FRAMING
FLOOR TRUSSES

Structurally, an open-web floor truss resembles an I-beam in that it puts most of its material along its top and bottom edges where stresses are greatest. To strengthen a truss, the fabricator may double its top and bottom chords, make side-by-side girder trusses, use larger truss plates or stronger wood, or use some combination of these techniques.

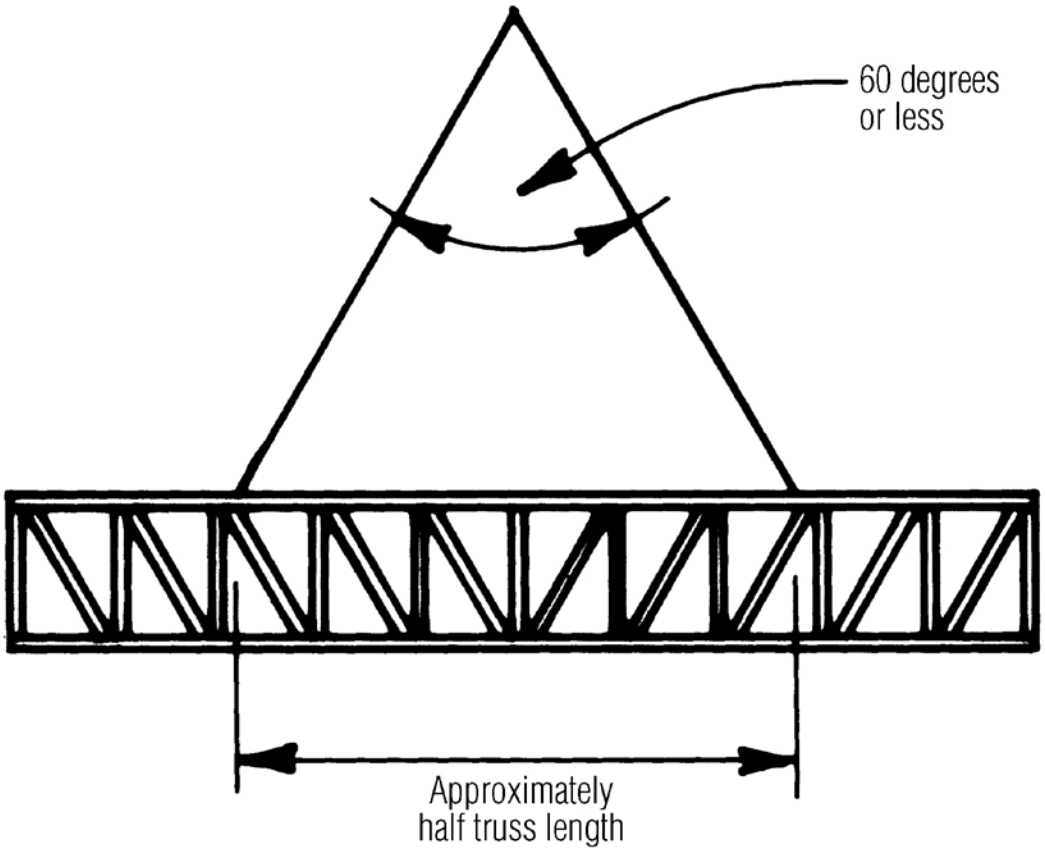
HANDLING TRUSSES

When receiving a truckload of trusses, reject those with excessive splits in chords or braces, those with knots close to metal plates, or those with loose or deformed plates. Also reject any that show evidence of having been damaged and repaired. Beware of warped or wet lumber, which can set up dangerous stresses as it shrinks and dries.

Lifting With a Crane

If you use a crane, always lift from two points (**Figure A**) and never lift the truss sideways; the excess flexing can loosen the connector plates, causing eventual failure.

FIGURE A: LIFTING FLOOR TRUSSES BY CRANE



When lifting floor trusses with a crane, always lift from two points and never lift the truss sideways, which can loosen connector plates.

INSTALLING FLOOR TRUSSES

Floor trusses are usually spaced 24 in. o.c., and are typically lifted by hand, rolled into place, fastened, and braced.

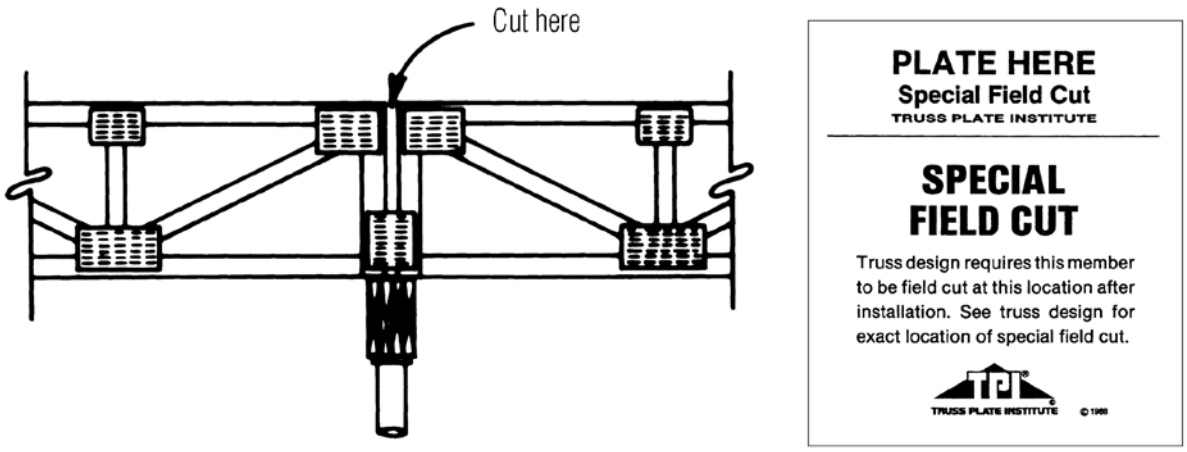
Right Side Up

It is crucial to install each truss right side up, according to the label attached to the truss. Each web member is designed to be in compression or tension, but not both.

Bearing at Center Girder

A bottom-chord-bearing truss that crosses a girder or bearing wall may be designed to function as two simple beams. In this case, a tag attached to the truss will indicate that the top chord should be cut after installation (**Figure B**). Without this cut, a load applied to one end of the truss will lift the other, creating a seesaw action.

FIGURE B: SPECIAL FIELD CUTS

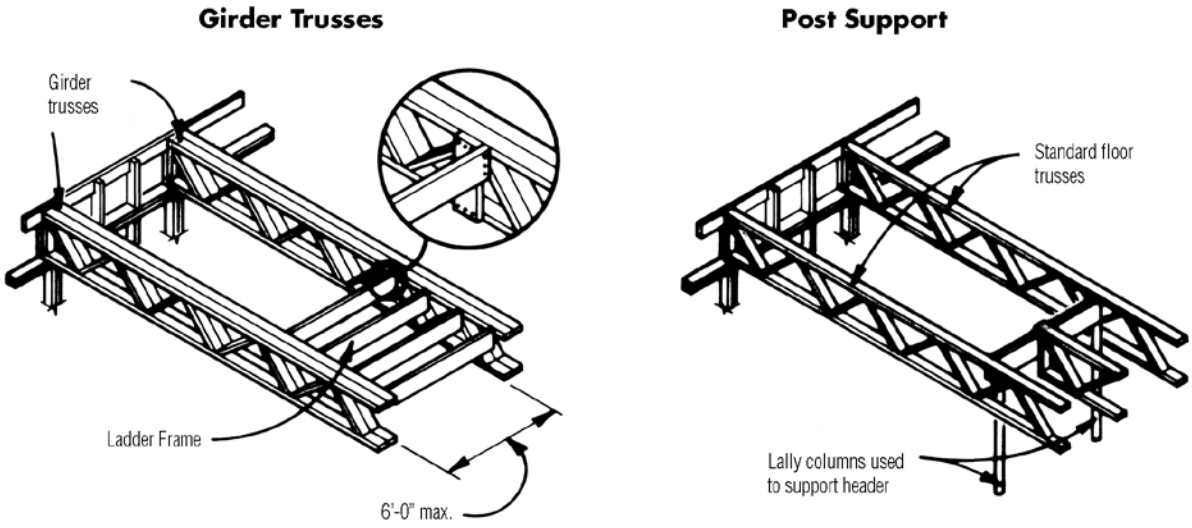


A bottom-chord-bearing truss that crosses a girder or bearing wall may be designed to function as two simple beams. A tag will instruct the builder to cut through the top chord after installation.

Stairwell Openings

Girder trusses are designed to support several standard floor trusses. These are often used around stairwell openings (**Figure C**).

FIGURE C: STAIRWELL OPENINGS

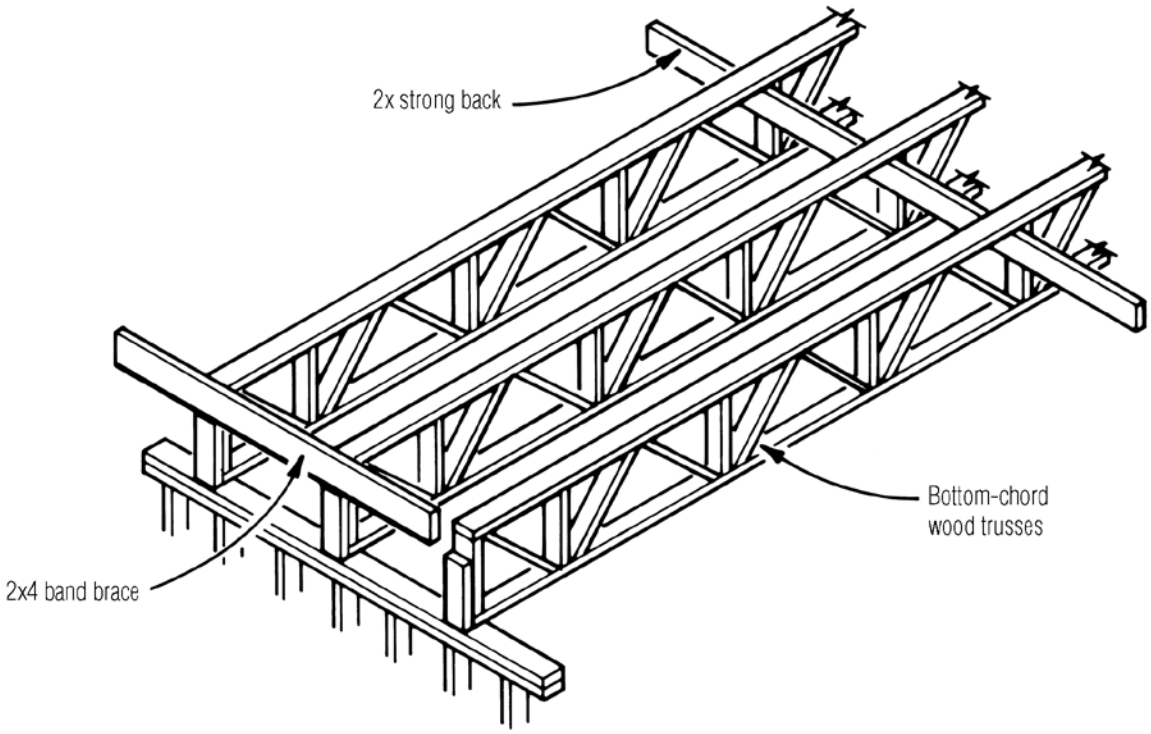


Double-width girder trusses are designed to support several standard floor trusses. These are often used around stairwell openings (left). Another option is to support staircase headers on posts or lally columns (right).

BRACING FLOOR TRUSSES

Bracing prevents trusses from bending, twisting, or otherwise deforming. On bottom-chord-bearing trusses, the ends are tied together with 2x4 ledgers that also serve as a nailing base for the perimeter of the plywood deck (**Figure D**). Underneath, 2x6 strongbacks laid on edge should run continuously through the webs of all the trusses at 10-ft. intervals (one run for a 20-ft. truss, two runs for longer trusses). The 2x6 serves the same purpose as bridging in a standard floor, distributing concentrated loads over a wider area.

FIGURE D: BRACING BOTTOM-CHORD-BEARING TRUSSES

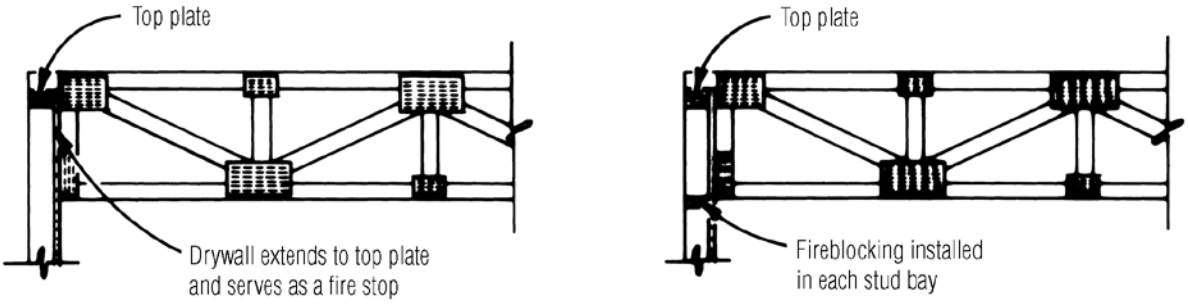


The ends of bottom-chord-bearing trusses are designed to be tied together with 2x4 ledgers that also serve as a nailing base for the perimeter of the plywood deck. In addition, install horizontal 2x6 strongbacks at 10-ft. intervals to distribute loads and prevent twisting, which can loosen truss plates.

FIRE-STOPPING FOR FLOOR TRUSSES

Top-chord-bearing trusses short-circuit the fire-stopping ordinarily provided by the top plate. Common solutions are to extend the drywall past the trusses to the top plate, or to insert a separate 2x4 fire stop inside each stud bay just below the bottom chord of the truss (**Figure E**). Check with local codes for requirements in your area.

FIGURE E: FIRE-STOPPING FOR OPEN-WEB TRUSSES



Many codes require fire-stopping with open-web trusses at the intersections of wall and ceiling spaces. Techniques include extending the drywall past the truss to the top plate (near right), or installing a 2x4 fire-stop inside each stud bay just below the truss's bottom chord (far right).