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Ridgway Roof Truss Company

(Trusses and Prefabricated Building Components)

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Physical: 235 SW 11th Place – Gainesville, Florida 32601

Telephone: (352) 376-4436
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www.RidgwayTruss.com

WARNING

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

http://www.sbcindustry.docs/06_bcsi_booklet_final.pdf

SEE TABLE OF CONTENTS

**SEALED
DESIGN MANUAL**

PROJECT NAME: Burrows Residence

JOB NUMBER: 12-0778

CONTRACTOR: Shore Builders

DATE: 12/06/2012 jrt

REVISIONS: _____

COMMENTS: _____





Lumber design values are in accordance with ANSI/TPI 1-2007 section 6.3
These truss designs rely on lumber values established by others.

RE: 120778 -

MiTek USA, Inc.

6904 Parke East Blvd.
Tampa, FL 33610-4115

Site Information:

Customer Info: SHORE BUILDERS, INC. Project Name: Burrows Residence Model: -
Lot/Block: - Subdivision: -
Address:
City: Ft White 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 Special Loading Conditions):

Design Code: FBC2010 Design Program: OnLine Plus 30.0.015
Wind Code: ASCE 7-10 Wind Speed: 130 mph Floor Load: N/A psf
Roof Load: 37.0 psf

This package includes 2 individual, dated 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.

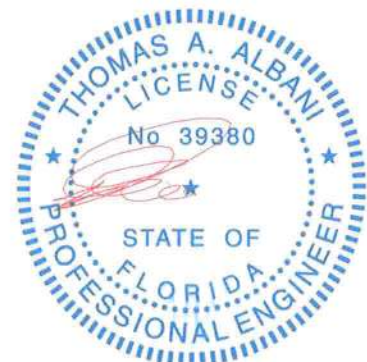
No.	Seal#	Truss Name	Date
1	T4639092	R1	12/5/012
2	T4639093	R2	12/5/012

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

Truss Design Engineer's Name: Albani, Thomas

My license renewal date for the state of Florida is February 28, 2013.

NOTE: The seal on these drawings indicate acceptance of professional engineering responsibility solely for the truss components shown. The suitability and use of this component for any particular building is the responsibility of the building designer, per ANSI/TPI-1 Sec. 2.



FL Cert. 6634

December 5, 2012

Albani, Thomas

1 of 1

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http://www.sbcindustry.com/docs/06_bcsi_booklet_final.pdf

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7.Examples of Permanent Web Bracing



Wood Truss Council of America

5937 Meadowood Dr., Ste. 14 • Madison, WI 53711-4125 • 608/274-3329 (fax)

**Standard Responsibilities
in the Design Process
Involving Metal Plate
Connected Wood Trusses**

WTCA 1-1995

Developed by the WTCA Engineering Review Committee
in cooperation with the Truss Plate Institute

2.0 OWNER RESPONSIBILITIES

- 2.1 Directly or through its representatives, which may include the Contractor and/or Building Designer; (a) review and approve each Truss Design Drawing; (b) review and approve the Truss Placement Plan; (c) resolve and approve all design issues arising out of the preparation of each Truss Design Drawing and Truss Placement Plan; and (d) coordinate the return of each approved Truss Design Drawing and Truss Placement Plan to the Truss Manufacturer prior to truss manufacturing.

3.0 BUILDING DESIGNER RESPONSIBILITIES

- 3.1 Design a structure suitable to ensure that the intended function of each Truss is not affected by adverse influences including, but not limited to, moisture, temperature, corrosive chemicals and gases;
- 3.2 Prepare the Construction Design Documents, showing all trussed areas, which must provide as a minimum the following:
- 3.2.1 All truss orientations and locations;
 - 3.2.2 Information to fully determine all truss profiles;
 - 3.2.3 Adequate support of the Truss and all truss bearing conditions;
 - 3.2.4 Permanent bracing design for the structure including the Trusses, except as provided in 3.4 and 6.2.12.
 - 3.2.5 The location, direction and magnitude of all dead and live loads applicable to each Truss including, but not limited to, loads attributable to: roof, floor, partition, mechanical, fire sprinkler, attic, storage, wind, snow drift and seismic;
 - 3.2.6 All Truss anchorage designs required to resist uplift, gravity, and lateral loads;
 - 3.2.7 Allowable vertical and horizontal deflection criteria;
 - 3.2.8 Proper transfer of design loads affecting the Truss; and
 - 3.2.9 Adequate connections between Truss and non-Truss components, except as noted in Section 6.2.9.
- 3.3 Review and approve the Truss Placement Plan and each Truss Design Drawing for conformance with the requirements and intent of the Construction Design Documents, the effect of each Truss Design Drawing and Truss Placement Plan on other parts of the structure, and the effect of the structure on each Truss.
- 3.4 Specify permanent lateral bracing where indicated by the Truss Designer on the Truss Design Drawings, to prevent buckling of the individual truss members due to design loads. The Building Designer shall specify how the permanent lateral bracing is to be anchored or restrained to prevent lateral movement if all truss members, so braced, buckle together. This shall be accomplished by: (a) anchorage to solid end walls; (b) permanent diagonal bracing in the plane of the web members; or (c) other means when demonstrated by the Building Designer to provide equivalent bracing.

4.0 CONTRACTOR RESPONSIBILITIES

- 4.1 Provide to the Truss Manufacturer the Construction Design Documents and all revisions and supplements thereto.
- 4.2 Review and approve the Truss Placement Plan and each Truss Design Drawing for conformance with the requirements and intent of the Construction Design Documents, and the effect of the Truss Placement Plan and each Truss Design Drawing on other trades involved in the construction of the structure and the effect of the other trades on the Trusses.
- 4.3 Coordinate the review, approval and return of each Truss Design Drawing and the Truss Placement Plan by the Owner and Building Designer.
- 4.4 Provide the approved Truss Design Drawings, approved Truss Placement Plans, and any supplemental information provided by the Truss Manufacturer to the individual or organization responsible for the installation of the Trusses.
- 4.5 Comply with the field storage, handling, installation, permanent bracing, anchorage, connections and field assembly requirements of the Construction Design Documents.
- 4.6 Determine and install the temporary bracing for the structure, including the Trusses.

ONLINE PLUS GENERAL NOTES & SYMBOLS

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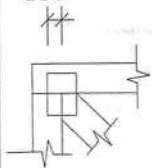


PLATE LOCATION

Center plates on joints unless otherwise noted in plate list or on drawing. Dimensions are given in inches (i.e. 1 1/2" or 1.5") or IN-16ths (i.e. 108)

FLOOR TRUSS SPLICE (3X2, 4X2, 6X2)



(W) = Wide Face Plate
(N) = Narrow Face Plate

LATERAL BRACING

Designates the location for continuous lateral bracing (CLB) for support of individual truss members only. CLBs must be properly anchored or restrained to prevent simultaneous buckling of adjacent truss members.

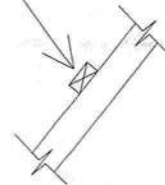
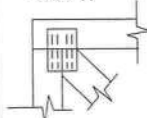


PLATE SIZE AND ORIENTATION

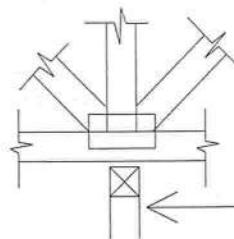
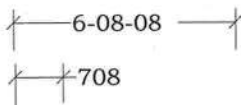
3x5 ||



The first dimension is the width measured perpendicular to slots. The second dimension is the length measured parallel to slots. Plate orientation, shown next to plate size, indicates direction of slots in connector plates.

DIMENSIONS

All dimensions are shown in FT-IN-SX (i.e. 6'-8.5" or 6-08-08). Dimensions less than one foot are shown in IN-SX only (i.e. 708).



W = Actual Bearing Width (IN-SX)
R = Reaction (lbs.)
U = Uplift (lbs.)

BEARING

When truss is designed to bear on multiple supports, interior bearing locations should be marked on the truss. Interior support or temporary shoring must be in place before trusses are installed. If necessary, shim bearings to assure solid contact with truss.

Metal connector plates shall be applied on both faces of truss at each joint. Center the plates, unless indicated otherwise. No loose knots or wane in plate contact area. Splice only where shown. Overall spans assume 4" bearing at each end, unless indicated otherwise. Cutting and fabrication shall be performed using equipment which produces snug-fitting joints and plates. Unless otherwise noted, moisture content of lumber shall not exceed 19% at time of fabrication and the attached truss designs are not applicable for use with fire retardant lumber and some preservative treatments. Nails specified on Truss Design Drawings refer to common wire nails, except as noted. The attached design drawings were prepared in accordance with " National Design Specifications for Wood Construction" (AF & PA), " National Design Standard for Metal Plate Connected Wood Truss Construction" (ANSI/TPI 1), and HUD Design Criteria for Trussed Rafters.

Mitek Industries Inc. bears no responsibility for the erection of trusses, field bracing or permanent truss bracing. Refer to "Building Component Safety Information" (BCSI 1) as published by Truss Plate Institute, 218 North Lee Street, Suite 312, Alexandria, Virginia 22314. Persons erecting trusses are cautioned to seek professional advice concerning proper erection bracing to prevent toppling and " dominoing ". Care should be taken to prevent damage during fabrication, storage, shipping and erection. Top and bottom chords shall be adequately braced in the absence of sheathing or rigid ceiling, respectively. It is the responsibility of others to ascertain that design loads utilized on these drawings meet or exceed the actual dead loads imposed by the structure and the live loads imposed by the local building code or historical climatic records. When truss hangers are specified on the Truss Design Drawing, they must be installed per manufacturer's details and specifications.

FURNISH A COPY OF THE ATTACHED TRUSS DESIGN DRAWINGS TO ERECTION CONTRACTOR. IT IS THE RESPONSIBILITY OF THE BUILDING DESIGNER TO REVIEW THESE DRAWINGS AND VERIFY THAT DATA, INCLUDING DIMENSIONS & LOADS, CONFORM TO ARCHITECTURAL PLAN / SPECS AND THE TRUSS PLACEMENT DIAGRAM FURNISHED BY THE TRUSS MANUFACTURER.



MiTek USA, Inc.

6904 Parke East Blvd.
Tampa, FL 33610-4115

Tel: 813-972-1135
Fax: 813-971-6117

BCSI-B1 SUMMARY SHEET GUIDE FOR HANDLING, INSTALLING, RESTRAINING AND BRACING OF TRUSSES SPANS OVER 60' MAY REQUIRE COMPLEX PERMANENT BRACING. PLEASE ALWAYS CONSULT A PROFESSIONAL ENGINEER

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 Summary Sheet - Permanent Restraint/Bracing of Chords & Web Members*** for more information. All other permanent bracing design is the responsibility of the Building Designer.

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.

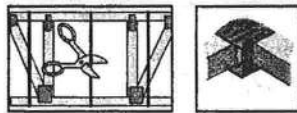
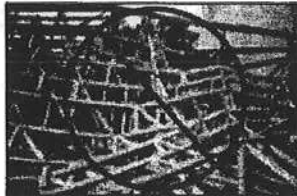
Los dibujos de diseño de los trusses pueden especificar las localizaciones de restricción lateral permanente o refuerzo en los miembros individuales del truss. Vea la hoja resumen BCSI-B3 - Restricción/Arriostre Permanente de Cuerdas y Miembros Secundarios*** para más información. El resto de los diseños de arriostres permanentes son la responsabilidad del Diseñador del Edificio.

⚠ 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.

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

⚠ Banding and truss plates have sharp edges. Wear gloves when handling and safety glasses when cutting banding.

Empaques y placas de metal tienen bordes afilados. Lleve guantes y lentes protectores cuando corte los empaques.



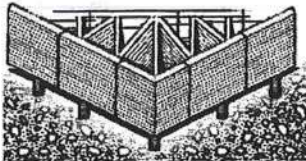
HANDLING — MANEJO

⚠ Avoid lateral bending. — Evite la flexión lateral.



⚠ The contractor is responsible for properly receiving, unloading and storing the trusses at the jobsite.

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



✓ If trusses are to be stored horizontally, place blocking of sufficient height beneath the stack of trusses at 8' to 10' on center.

For trusses stored for more than one week, cover bundles to prevent moisture gain but allow for ventilation.

Refer to BCSI Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses*** for more detailed information pertaining to handling and jobsite storage of trusses.

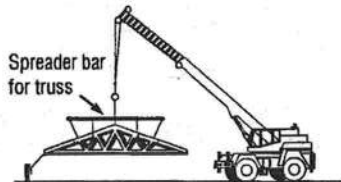
Si los trusses estarán guardados horizontalmente, ponga bloqueo de altura suficiente debajo de la pila de los trusses a 8 hasta 10 pies en el centro.

Para trusses guardados por más de una semana, cubra los paquetes para prevenir aumento de humedad pero permita ventilación.

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 sobre el manejo y almacenamiento de los trusses en área de trabajo.

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

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



✓ Use proper rigging and hoisting equipment.

Use equipo apropiado para levantar e improvisar.



⚠ Do not store unbraced bundles upright.

No almacene verticalmente los trusses sueltos.



⚠ Do not store on uneven ground.

No almacene en tierra desigual.



HOISTING RECOMMENDATIONS FOR TRUSS BUNDLES RECOMENDACIONES PARA LEVANTAR PAQUETES DE TRUSSES.

⚠ Warning! Don't overload the crane.

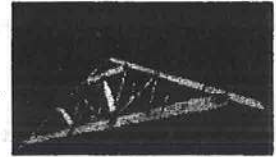
¡Advertencia! ¡No sobrecargue la grúa!

⚠ Never use banding alone to lift a bundle. Do not lift a group of individually banded bundles.

Nunca use sólo los empaques para levantar un paquete. No levante un grupo de paquetes empaqueados individualmente.

✓ A single lift point may be used for bundles with trusses up to 45'. Two lift points may be used for bundles with trusses up to 60'. Use at least 3 lift points for bundles with trusses greater than 60'.

Puede usar un solo lugar de levantar para paquetes de trusses hasta 45 pies. Puede usar dos puntos de levantar para paquetes hasta 60 pies. Use por lo menos tres puntos de levantar para paquetes más de 60 pies.



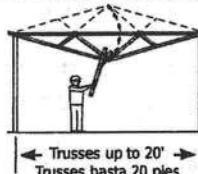
⚠ Warning! Do not over load supporting structure with truss bundle. ¡Advertencia! No sobrecargue la estructura apoyada con el paquete de trusses.

✓ Place truss bundles in stable position. Puse paquetes de trusses en una posición estable.

INSTALLATION OF SINGLE TRUSSES BY HAND INSTALACIÓN DE TRUSSES INDIVIDUALES POR LA MANO

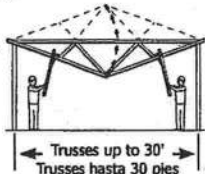
✓ Trusses 20' or less, support at peak.

Soporte del pico los trusses de 20 pies o menos.



✓ Trusses 30' or less, support at quarter points.

Soporte de los cuartos de tramo los trusses de 30 pies o menos.



HOISTING OF SINGLE TRUSSES — LEVANTAMIENTO DE TRUSSES INDIVIDUALES

✓ 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.

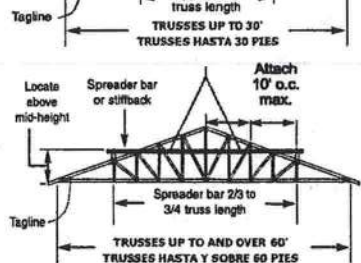
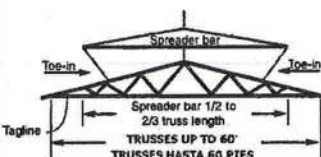
Sostenga cada truss en posición con equipo de grúa hasta que la restricción lateral temporal de la cuerda superior esté instalado y el truss está asegurado en los soportes.

⚠ Warning! Using a single pick-point at the peak can damage the truss.

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



HOISTING RECOMMENDATIONS FOR SINGLE TRUSSES RECOMENDACIONES PARA LEVANTAR TRUSSES INDIVIDUALES



TEMPORARY RESTRAINT & BRACING RESTRICCIÓN Y ARRIOSTRE TEMPORAL

⚠ Refer to BCSI-B2 Summary Sheet - Truss Installation & Temporary Restraint/Bracing*** for more information.

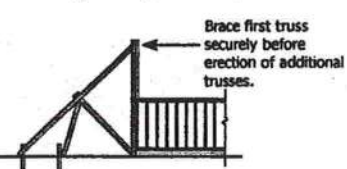
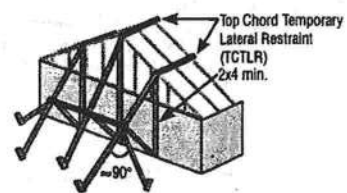
Vea el resumen BCSI-B2 - Instalación de Trusses y Restricción/Arriostre Temporal*** para más información.

✓ Locate ground braces for first truss directly in line with all rows of top chord temporary lateral restraint (see table in the next column).

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 (vea la tabla en la próxima columna).



⚠ Do not walk on unbraced trusses. No camine en trusses sueltos.



Brace first truss securely before erection of additional trusses.

**HOJA RESUMEN DE LA GUIA DE BUENA PRACTICA PARA EL MANEJO, INSTALACION, RESTRICCIÓN Y ARRIOSTRE DE LOS TRUSSES
VANOS MAS DE 60' PIES PUEDEN REQUERIR ARRIOSTRE PERMANENTE COMPLEJO. POR FAVOR, SIEMPRE CONSULTE A UN INGENIERO PROFESSIONAL**

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

WARNING! Spans over 60' require more complex temporary installation restraint/bracing. Consult a registered design professional.

Los tramos más de 60 pies requieren restricción/arriostre de instalación temporal más complejo. Consulte a un profesional registrado de diseño.

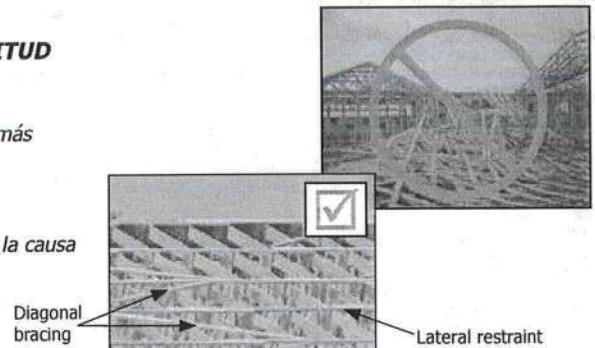
DANGER! Disregarding handling, installing, restraining and bracing safety recommendations is the major cause of truss erection/installation accidents.

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 without diagonal bracing. La Restricción Lateral NO es adecuada sin el Arriostre Diagonal.

Always diagonally brace for safety!

¡Siempre arriostre diagonalmente para seguridad!

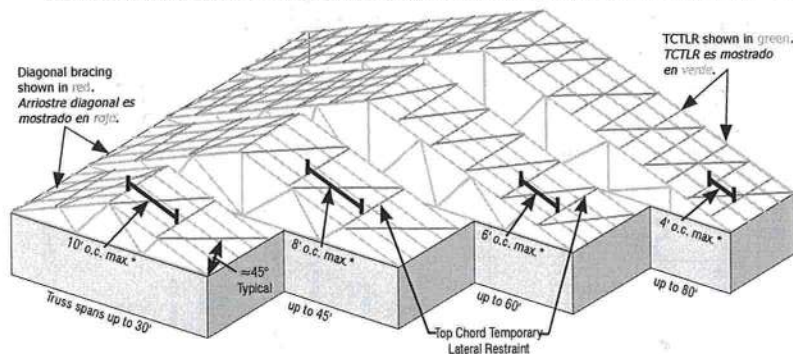


Diagonal bracing

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 spacing (see * at left) 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 (vea * a la izquierda) 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.

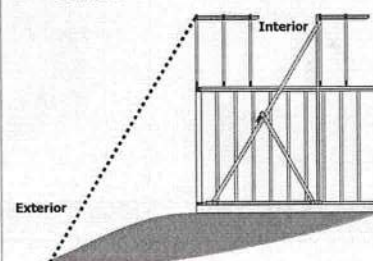
CHECK THESE ITEMS BEFORE STARTING ERECTION/INSTALLATION AND CORRECT AS NEEDED

REVISE ESTOS PUNTOS ANTES DE EMPEZAR LA ERECCIÓN/INSTALACIÓN Y CORRÍJALOS 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 cabeza, 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. Algún daño a los trusses ha sido reportado al fabricante de trusses. Vea el resumen BCSI-B5.*** No instale trusses dañados a menos que se dijeren 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. La parte superior 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.

- ✓ Ground bracing procedure for first truss 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.



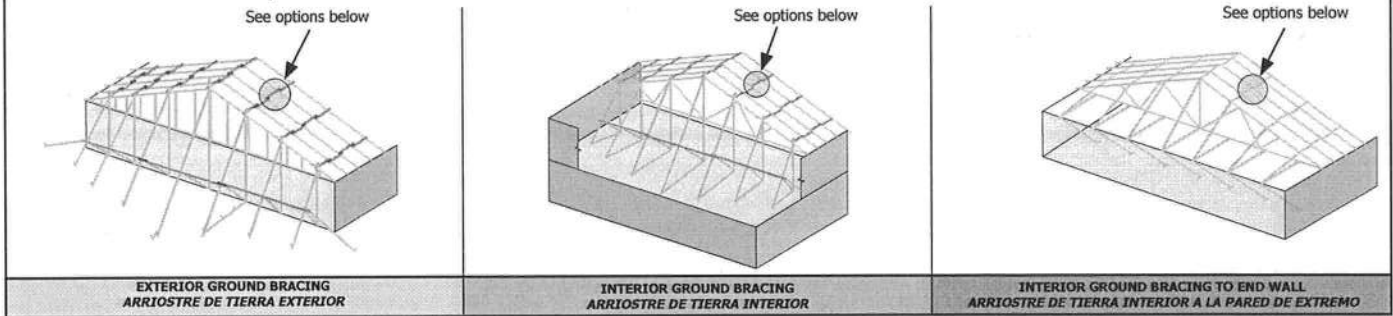
If ground level is too far from truss for exterior ground bracing, use interior ground bracing.

Si el nivel del terreno es demasiado lejos para usar Arriostre de Tierra exterior, use Arriostre de Tierra interior.

B2Temp 090902

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

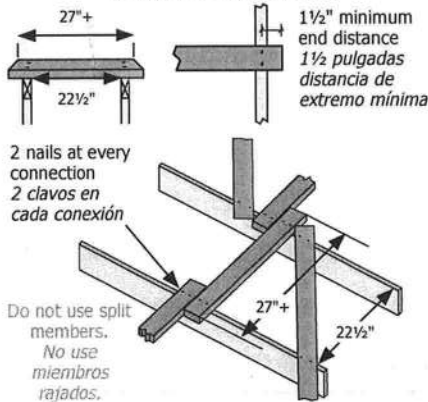
- ✓ Attach trusses securely at all bearings, shimming bearings as necessary. Examples of first five trusses set include:
Sujete seguramente los trusses a todos los soportes, rellenar sólidamente los soportes como sea necesario. Ejemplos de los primeros cinco trusses colocados incluyen:



NOTICE The following three (3) Short Member Temporary Lateral Restraint options **require that the diagonal bracing be installed continuously.**
Las siguientes tres opciones para instalar la Restricción Lateral Temporal de los Miembros Cortos requieren que el arrioste diagonal está instalado continuamente.

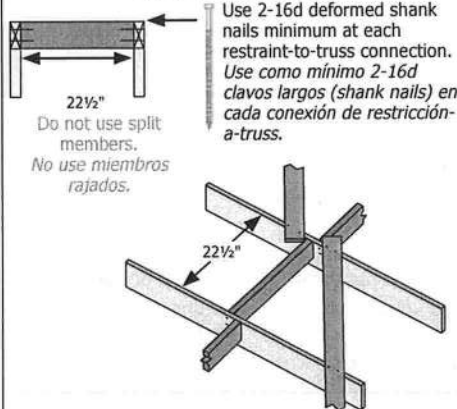
Option 1
Short member temporary lateral restraint installed on top of trusses

Opción 1
Restricción lateral temporal de los miembros cortos instalados encima de trusses



Option 2
Short member temporary lateral restraint installed between trusses

Opción 2
Restricción lateral temporal de los miembros cortos instalados entre trusses



Option 3
Proprietary metal restraint products*

Opción 3
Productos de metal para restricción patentados*

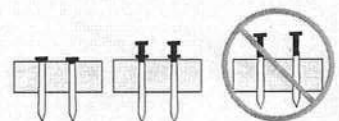


CAUTION Each truss must be attached securely at each bearing and all TCTLR installed before removing the hoisting supports.
Cada truss tiene que ser sujetado seguramente en cada soporte y todas las TCTLR instaladas antes de quitar los soportes de levantar.

LATERAL RESTRAINT/BRACING MATERIAL AND CONNECTIONS CONNEXIONES 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 arrioste debe ser por lo menos 2x4 madera graduada por esfuerzo o restricción/arrioste 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 shown 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 arrioste 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, or use double-headed nails for easiest removal.
Clave los clavos al raso, o use clavos de dos cabezas para quitarlos más fácilmente.

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



BCSI - B3 SUMMARY SHEET PERMANENT RESTRAINT/ BRACING OF CHORDS AND WEB MEMBERS

SPANS OVER 60' MAY REQUIRE COMPLEX PERMANENT BRACING. PLEASE ALWAYS CONSULT A PROFESSIONAL ENGINEER

- WARNING!** Disregarding Permanent Restraint/Bracing is a major cause of truss field performance problems and has been known to lead to roof or floor systems collapse.
- ADVERTENCIA!** Descuidar el Arriostre/Restricción Permanente es una causa principal de problemas de rendimiento del truss en campo y había conocido a llevar al derrumbamiento del sistema del techo o piso.
- CAUTION!** Spans over 60' may require complex permanent bracing. Please always consult a Registered Design Professional.
- ¡CUIDADO!** Tramos sobre 60 pies pueden requerir arriostre permanente complejo. Por favor, siempre consulte a un Profesional Registrado de Diseño.

RESTRAINT/BRACING MATERIALS & FASTENERS MATERIALES Y CIERRES DE RESTRICCIÓN/ARRIOSTRE

- Common restraint/bracing materials include wood structural panels, gypsum board sheathing, stress-graded lumber, proprietary metal products, and metal purlins and straps.
- Materiales comunes de arriostre/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.

MINIMUM ATTACHMENT REQUIREMENTS FOR LUMBER RESTRAINT/BRACING¹

Lumber Size	Minimum Nail Size	Minimum Number of Nails per Connection
2x4 stress-graded	10d (0.128x3") 12d (0.128x3.25") 16d (0.131x5")	2
2x6 stress-graded	10d (0.128x3") 12d (0.128x3.25") 16d (0.131x5")	3

- ¹ Other attachment requirements may be specified by the Truss Designer or Building Designer.
- ² The 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 ARRIOSTRE PERMANENTE PARA VARIOS PLANOS DE UN 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.
- El arriostre Permanente es importante porque,
- impide el torcer fuera-de-plano de los miembros del truss,
 - ayuda en mantener espaciamento apropiado de los trusses, y
 - resiste y pasa las cargas laterales de viento y fuerzas sísmicas aplicadas al sistema del truss.

- Trusses require Permanent Bracing within ALL of the following planes:
- Top Chord Plane
 - Bottom Chord Plane
 - Web Member Plane
- Trusses requieren Arriostre Permanente dentro de TODOS los siguientes planos:
- Plano de la Cuerda Superior
 - Plano de la Cuerda Inferior
 - Plano del Miembro Secundario

- CAUTION!** Without Permanent Bracing the truss, or a portion of its members, will buckle (i.e., fail) at loads far less than design.
- ¡CUIDADO!** Sin el Arriostre Permanente, del truss, o un parte de los miembros, torcerán (ej. fallarán) de cargas muchas menos que las cargas que el truss es diseñado a llevar.

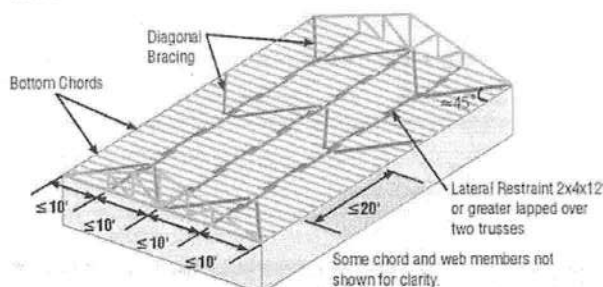
1. PERMANENT BRACING FOR THE TOP CHORD PLANE 1. ARRIOSTRE PERMANENTE PARA EL PLANO DE LA CUERDA SUPERIOR

- Use plywood, oriented strand board (OSB), or wood or metal structural purlins that are properly braced.
- Use contrachapado, panel de fibras orientadas (OSB), o vigas de soporte de madera o metal que son arriostrados apropiadamente.
- The Truss Design Drawing (TDD) provides information on the assumed support for the top chord.
- El Dibujo del Diseño de Truss (TDD) provee información sobre el soporte supuesto para la cuerda superior.
- 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.
- El tamaño de cierre y requisitos de espaciamento y grado para el entablado, vigas de soporte y arriostre son provistos en el código del edificio y/o por el Diseñador del Edificio.

2. PERMANENT BRACING FOR THE BOTTOM CHORD PLANE 2. ARRIOSTRE PERMANENTE PARA EL PLANO DE LA CUERDA INFERIOR

- Use rows of continuous Lateral Restraint with Diagonal Bracing, gypsum board sheathing or rigid ceiling.
- Use filas de Restricción Lateral Continua con Arriostre Diagonal, entablado de yeso o techo rígido.

- The TDD provides information on the assumed support for the bottom chord.
- El TDD provee información sobre el soporte supuesto para la cuerda inferior.
- Install bottom chord permanent Lateral Restraint at the spacing indicated on the TDD and/or by the Building Designer with a maximum of 10' on center.
- Instale Restricción Lateral permanente de la cuerda inferior al espaciamento indicado en el TDD y/o por el Diseñador del Edificio con un máximo de 10 pies en el centro.



Lateral Restraint and Diagonal Bracing used to brace the Bottom Chord Plane.

3. PERMANENT BRACING FOR THE WEB MEMBER PLANE

- 3. ARRIOSTRE PERMANENTE PARA EL PLANO DEL MIEMBRO SECUNDARIO**
- 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.
- Arriostre 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 arriostre puede ser usado para ambas funciones.

Individual Web Member Permanent Restraint & Bracing Restricción y Arriostre Permanente de Miembros Secundarios Individuales

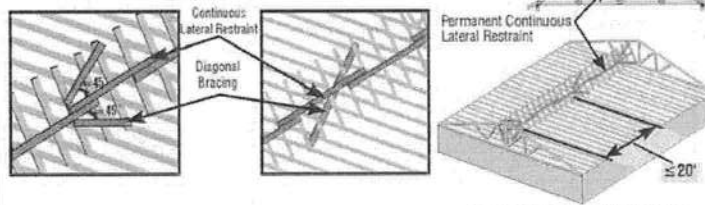
- Check the TDD to determine which web members (if any) require restraint to resist buckling.
- Revisa el TDD para determinar cuales miembros secundarios (si algunos) requieren restricción para resistir el torcer.
- Restrain and brace with,
- Continuous Lateral Restraint & Diagonal Bracing, or
 - Individual Member Web Reinforcement.
- Restrinja y arriostre con,
- Restricción Lateral Continua y Arriostre Diagonal, o
 - Refuerzo de Miembros Secundarios Individuales.

A. Continuous Lateral Restraint (CLR)

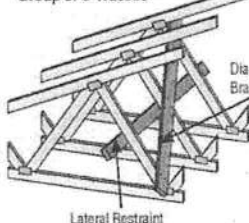
A. Restricción Lateral Continua (CLR) y Arriostre Diagonal

- Attach the CLR at the locations shown on the TDD.
- Sujete el CLR en las ubicaciones mostrados en el TDD.
- Install the Diagonal Bracing at approximately 45° to the CLR and position so that it crosses the web in close proximity to the CLR. Attach the Diagonal Bracing as close to the Top and Bottom Chords as possible and to each web it crosses. Repeat every 20' or less.
- Instale el Arriostre Diagonal a aproximadamente 45 grados al CLR y lo coloque para que cruce la cuerda muy cerca del CLR; Sujete el Arriostre Diagonal como cercano a las cuerdas inferior y superior como sea posible y a cada cuerda que lo cruza. Repita cada 20 pies o menos.

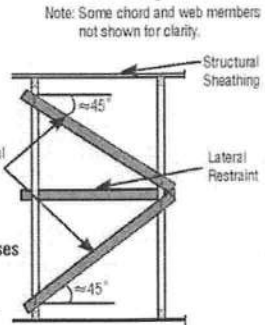
EXAMPLES OF DIAGONAL BRACING WITH CONTINUOUS LATERAL RESTRAINT



Group of 3 Trusses



- 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 that they cross.
- Restricción Lateral y Arriostre Diagonal también puede ser usado con grupos pequeños de trusses (ej. tres o menos). Sujete la Restricción Lateral y el Arriostre Diagonal a cada miembro secundario que los cruzan.

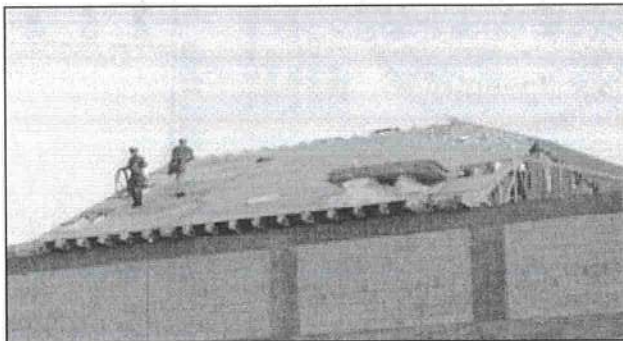


Note: Some chord and web members not shown for clarity.

RESTRICCIÓN / ARRIOSTRE PERMANENTE DE LAS CUERDAS Y LOS MIEMBROS SECUNDARIOS

TRAMOS DE 60' PIES PUEDEN REQUERIR ARRIOSTRE PERMANENTE COMPLEJO. POR FAVOR, SIEMPRE CONSULTE A UN PROFESIONAL DE DISEÑO REGISTRADO.

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

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

- ⚠ **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.

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

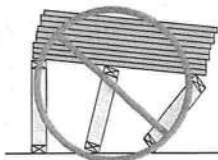
- NOTICE Trusses that have been over-stressed due to excessive construction loading will usually show excessive sagging (deflection) and at least a portion of this deflection will remain even after the load has been removed. In more severe cases, broken truss members and/or failed truss joints may result.

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

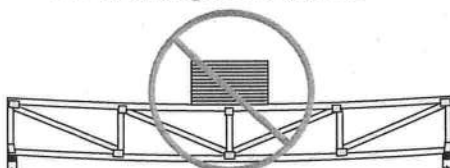
CONSTRUCTION LOADING DO'S AND DON'TS QUE HACER Y NO HACER CON LAS CARGAS DE CONSTRUCCIÓN

- ⊘ **DON'T** stack materials on unbraced trusses.

NO amontone materiales sobre trusses que no estén arriostrados.



- ⊘ **DON'T** overload the trusses.
NO sobrecargue los trusses.

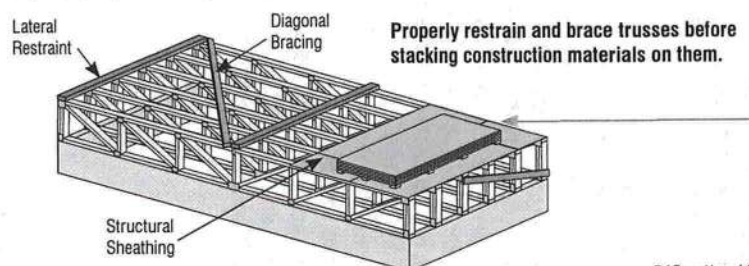


- ⊘ **DON'T** exceed stack heights listed in the table.

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

Maximum Stack Height for Material on Trusses 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

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



B4ConstLoad 090520

