



FIELD INSTALLATION GUIDE FOR COLD-FORMED STEEL ROOF TRUSSES

Improper or inadequate construction bracing is one of the most significant contributors to the collapse of truss systems. This document is intended to provide the Erector with some general guidelines for the proper storage, handling, and bracing of trusses. Further information on the design of construction (temporary) and permanent bracing is provided in LGSEA Technical Notes 551d, "Design Guide for Construction Bracing of Cold-Formed Steel Trusses", and 551e, "Design Guide for Permanent Bracing of Cold-Formed Steel Trusses."



This safety alert symbol is used to attract your attention! **PERSONAL SAFETY IS INVOLVED!** When you see this symbol - **BE ALERT TO POSSIBLE DANGER.**



CAUTION: A CAUTION identifies safe operating practices or indicates unsafe conditions that could result in personal injury or damage to structures.



WARNING: A WARNING describes a condition where failure to follow instruction could result in severe personal injury or damage to structures.



DANGER: A DANGER designates a condition where failure to follow instruction or heed warnings will most likely lead to serious personal injury or death, or damage to structures.

DESIGN CONSIDERATIONS

TRUSSES TO BE SPACED AT A MAXIMUM 4'-0" FOR ALL CONDITIONS DESCRIBED BY THIS DOCUMENT.



CAUTION: All temporary bracing should be designed in accordance with LGSEA "Technical Note" 551d - Design Guide for Construction Bracing of Cold-Formed Steel Trusses."



CAUTION: All bracing materials to be minimum 33 mil (20 gauge), 7/8" or 1-1/2" hat channel, or 33 mil (20 gauge) 3-1/2" "C" stud.



WARNING: Temporary bracing is designed to hold trusses plumb during erection. **DO NOT STEP** on temporary bracing.



CAUTION: All connections should be made with (3) #10 self-drilling screws for diagonal bracing, and (2) #10 self-drilling screws for lateral bracing.

TRUSS STORAGE



CAUTION: Trusses should not be unloaded on uneven surfaces or terrain which could cause damage to the truss.



CAUTION: Trusses must be stored on a slight slope and supported by blocking to allow for draining of water and prevent ponding of water on the interior of truss members.



CAUTION: Tarping of trusses during storage must allow for proper ventilation to prevent undue condensation.



WARNING: Do not lift bundled trusses by the bands.



DANGER: Do not store bundles upright unless properly braced. Do not break bands until bundles are placed in a stable position. Upon cutting bands, immediately inspect trusses to ensure there is no damage to the chord or web members.



CAUTION: Do not overload trusses during construction with stacks of construction material. Design loads should not be applied until all permanent bracing, including sheathing when used, has been properly attached.

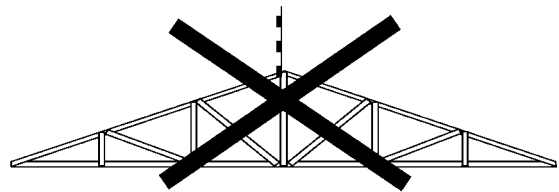
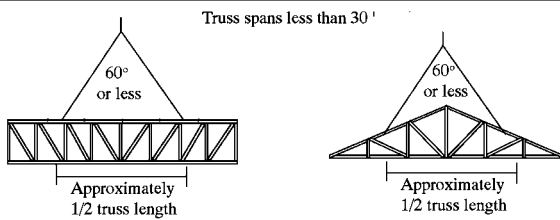
MECHANICAL INSTALLATION



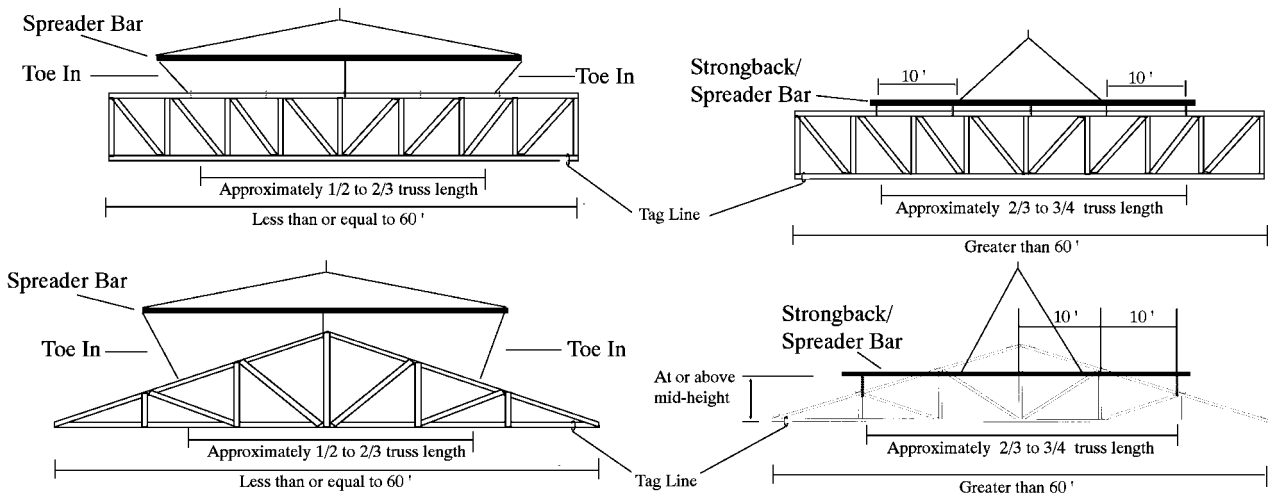
WARNING: Do not attach cables, chains, or hooks to the web members.



WARNING: Do not lift single trusses with spans greater than 30' by the peak

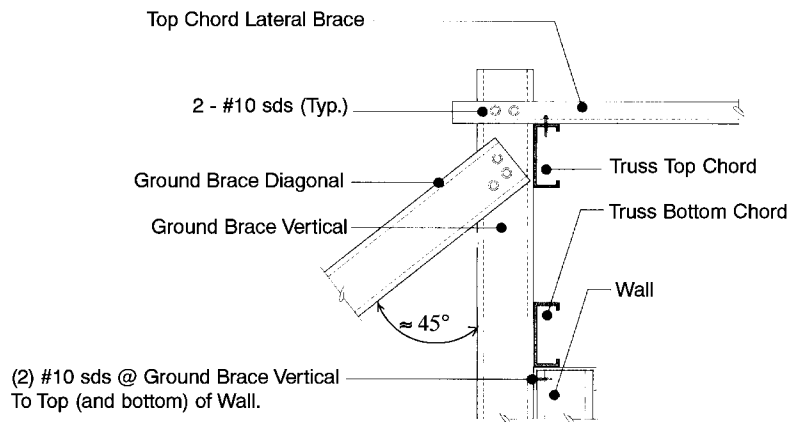
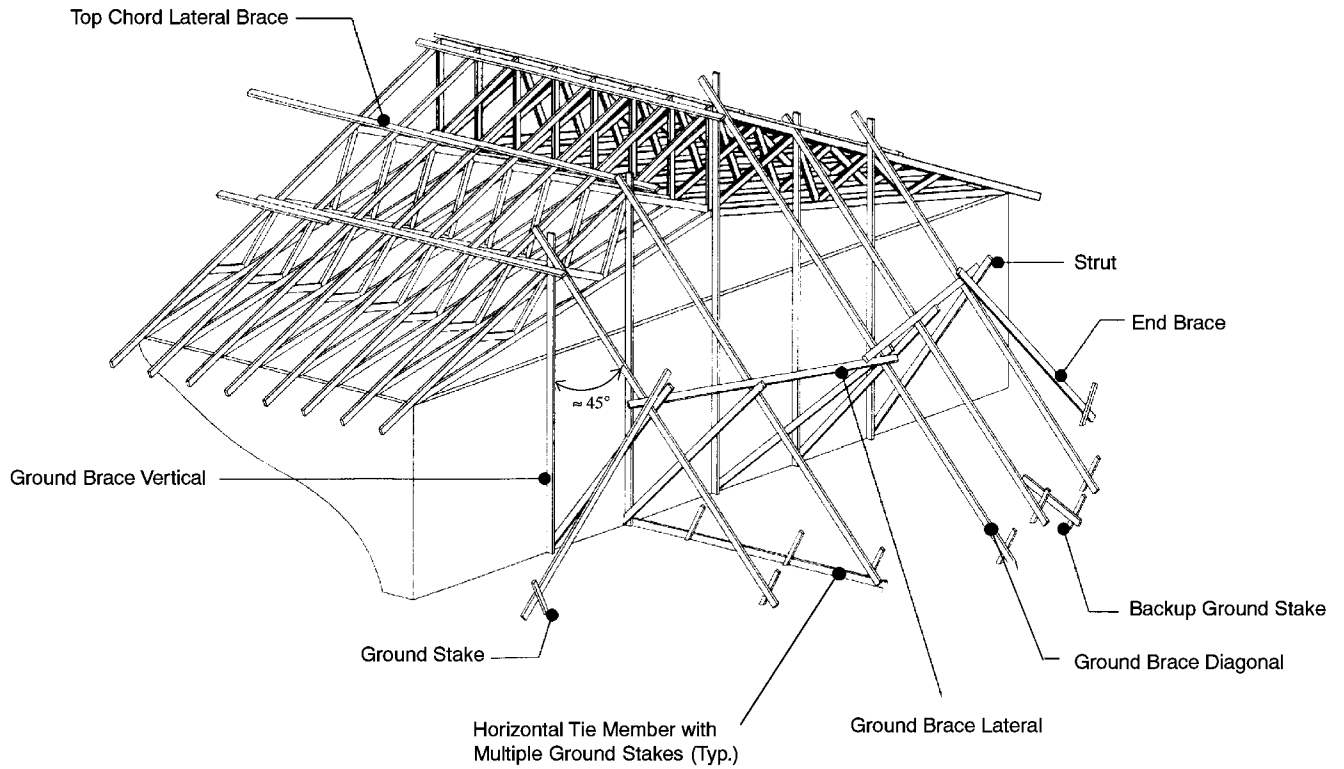


Damage to the chord must be prevented. Lifting devices should be connected to the truss top chord with a closed-loop attachment utilizing materials such as slings, chains, cables, nylon strapping, etc. of sufficient strength to carry the weight of the truss. Each truss should be set in proper position per the building designer's framing plan and held with the lifting device until the ends of the truss are securely fastened and temporary bracing is installed.



CAUTION: Temporary bracing shown in this summary sheet is adequate for the installation for trusses with similar configurations. Consult a licensed professional engineer if a different bracing arrangement is desired. The engineer may design bracing in accordance with LGSEA's Technical Note, "Design Guide for Construction Bracing of Cold-Formed Steel Trusses." (551d).

GROUND BRACING

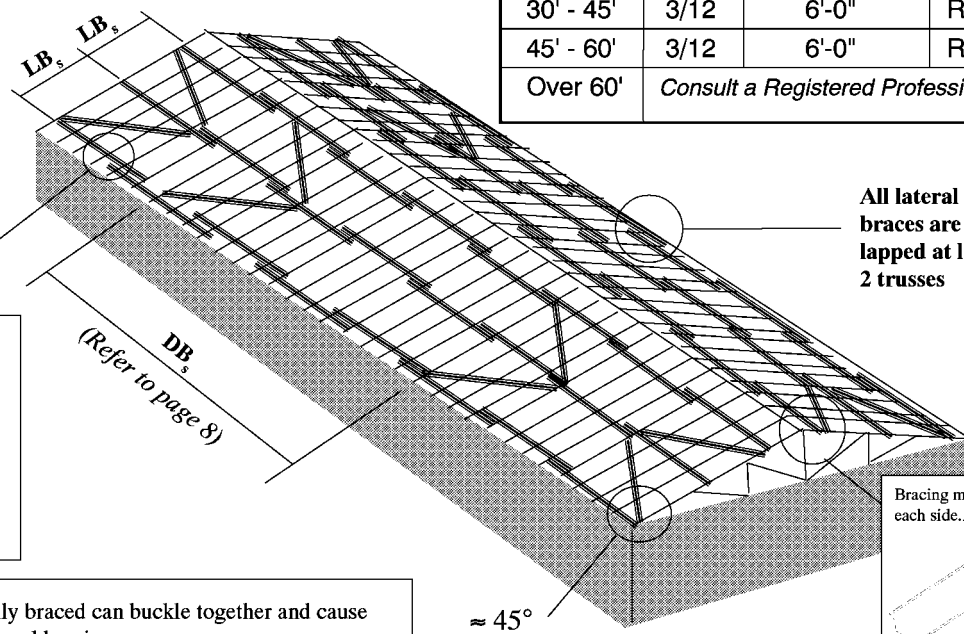


CAUTION: Ground bracing required for all installations. Ground brace needed at each lateral brace location

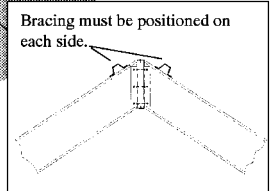
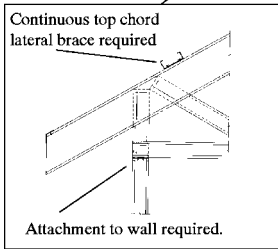
PITCHED TRUSS

$\frac{12}{3}$ or greater

Span	Min. Pitch	Top Chord Lateral Brace Spacing (LB _s)	Top Chord Diagonal Brace Spacing (DB _s)
Up to 30'	3/12	8'-0"	Ref. to page 8
30' - 45'	3/12	6'-0"	Ref. to page 8
45' - 60'	3/12	6'-0"	Ref. to page 8
Over 60'	Consult a Registered Professional Engineer		



All lateral braces are lapped at least 2 trusses



Top Chords that are laterally braced can buckle together and cause collapse if there is no diagonal bracing.

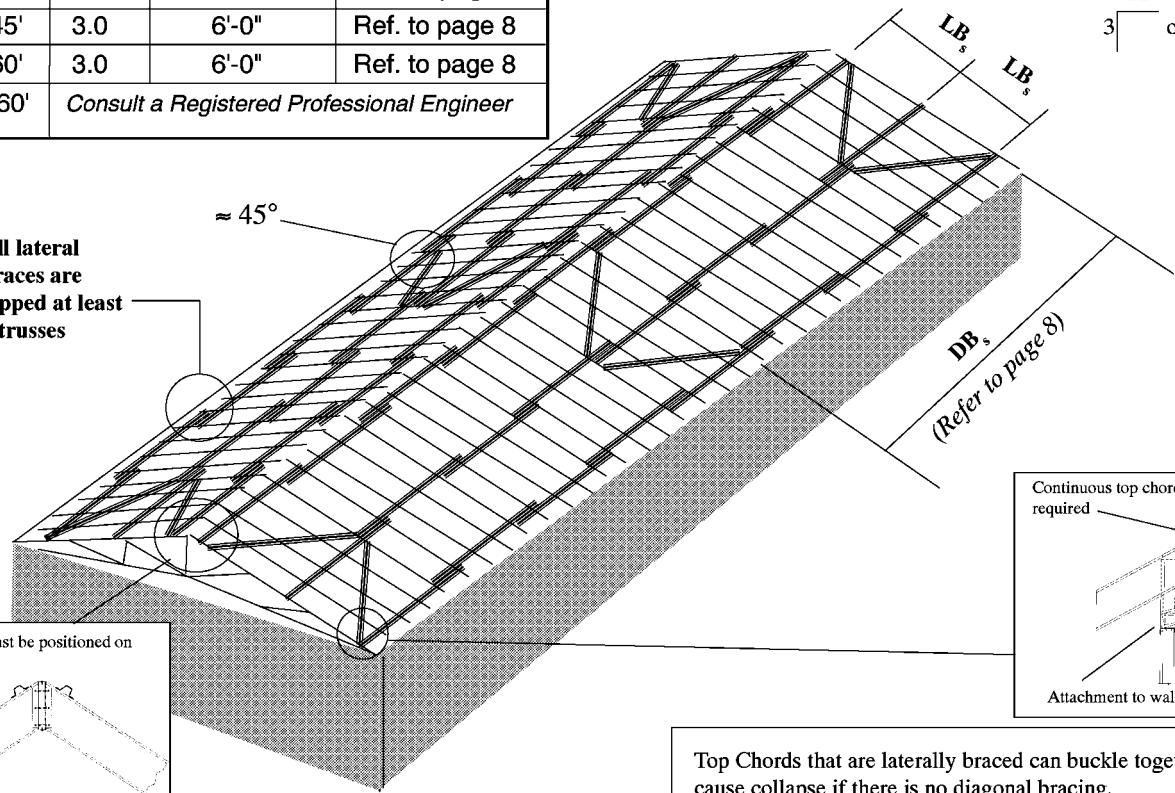


WARNING: Failure to follow these recommendations could result in severe personal injury or damage to trusses or buildings.

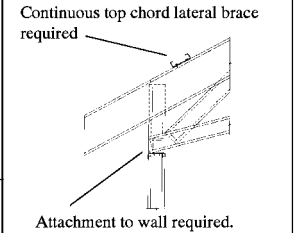
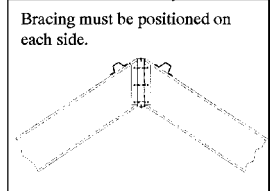
Span	Min. Pitch Diff.	Top Chord Lateral Brace Spacing (LB _s)	Top Chord Diagonal Brace Spacing (DB _s)
Up to 30'	3.0	8'-0"	Ref. to page 8
30' - 45'	3.0	6'-0"	Ref. to page 8
45' - 60'	3.0	6'-0"	Ref. to page 8
Over 60'	Consult a Registered Professional Engineer		

SCISSORS TRUSS

$\frac{12}{3}$ or greater



All lateral braces are lapped at least 2 trusses



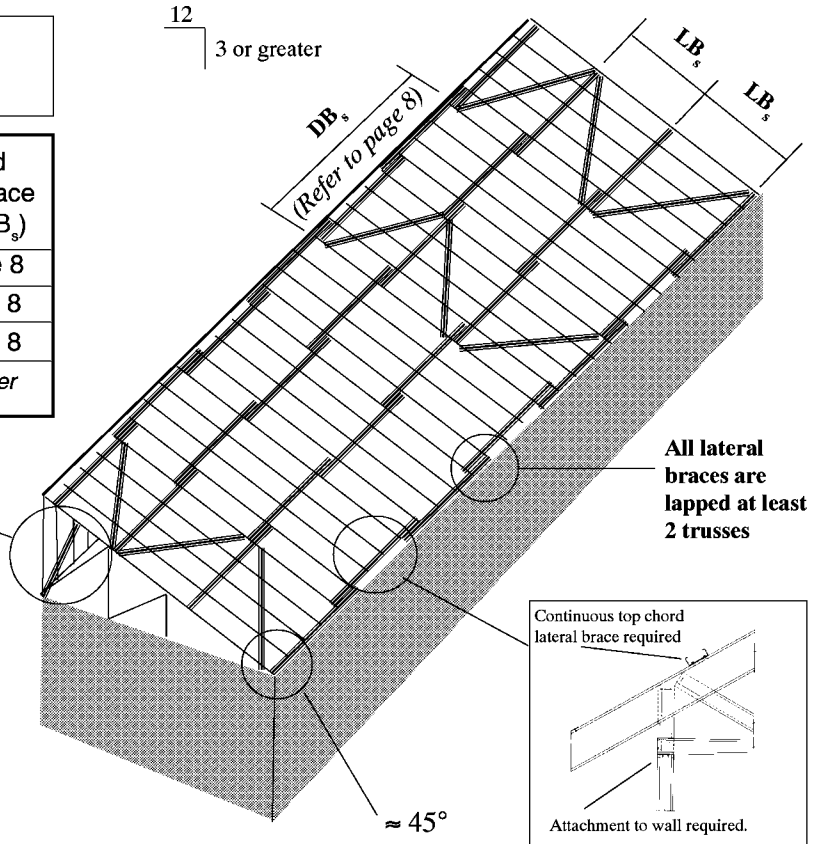
Top Chords that are laterally braced can buckle together and cause collapse if there is no diagonal bracing.

MONO TRUSS

Top Chords that are laterally braced can buckle together and cause collapse if there is no diagonal bracing.

Span	Min. Pitch	Top Chord Lateral Brace Spacing (LB _s)	Top Chord Diagonal Brace Spacing (DB _s)
Up to 30'	3/12	8'-0"	Ref. to page 8
30' - 45'	3/12	6'-0"	Ref. to page 8
45' - 60'	3/12	6'-0"	Ref. to page 8
Over 60'	Consult a Registered Professional Engineer		

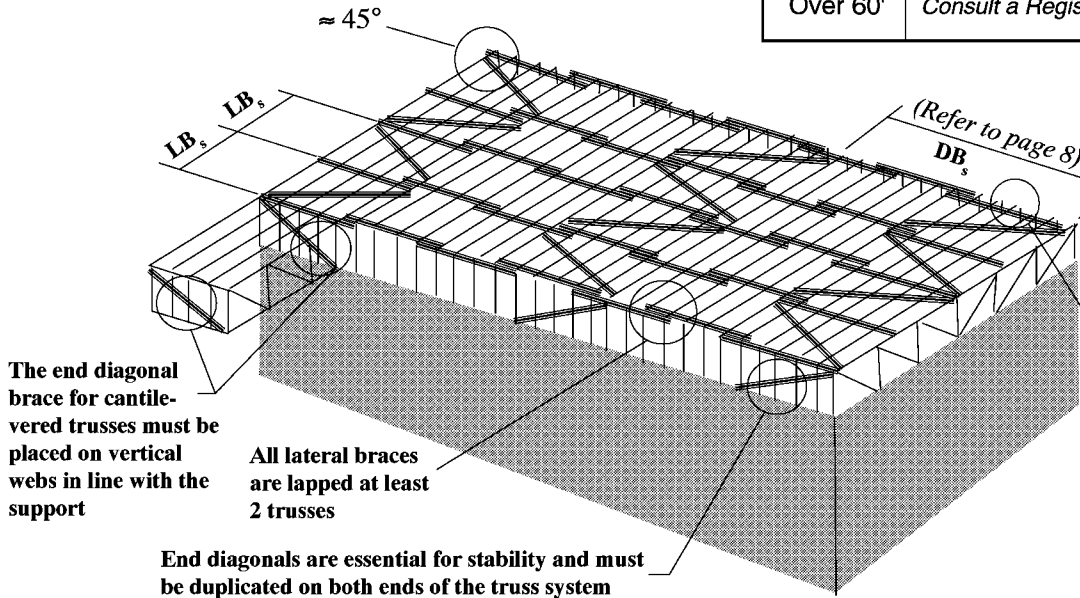
Diagonals brace also required on end verticals



PARALLEL CHORD TRUSS

Top Chords that are laterally braced can buckle together and cause collapse if there is no diagonal bracing.

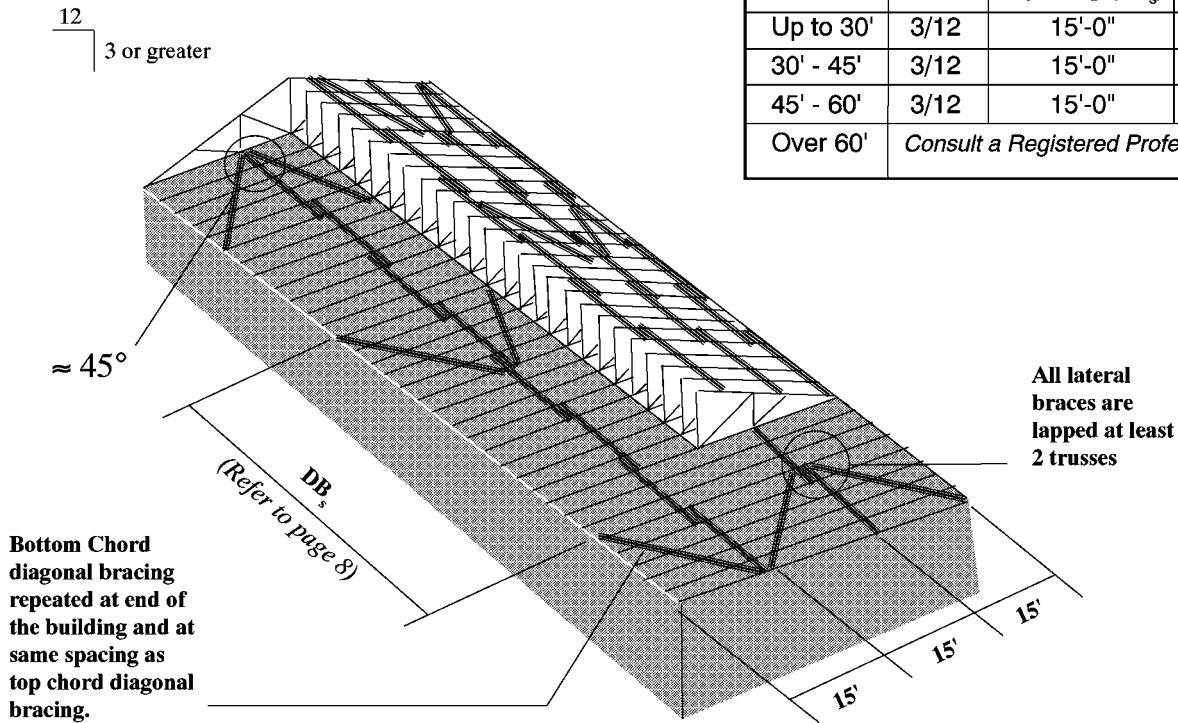
Span	Min. Depth	Top Chord Lateral Brace Spacing (LB _s)	Top Chord Diagonal Brace Spacing (DB _s)
Up to 30'	30"	6'-0"	Ref. to page 8
30' - 45'	42"	5'-6"	Ref. to page 8
45' - 60'	48"	5'-6"	Ref. to page 8
Over 60'	Consult a Registered Professional Engineer		



WARNING: Failure to follow these recommendations could result in severe personal injury or damage to trusses or buildings.

BOTTOM CHORD PLANE

Span	Min. Pitch	Bottom Chord Lateral Brace Spacing (LB _s)	Bottom Chord Diagonal Brace Spacing (DB _s)
Up to 30'	3/12	15'-0"	Ref. to page 8
30' - 45'	3/12	15'-0"	Ref. to page 8
45' - 60'	3/12	15'-0"	Ref. to page 8
Over 60'	Consult a Registered Professional Engineer		

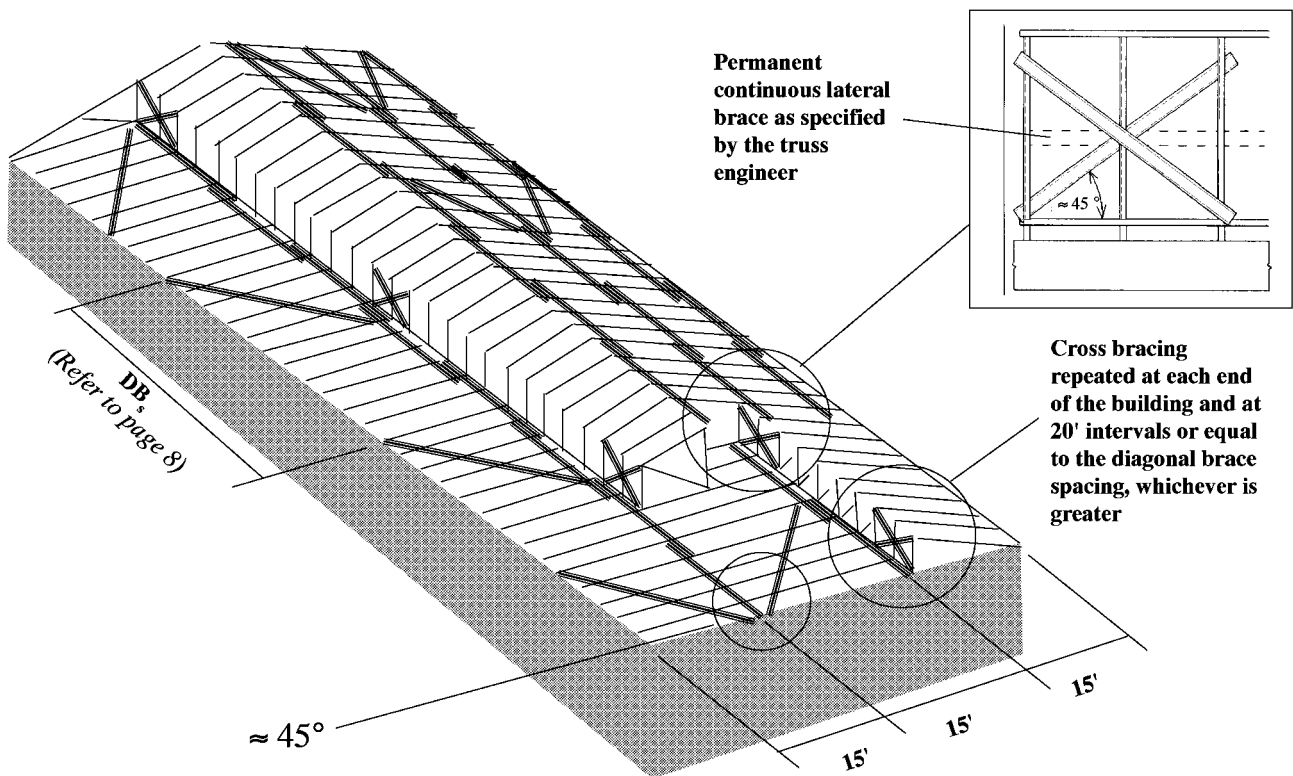


Bottom Chord diagonal bracing repeated at end of the building and at same spacing as top chord diagonal bracing.



WARNING: Failure to follow these recommendations could result in severe personal injury or damage to trusses or buildings.

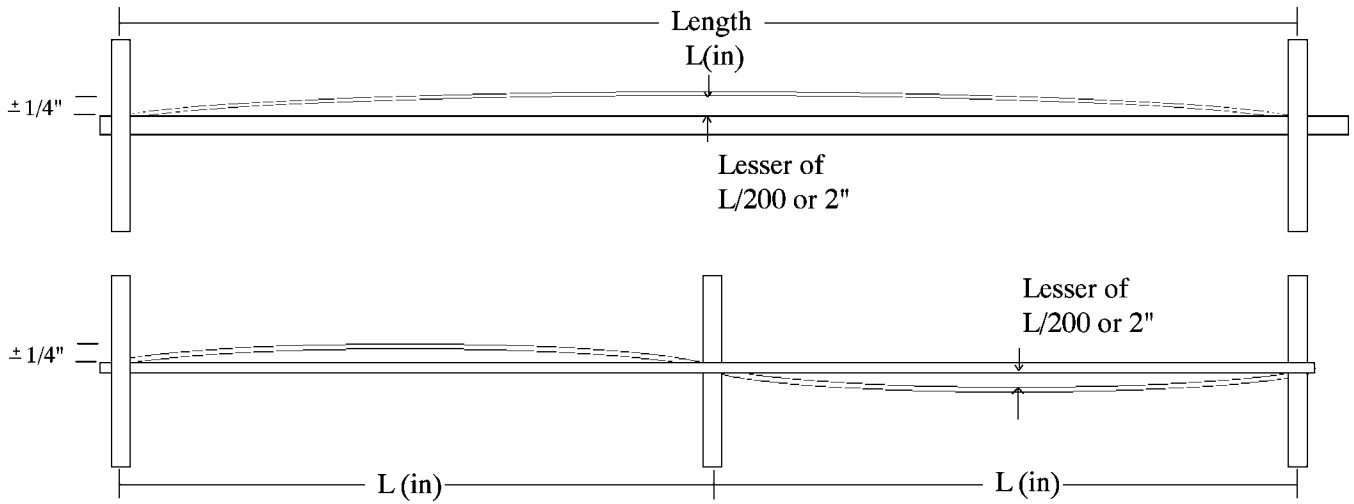
WEB MEMBER PLANE



INSTALLATION TOLERANCES

OUT-OF-PLANE INSTALLATION TOLERANCES

BOW

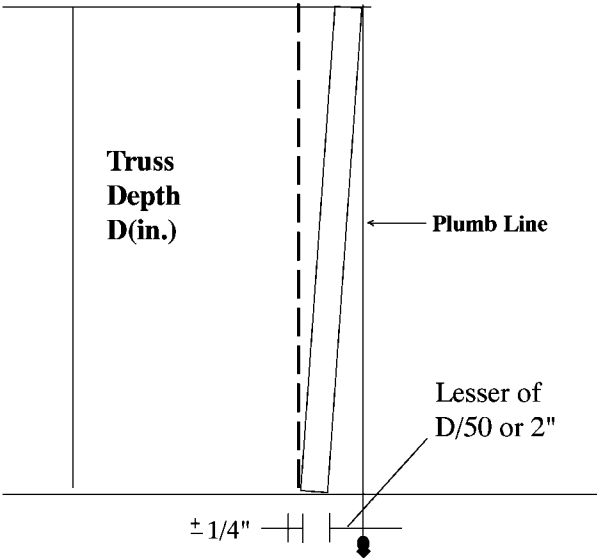


L (in.)	L/200	L(ft)
50"	1/4"	4'-2"
100"	1/2"	8'-4"
150"	3/4"	12'-6"

L (in.)	L/200	L(ft)
200"	1"	16'-8"
250"	1-1/4"	20'-10"
300"	1-1/2"	25'-0"

OUT-OF-PLUMB INSTALLATION TOLERANCES

D (in.)	D/50	D(ft)
12"	1/4"	1'
24"	1/2"	2'
36"	3/4"	3'
48"	1"	4'
60"	1-1/4"	5'
72"	1-1/2"	6'
84"	1-3/4"	7'
96"	2"	8'
108"	2"	9'



WARNING: Do not cut, alter, or remove fasteners from trusses.

DANGER: Under no circumstances should construction loads of any description be placed on unbraced trusses.

DANGER: Do not walk on trusses when wet due to slippage hazard.

DIAGONAL BRACE SPACING (DB_s)

Span Range	Bracing Material *	DB _s (ft. o.c.)	
		2'0" truss spacing	4'0" truss spacing
up to 30'	87 F 125 - 33	40	40
up to 30'	87 F 125 - 43	40	40
up to 30'	150 F 125 - 33	40	40
up to 30'	150 F 125 - 43	40	40
up to 30'	350 S 162 - 33	40	40
up to 30'	350 S 162 - 43	40	40
30' to 45'	87 F 50 - 33	18	20
30' to 45'	87 F 50 - 43	20	40
30' to 45'	150 F 50 - 33	20	16
30' to 45'	150 F 50 - 43	20	32
30' to 45'	350 S 162 - 33	20	40
30' to 45'	350 S 162 - 43	20	40
45' to 60'	87 F 50 - 33	8	8
45' to 60'	87 F 50 - 43	12	16
45' to 60'	150 F 50 - 33	8	8
45' to 60'	150 F 50 - 43	12	12
45' to 60'	350 S 162 - 33	12	24
45' to 60'	350 S 162 - 43	12	24

* Using This Chart

The material designations in this chart are based on industry standards adopted by the Steel Stud Manufacturers Association. These designations contain the following elements:

- a. Member depth expressed in 1/100th inches;
- b. A single letter designator to represent the type of material
S = Stud T = Track U = Cold rolled channel F = Furring (or Hat) channel
- c. Flange width expressed in 1/100th inches;
- d. Minimum base metal thickness in mils (1/1000th of an inch = 1 mil).

Sample: **150 F 125 - 43**

— Min. base metal thickness in mils
 — Flange in 1/100 inches
 — Furring (hat) channel
 — Member depth

In the use of cold-formed steel roof trusses, the installer (builder, contractor, licensed contractor, erector or erection contractor) is responsible to properly receive, unload, store, handle, and install these trusses in a manner that will protect life and property. The Light Gauge Steel Engineers Association believes that the information contained within this publication are in conformance with prevailing engineering standards of practice. However, the LGSEA does not intend these recommendations to supersede or be superior to design specifications for installing, bracing and handling provided by the project Architect or Engineer, or exclude the use of any other design or construction technique. The bracing system in this document is designed for the weight of the trusses and bracing members in normal construction conditions NOT for high wind or other extreme conditions. The information provided in this publication shall not constitute any representation or warranty, express or implied, on the part of the LGSEA or any individual that the information is suitable for any general or specific purpose, and should not be used without consulting a qualified engineer, architect, or building designer. **ANY INDIVIDUAL OR ENTITY MAKING USE OF THE INFORMATION PROVIDED IN THIS PUBLICATION ASSUMES ALL RISK AND LIABILITY ARISING OR RESULTING FROM SUCH USE.** Do not reproduce without permission.