Nails and Nail Patterns

Nails come in different shapes, sizes, and strengths. The nails used in emergency shoring operations can be either single-head or double-head (duplex) nails. Single-head nails can be used when it is desired to have the top of the nail flush with the surface of the lumber; however, it is very difficult to remove these nails after application, if necessary. Duplex nails have two heads so when the nail is hammered into the lumber, the nail stops at the first head and keeps the top nail head still exposed, making these nails much easier to remove if needed.

Nails come in different lengths and thickness. The most common nails used to construct shoring systems are 8-penny and 16-penny (d) nails. It is estimated that the shear/pulling strength of the 8d nail is 150 pounds and the 16d nail is 225 pounds. Use 8d nails on plywood and 16d nails on 2" lumber. The proper size, amount, and spacing of nails must be properly applied when attaching shoring components to ensure that the collective strength of the nails is adequate for the design of the shore and to prevent the nails from weakening (splitting) the lumber.

A 3-nail or 5-nail pattern system is used in emergency shoring operations. Figure 6:16 illustrates the different variations of the nail pattern when connecting different shoring components. When nailing lumber such as 2x4 or 2x6, the amount of nails used is usually one nail less than the width of the lumber. Example: three (3) nails for a 2x4 or five (5) nails for a 2x6.

Figure 6:16
Nail Patterns for
3/4"x12"x12" & 3/4"x6"x12" Plywood
Gusset Plates and Triangles / Braces and Cleats
(Use 8d nails on plywood and 16d nails on 2" lumber)

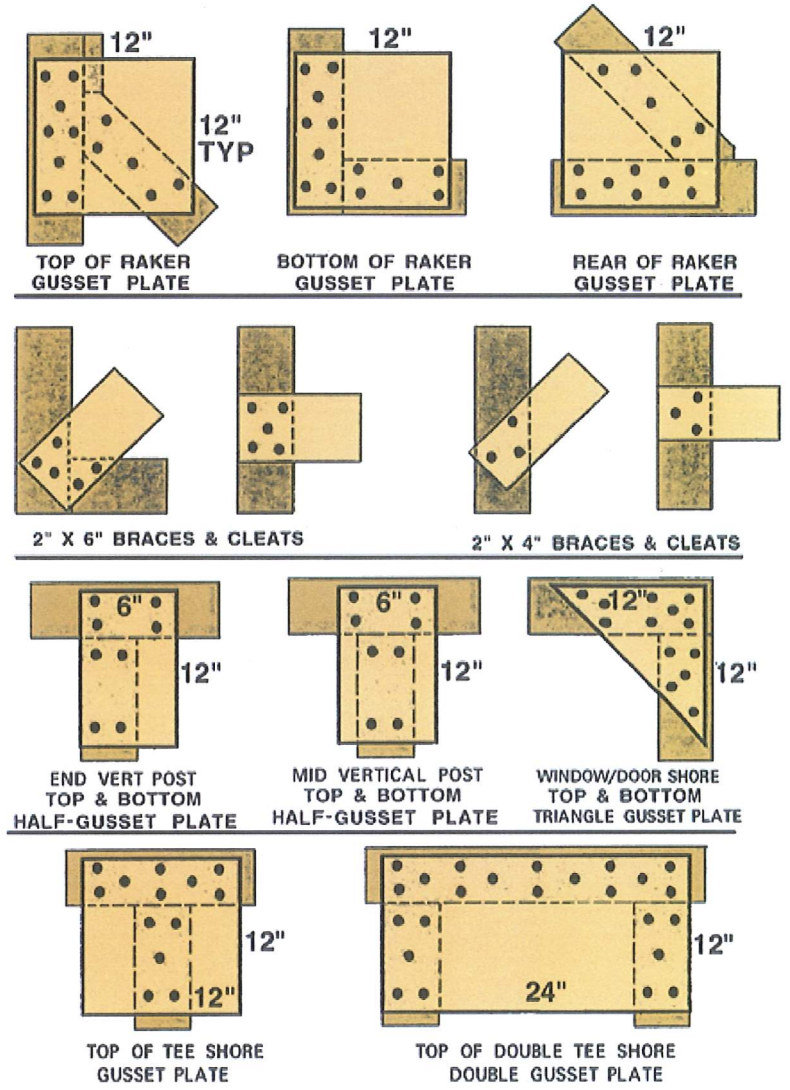
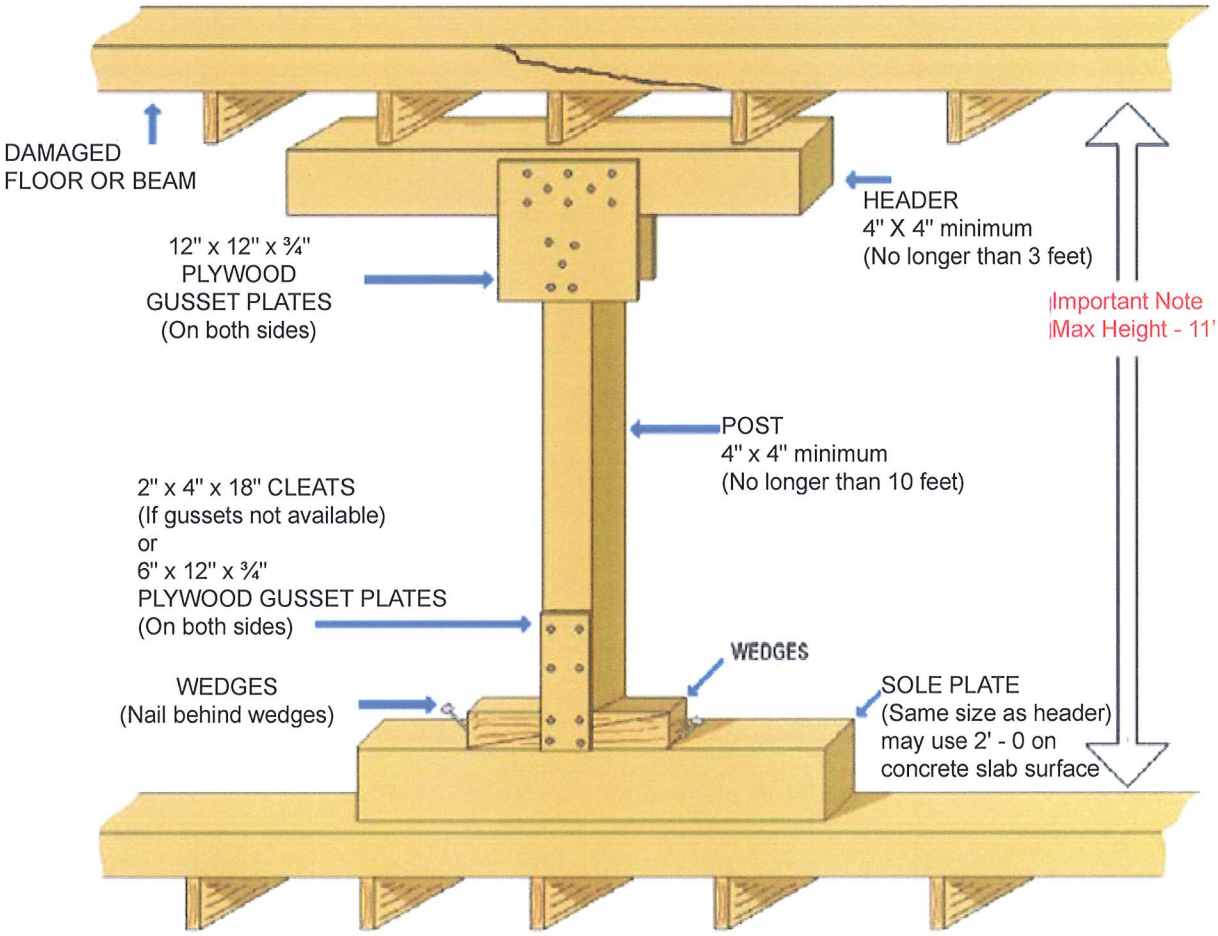


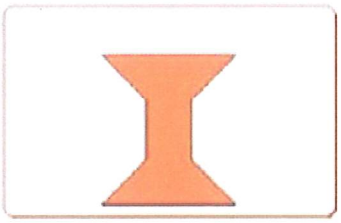
Figure 6:35

Timber Spot Shore

Position the HEADER and SOLE PLATE across the floor and ceiling joists. Position the POST in line with the joists. Temporary shore until a complete shoring system can be erected or for temporary access to the hazard area.
(Prefabricate post and header, then install on sole.)
Temporary shore only until a complete shoring system can be erected.



Design Load*
1,000 to 4,000 pounds based on unknown stability.
*Load must be centered on the post.



To be more effective, header, posts, and sole plate must be the same width for gusset plates and cleats.

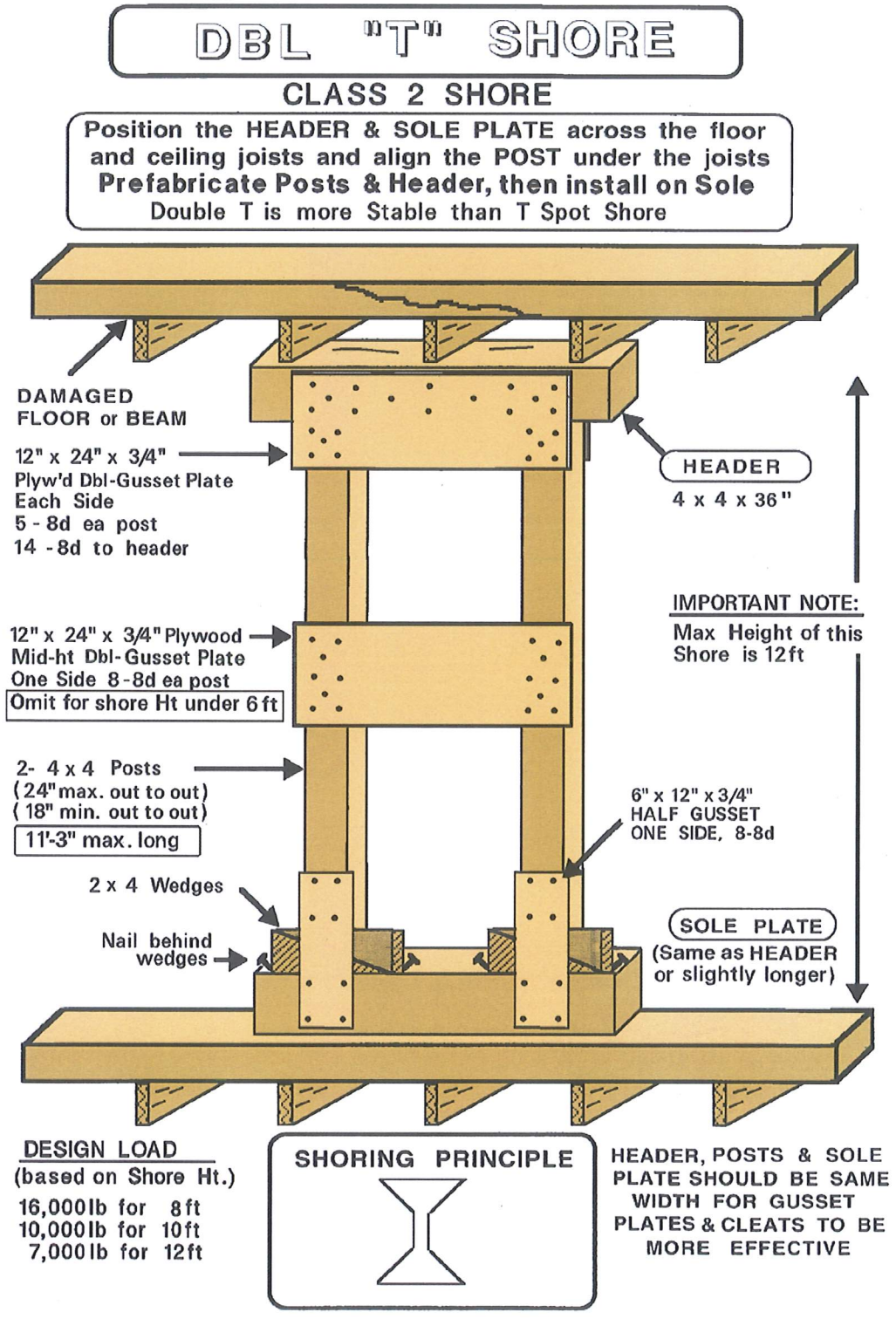

DBL "T" SHORE
CLASS 2 SHORE
Position the HEADER & SOLE PLATE across the floor and ceiling joists and align the POST under the joists
Prefabricate Posts & Header, then install on Sole
Double T is more Stable than T Spot Shore
DAMAGED FLOOR or BEAM
12" x 24" x 3/4" Plyw'd Dbl-Gusset Plate Each Side
5 - 8d ea post
14 - 8d to header
HEADER
4 x 4 x 36"
IMPORTANT NOTE:
Max Height of this Shore is 12ft
12" x 24" x 3/4" Plywood Mid-ht Dbl-Gusset Plate One Side 8-8d ea post
Omit for shore Ht under 6 ft
2- 4 x 4 Posts
(24" max. out to out)
(18" min. out to out)
11'-3" max. long
6" x 12" x 3/4" HALF GUSSET ONE SIDE, 8-8d
2 x 4 Wedges
Nail behind wedges
SOLE PLATE
(Same as HEADER or slightly longer)
DESIGN LOAD
(based on Shore Ht.)
16,000lb for 8ft
10,000lb for 10ft
7,000lb for 12ft
SHORING PRINCIPLE
HEADER, POSTS & SOLE PLATE SHOULD BE SAME WIDTH FOR GUSSET PLATES & CLEATS TO BE MORE EFFECTIVE

Figure 3:22