseño de Truss.

Trusses que han sido sobrecargados durante la construcción o han sido alterados sin la autorización previa del Fabricante de Truss, pueden anular la garantía limitada del Fabricante de Trusses.

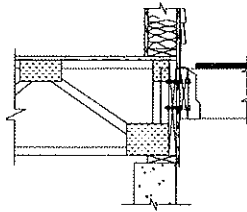
También refiera al BCSI-B5* Daño a los Trusses, Modificaciones en la Obra y Errores de Instalación.

Special Conditions

NOTICE Attachment of residential decks to trusses requires the use of a standard detail provided by the truss manufacturer or by a registered design professional. An alternative is to use a free standing deck.

Refer to SBCA Research Report, SRR No. 1408-01, *Attachment of Residential Deck Ledger to Metal Plate Connected Wood Truss Floor Systems* for special blocking details and attachment requirements (sbcindustry.com).

- ① **DO NOT** attach the deck ledger to 2x ribbon board unless a special detail has been provided by the truss designer or building designer.



Condiciones especiales

La sujeción de terrazas residenciales a los trusses requiere el uso de un detalle estándar provisto por el fabricante de truss o un profesional registrado de diseño. El uso de una terraza independiente es un alternativo.

Refiera al SBCA Informe de Investigación – Attachment of Residential Deck Ledger to Metal Plate Connected Wood Floor Systems para detalles especiales de bloquear y requisitos de sujetar. (sbcindustry.com).

NO sujete la saliente de la terraza a borde de listón de 2x a menos que un detalle especial haya sido proporcionado por el diseñador del truss o el diseñador del edificio.

*Contact the component manufacturer to obtain the referenced document or consult a Registered Design Professional for more information on this subject.

SBCA

6300 Enterprise Lane • Madison, WI 53719
608-274-4849 • sbcindustry.com

This document summarizes the information provided in Section B7 of the 2018 Edition of Building Component Safety Information BCSI - Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses. Copyright © 2004-2019 Structural Building Components Association and Truss Plate Institute. All Rights Reserved. This guide or any part thereof may not be reproduced in any form without the written permission of the publishers. Printed in the United States of America.

B11 Fall Protection & Trusses

Protección de Caída y Trusses

Regulations on fall protection and erection/installation of trusses in residential construction are contained in OSHA's Fall Protection Standard, 29 CFR 1926 Subpart M (the Standard). Section 1926.501(b)(13) of the Standard states in part: "Each employee engaged in residential construction activities 6 feet or more above lower levels shall be protected by guardrail systems, safety net system or a personal fall arrest system..."

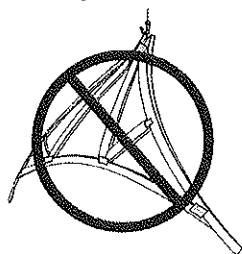
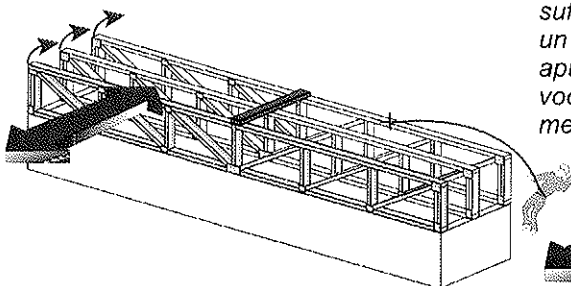
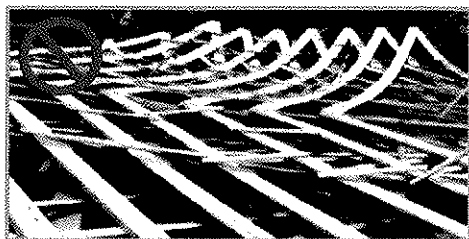
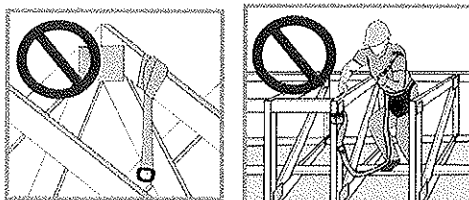
Las regulaciones sobre protección contra caídas y levantamiento/instalación de entramados en construcción residencial se encuentran en la Regulación de Protección contra Caídas de OSHA, 29 CFR 1926 Subparte M (el Estándar). La sección 1926.501(b)(13) de la regulación establece en parte: "Cada empleado que participe en actividades de construcción residencial a 6 pies o más por encima de niveles inferiores deberán estar protegidos por sistemas de rampas de protección, sistema de red de seguridad o un sistema de protección personal para detención de caídas..."

Group of Trusses

⚠ DANGER Any part of an inadequately braced or sheathed group of roof or floor trusses used as an anchorage point for any type of personal fall arrest system is dangerous and will increase the risk of serious injury or death.

⚠ WARNING Roof and floor trusses that are not properly braced per BCSI or sheathed are not able to resist lateral impact loads associated with falls. A falling worker attached to an inadequately braced group of trusses could cause all the previously set trusses to collapse in a domino effect.

Refer to BCSI-B1* and BCSI-B2* for recommendations on proper bracing of trusses.



Refer to BCSI-B1* for recommendations on proper hoisting of trusses.



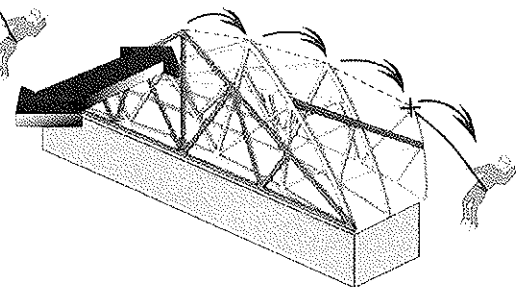
⚠ DANGER Do not walk on unbraced trusses.

⚠ DANGER Do not stand on truss overhangs until structural sheathing has been applied to the truss and overhangs.

Sistemas de Entramado

¡PELIGRO! Cualquier pieza de un sistema de entramado de techo o el piso apuntalado o forrado de forma inadecuada que se utilice como punto de anclaje para cualquier tipo de sistema de protección personal para detención de caídas es peligroso y aumentará el riesgo de lesiones personales de gravedad o la muerte.

¡ADVERTENCIA! Los entramados de techo y piso que no están correctamente apuntalados según BCSI o forrados no pueden resistir cargas de impacto lateral asociadas con caídas. Un trabajador que sufra una caída y que esté acoplado a un conjunto de entramados que no estén apuntalados adecuadamente podría provocar que los entramados fijados previamente se colapsen con un efecto dominó.



Refiera el resumen BCSI-B1 y BCSI-B2* para las recomendaciones sobre la arrioste de trusses.

Consulte BCSI-B1* sobre recomendaciones para el levantamiento correcto de los entramados.

¡PELIGRO! No camine sobre entramados no apuntalados.

¡PELIGRO! No se pare en voladizos del braguero hasta que el revestimiento estructural se ha aplicado a la armadura y voladizos.

⚠ DANGER Do not walk on trusses or gable end frames lying flat, they do not have the structural strength to support a worker safely while oriented flat.



¡PELIGRO! No camine sobre entramados ni estructuras de muro piñón dispuestos horizontalmente ya que no poseen la resistencia estructural para poder soportar a un trabajador con seguridad con orientación horizontal.

Site-Specific Job Hazard Assessment

Fall protection and safety measures are jobsite and building specific. The appropriate fall protection method must be determined through a site-specific job hazard assessment (JHA) conducted by a qualified person (1) who can design, install, and use fall protection systems and is authorized to correct any problems. The JHA is intended to assist in identifying risks and identify the least hazardous way to install trusses for a particular job.

Fall hazards identified in the JHA shall be addressed with conventional methods whenever possible, including: guardrails, scaffolding, safety nets, personal fall arrest systems or catch platforms.

Employers must consider whether it is safer to design and install a safe work platform/system around a hazard.

⚠ WARNING All fall protection solutions come with their own inherent hazards during use.

⚠ CAUTION Addressing fall protection hazards may be obvious, but other hazards must also be considered when choosing the appropriate site-specific fall protection systems. This includes:

1. electrical hazards, including power lines;
2. projectile hazards while using pneumatic nail guns;
3. tripping hazards from cords and bracing materials; and,
4. lower level hazards, such as wall bracing, which some fall protection systems do not protect against.

Evaluación de Peligros de Trabajos en Sitios Específicos

La protección contra caídas y las medidas de seguridad son específicas para cada sitio de trabajo o edificio. El método apropiado para la protección contra caídas deberá determinarse siguiendo una evaluación de peligros en el trabajo (JHA) específicos, realizados por una persona que esté calificada (1) que pueda diseñar, instalar y utilizar sistemas de protección para caídas, y que esté autorizada para corregir cualquier problema. La JHA tiene el propósito de ayudar en la detección de riesgos e identificar la forma menos peligrosa para instalar entramados para un trabajo en particular.

Los peligros riesgos de caídas identificados en la JHA serán tratados con métodos convencionales siempre que sea posible; por ejemplo: rampas de protección, andamiaje, redes de seguridad, sistema de protección personal para detención de caídas o plataformas de agarre.

Los empleados deberán considerar si es seguro diseñar e instalar una plataforma/sistema de trabajo seguro alrededor de un peligro.

¡ADVERTENCIA! Todas las soluciones de protección contra caídas vienen con sus propios peligros durante el uso.

¡CAUCIÓN! La solución de peligros para la protección contra caídas puede ser obvia, pero deberán considerarse otros peligros al elegir los sistemas de protección contra caídas apropiados para un sitio específico. Esto incluye:

1. peligros de carácter eléctrico, como líneas de conducción eléctrica;
2. peligros de objetos lanzados violentamente por el uso de engrapadoras neumáticas de tipo pistola;
3. peligros de tropiezos por cables y materiales de punta lamiento; y,
4. peligros de niveles bajos, como un apuntalamiento de pared, contra lo que no protegen los sistemas de protección contra caídas.

Fall Protection Equipment Installation

⚠ DANGER Individual trusses alone are NOT designed to SUPPORT fall protection equipment.

The Contractor is responsible for the construction means, methods, techniques, sequences, procedures, programs, and safety in connection with the receipt, storage, handling, installation, restraining, and bracing of trusses.

Refer to ANSI/ASSP Z359.2-2017, Minimum Requirements for a Comprehensive Managed Fall Protection Program, for guidance in meeting minimum fall protection equipment installation and use requirements. This standard refers to equipment only, and does not apply to the underlying structure to which the equipment is attached.(2)

⚠ CAUTION While the equipment itself may resist the forces generated by a falling worker, it is up to a qualified person to determine whether the building's structural system to which the fall protection equipment is attached meets or exceeds this standard as well.

Scaffolding

Use of interior or exterior scaffolding as a fall arrest system is permitted, but installation and use must adhere to the Standard requirements in 29 CFR 1926.500.

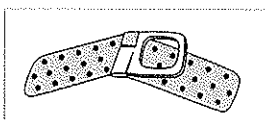


Guard Rails

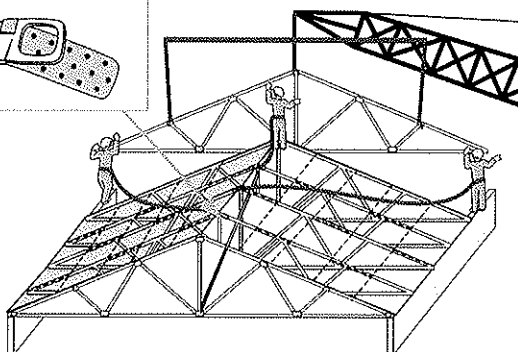
Use of guard rails along the perimeter of the work area as a fall arrest system is permitted, but installation and use must adhere to the Standard requirements in 29 CFR 1926.500.

Roof Peak Anchors

⚠ WARNING Completely brace, per BCSI-B1* and BCSI-B2* or sheath trusses, before installing a roof anchor for use as personal fall restraint system. Installation and use must adhere to the Standard requirements in 29 CFR 1926.500.



⚠ WARNING It is always safest to sheath a section (e.g. 3 or more trusses) of the roof before installing a roof anchor for use as a personal fall restraint system. Installation and use must adhere to the Standard requirements in 29 CFR 1926.500.



Instalación de Equipo de Protección Contra Caídas

¡PELIGRO! Los entramados individuales por sí solos NO están diseñados para SOPORTAR equipo de protección contra caídas.

El contratista será responsable de los medios de construcción, los métodos, las técnicas, las secuencias, los procedimientos, los programas y la seguridad en lo que se refiere a recepción, almacenamiento, manejo, instalación, restricción y apuntalamiento de entramados.

Consulte ANSI/ASSP Z359.2-2017, Minimum Requirements for a Comprehensive Managed Fall Protection Program (Requisitos mínimos para un programa completo de protección contra caídas) si desea información para el cumplimiento de los requisitos mínimos para la instalación y uso de equipo de protección contra caídas. Esta norma se refiere a equipo solamente, y no es aplicable a la estructura subyacente a la que esté acoplado el equipo.(2)

¡CAUCIÓN! Aunque el equipo por sí mismo puede resistir las fuerzas generadas por la caída de un trabajador, es responsabilidad de una persona calificada determinar si el sistema estructural del edificio al que se acopla el equipo de protección contra caídas cumple o supera esta regulación también.

Andamiaje

Está permitido el uso de andamiaje interior o exterior como sistema para detención de caídas, pero la instalación y el uso deberá adherirse a los requisitos regulatorios descritos en 29 CFR 1926.500.

Rampas de Protección

Se permite el uso de rampas de protección a lo largo del perímetro del área de trabajo como sistema para detención de caídas, pero la instalación y el uso deberán adherirse a los requisitos de la regulación que se encuentran en 29 CFR 1926.500.

Anclajes de Tejado

¡ADVERTENCIA! Apuntale completamente, según BCSI-B1* y BCSI-B2* o forre los entramados, antes de instalar un anclaje de tejado para su uso como sistema personal de restricción de caídas. La instalación y el uso deberá adherirse a los requisitos regulatorios que se indican en 29 CFR 1926.500.

¡ADVERTENCIA! Siempre es más seguro forrar una sección (por ejemplo, 3 o más entramados) del sistema de tejado antes de instalar un anclaje de tejado para uso como sistema personal de restricción de caídas. La instalación y el uso deberá adherirse a los requisitos regulatorios que se indican en 29 CFR 1926.500.

Alternative Fall Protection Plans

After conducting a JHA, if the qualified person is able to demonstrate that conventional fall protection measures are infeasible (3) or present a greater hazard (4) to a particular worker or the entire crew, an employer may implement a written alternative fall protection plan in compliance with residential construction fall protection under 29 CFR 1926.501(b)(13).

The fall protection plan's alternative measures must apply to sufficiently trained and experienced workers (5), and the plan must meet the requirements of 29 CFR 1926.502(k) and be site-specific. The use of alternative measures shall be used in conjunction with conventional fall protection systems (6), and the use of alternative methods shall be as limited as possible.

Ground Assembly

Pre-assemble a group of trusses on the ground. Fully laterally restrain and diagonally brace, per BCSI-B1* and BCSI-B2,* the bottom chord and web member planes. Completely brace, per BCSI-B1* and BCSI-B2,* or sheath the top chord plane, for adequate stability. Lift and set in place. This pre-assembled section may then be used as an attachment point for personal fall restraint anchorage.



Definitions

- (1) Under 29 CFR 1926.503(a)(2), a competent, qualified person is one who should have knowledge, and be able to provide training to others, in the following areas: "the nature of fall hazards in the work area; the correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used; the use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used; the role of each employee in the safety monitoring system when this system is used; the limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs; the correct procedures for the handling and storage of equipment and materials and the erection of overhead protection; and, the role of employees in fall protection plans."
- (2) Commentary E5.4.2.2 of ANSI/ASSP Z359.2-2017 states, "The impact of fall forces on beams, columns and their supports other than anchorages are not addressed by this standard."
- (3) Under 29 CFR 1926.500(b), infeasible means "that it is impossible to perform the construction work using a conventional fall protection system (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use any one of these systems to provide fall protection."
- (4) 29 CFR 1926.501(b)(2)(i) states, "there is a presumption that it is feasible and will not create a greater hazard to implement at least one of the [listed] fall protection systems. Accordingly, the employer has the burden of establishing that it is appropriate to implement a fall protection plan which complies with 1926.502(k) for a particular workplace situation, in lieu of implementing any of those systems."
- (5) 29 CFR 1926.503(a)(1) states, "The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards."
- (6) Under 29 CFR 1926.501(b)(13), conventional fall protection systems are: "guardrail system, safety net system, or personal fall arrest system."

This document summarizes the information provided in Section B11 of the 2018 Edition (updated March 2020) of Building Component Safety Information BCSI - Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses. Copyright © 2004-2020 Structural Building Components Association. All Rights Reserved. This guide or any part thereof may not be reproduced in any form without the written permission of the publishers. Printed in the United States of America.

Alternativos de Protección Contra Caídas

Después de realizar una evaluación JHA, si la persona calificada es capaz de demostrar que las medidas convencionales de protección contra caídas son irrealizables (3) o presentan un mayor peligro (4) para un trabajador en particular o la cuadrilla entera, un empleador puede implementar un plan de protección contra caídas alternativo por escrito en cumplimiento con 29 CFR 1926.501(b)(13) para protección contra caídas en construcción residencial.

Las medidas alternativas del plan de protección contra caídas deberán aplicarse a trabajadores suficientemente capacitados y experimentados (5), y el plan deberá cumplir los requisitos de 29 CFR 1926.502(k) y ser específicas para cada sitio. El uso de medidas alternativas se utilizará en conjunción con sistemas de protección contra caídas (6), y el uso de métodos alternativos será lo más limitado posible.

Montaje en el terreno

Realice el montaje previo de un sistema de entramado en el terreno. Restrinja lateralmente por completo y apunte diagonalmente la cuerda inferior y los planos de la pieza de enrejado según BCSI-B1* y BCSI-B2.* Apunte completamente, según BCSI-B1* y BCSI-B2,* o forre el plano de la cuerda superior, para conseguir la estabilidad adecuada. Alce y establezca en su lugar. Esta sección previamente montada puede utilizarse entonces como un punto de acoplamiento para anclaje de restricción personal contra caídas.

Definiciones

- (1) Bajo 29 CFR 1926.503(a)(2), una persona capaz y calificada es aquella que debe tener conocimientos y aptitud para proporcionar capacitación a otros, en las áreas siguientes: "la naturaleza de los peligros de caída en el área de trabajo; los procedimientos correctos para levantar, mantener, desmontar e inspeccionar los sistemas de protección contra caídas a utilizarse; el uso y la operación de sistemas de rampas de protección, sistemas personales para detención de caídas, sistemas de redes de seguridad, sistemas de líneas de advertencias, sistemas de monitoreo de seguridad, zonas de acceso controlado y otra protección a utilizarse; la función de cada empleado en el sistema de monitoreo de seguridad cuando se utilice este sistema; las limitaciones sobre el uso de equipos mecánicos durante la realización de trabajo en tejados de baja pendiente; los procedimientos correctos para el manejo y almacenamiento de equipo y materiales, y la construcción de protección superior; y la función de los empleados en planes de protección contra caídas."
- (2) El comentario E5.4.2.2 de ANSI/ASSP Z359.2-2017 establece, "El impacto de las fuerzas de caída sobre vigas, columnas y sus soportes que no sean anclajes no se tratan en esta norma."
- (3) Según 29 CFR 1926.500(b), irrealizable significa "que es imposible llevar a cabo el trabajo de construcción usando un sistema convencional de protección contra caídas (por ejemplo, sistemas de rampas de protección, sistema de red de seguridad o sistema de protección personal para detención de caídas), o que es tecnológicamente imposible usar cualquiera de estos sistemas para proporcionar protección contra caídas."
- (4) 29 CFR 1926.501(b)(2)(i) establece que, "hay una suposición de que es realizable y que no se creará un peligro mayor al implementar al menos uno de los sistemas de protección contra caídas [indicados]. Por consiguiente, el empleador tiene la responsabilidad de establecer que es apropiado implementar un plan de protección contra caídas que se adhiera a 1926.502(k) para una situación particular en el lugar de trabajo, en lugar de implementar cualquiera de esos sistemas."
- (5) 29 CFR 1926.503(a)(1) establece que, "El empleador se obliga a proporcionar un programa formativo para cada empleado que pueda estar expuesto a riesgos de caídas. El programa del empleador permitirá a cada empleado poder reconocer los peligros de caídas y capacitará a cada empleado en los procedimientos a seguir para minimizar estos peligros."
- (6) Según 29 CFR 1926.501(b)(13) los sistemas convencionales de protección contra caídas son: "sistema de rampas de protección, sistema de red de seguridad o sistema de protección personal para detención de caídas."

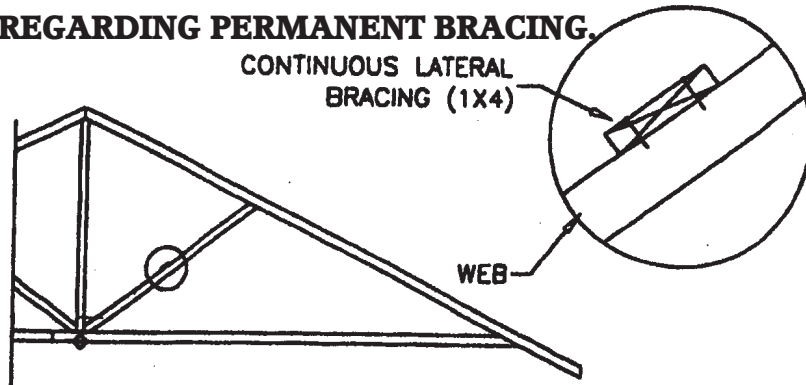
***Contact the component manufacturer for more information or consult a Professional Engineer for assistance.**

SBCA

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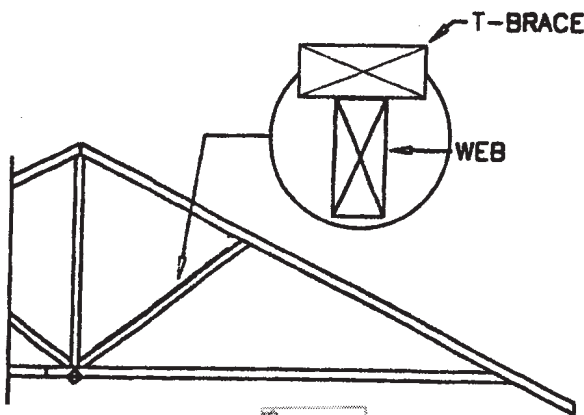
PERMANENT WEB BRACING

SEE INSIDE DESIGN MANUAL FOR BCSI PERMANENT BRACING
INSTALLATION INSTRUCTIONS AND FOR FURTHER INFORMATION.
CONSULT THE ENGINEER OF RECORD FOR EXPLICIT INSTRUCTION
REGARDING PERMANENT BRACING.



CONTINUOUS LATERAL BRACING

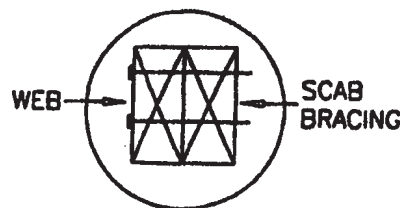
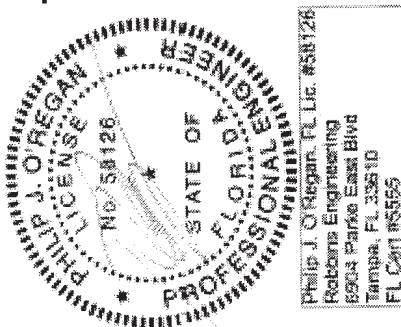
1x4 #3 HEM-FIR OR
BETTER CONTINUOUS LATERAL
BRACING TO BE EQUALLY SPACED.
ATTACH WITH (2) 8d NAILS.
BRACING MATERIAL TO BE SUPPLIED
AND ATTACHED AT BOTH ENDS
TO A SUITABLE SUPPORT BY
ERECTION CONTRACTOR.



T-BRACE

THESE DETAILS APPLY TO 1.5" WIDE WOOD
TRUSSES.

- USE A 2x4 T-BRACE IF THE TRUSS DESIGN SPECIFIES ONE LATERAL BRACE (MID POINT OF WEB).
- USE A 2x6 T-BRACE IF THE TRUSS DESIGN SPECIFIES TWO LATERAL BRACES (AT THE THIRD POINTS OF THE WEB).
- USE A CONTINUOUS PIECE FOR THE T-BRACE, OF THE SAME GRADE AS THE WEB AND COVERING AT LEAST 90% OF THE WEB LENGTH.
- CENTER THE T-BRACE ON THE WEB AND FASTEN WITH 10d COMMON NAILS SPACED 4" ON CENTER.



SCAB BRACE

SCAB BRACE SAME SIZE, GRADE,
AND LENGTH AS WEB MEMBER.
ATTACH WITH 10d NAILS @ 4" O.C.
BRACING MATERIAL TO BE SUPPLIED
BY ERECTION CONTRACTOR.