

Temporary Construction Loads Over I-Joist Roofs And Floors

Number J735B • September 2008

During construction of light-frame structures it is common to see relatively heavy loads placed over partially constructed floors and roofs. This is usually done to stage materials as part of the construction process. Some common examples of this are the stacking of floor panels over bare floor joists, placement of wall framing bundles on sheathed floors in anticipation of wall construction, or the placement of gypsum wall board bundles on sheathed floors prior to the installation on walls or ceilings.

Proper placement of such heavy loads in a partially completed light-framed structure is necessary to prevent damage to the structure and/or injury to the work crew. Fortunately, following a few simple rules, as discussed below, can minimize the risk of such problems. **Note that walking on unrestrained joists can result in serious injury.**

1. Recommendations presented in this technical note are appropriate for floors and flat roofs. Placement of temporary loads on pitched roofs can overstress the roof support connections at the ridge and overhang. In addition, placement of bundles of panel products on a sloped base can cause the panels to slide off when the bands are cut. This can cause serious projectile damage to equipment and personnel below.
2. **Never place heavy loads over a bare I-joist floor or roof without lateral (overturning) restraint securely fastened in place.** At I-joist supports, this means blocking or a rim joist nailed to the wall plate and I-joists. Each end of the framing bay and every 25 feet of bare framing must have 8 feet of diagonal bracing or other means to provide a braced bay. Across the length of the bare joists, apply temporary 1x4 bracing board running the full width of the framing bay and spaced at 8–10 feet on center. See Figure 1.

It is important to note that the diagonal bay bracing and perpendicular bracing must be used together. The perpendicular bracing is inadequate without the bay bracing to provide stability and the diagonal bay bracing by itself provides no stability to the framing members between the braced bays.

3. Wall sheathing must be installed below the floor (or roof) level to provide for lateral stability of the structure before temporary loads are placed.

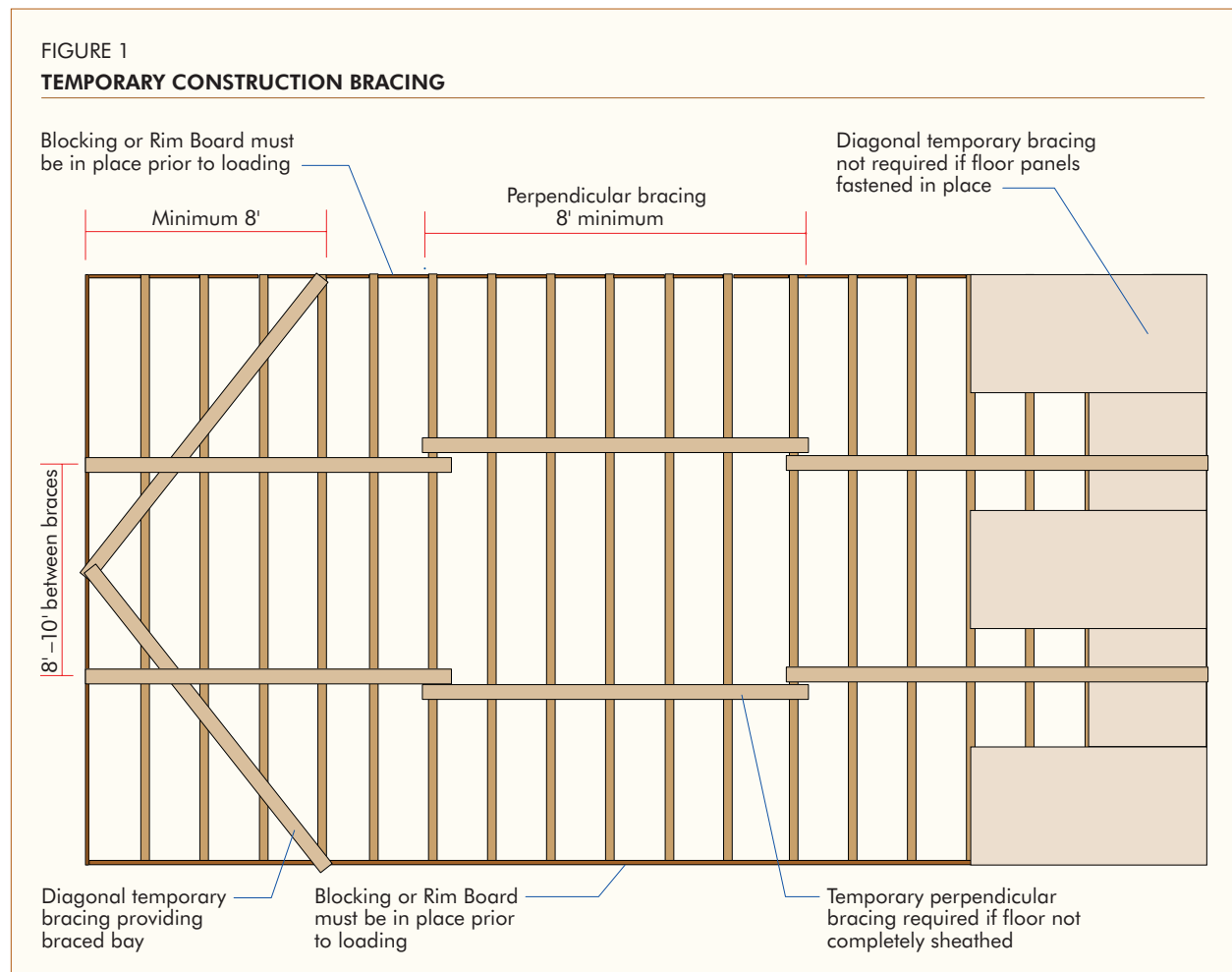
4. The maximum temporary load at a given location shall be limited to a single sling/unit of wood structural panels (a stack 4 feet wide x approximately 32 inches high x the length of the wood structural panel), a single sling/unit of gypsum wallboard (up to 5 feet wide x 30 inches high x the length of the wallboard) or a sling/unit of lumber (approximately 3 feet wide x 24 inches high x the length of the lumber).
5. The long dimension of temporary loads shall be placed perpendicular to the framing and only at locations shown in Figure 2.
6. The long dimension of temporary loads **shall not be placed parallel** to floor joists, even after sheathing has been attached, without permission from a design professional.
7. Panel-type temporary loads may be placed with one edge or end cantilevering over the edge of the floor a distance not exceeding 1/4 of the bundle width or length, respectively. Lumber bundles shall never be placed such that whole lengths of lumber members in the bundle are positioned over the edge of the floor. Cutting the straps of the bundle in such situations can cause serious projectile damage to equipment and personnel below. To ensure a safe job site, place lumber bundles approximately two feet inside the edge of the floor.
8. Temporary construction loads as shown in this technical note may be placed at the cantilevered end of floor joists that extend beyond the wall below by up to 2 feet. All blocking including blocking at the cantilever-end support and blocking or Rim Board® attached to the cantilevered-end of the floor joists shall be in place prior to setting the construction loads.

TEMPORARY CONSTRUCTION BRACING

The following temporary bracing must be completed before placing bundles or walking on floor or roof framing.

1. All end blocking or Rim Boards® must be in place.
2. For temporary perpendicular bracing, use a minimum of 1 x 4 perpendicular to the floor or roof framing and running full width of the floor. At each joist, attach bracing to framing with two 8d nails. Long lengths are recommended with the ends overlapped at a common joist. Lines of bracing should be placed parallel to each other and spaced at 8 to 10 feet on center.
3. To stabilize the perpendicular bracing described in No. 2 above, brace the corners of the floor or roof, and, in long or wide floors and roofs, at intervals not to exceed 25 feet with a minimum of 8 feet of diagonal or bay bracing. Bay bracing may be provided by diagonal temporary bracing at ends as shown in Figure 1 or by fastening at least 4 feet of floor or roof sheathing at each end. Perpendicular bracing described in No. 2 **will not work** without the diagonal temporary bracing provided at the ends.
4. Remove temporary bracing carefully. Starting with the diagonal bracing at one end, only remove enough bracing to attach sheathing panels one at a time. Once diagonal bracing is replaced by the permanently installed sheathing, the work can progress down the floor or roof, again only removing the perpendicular bracing as necessary immediately before attaching sheathing panels.

FIGURE 1
TEMPORARY CONSTRUCTION BRACING



PERMISSIBLE LOADS (at a given location)

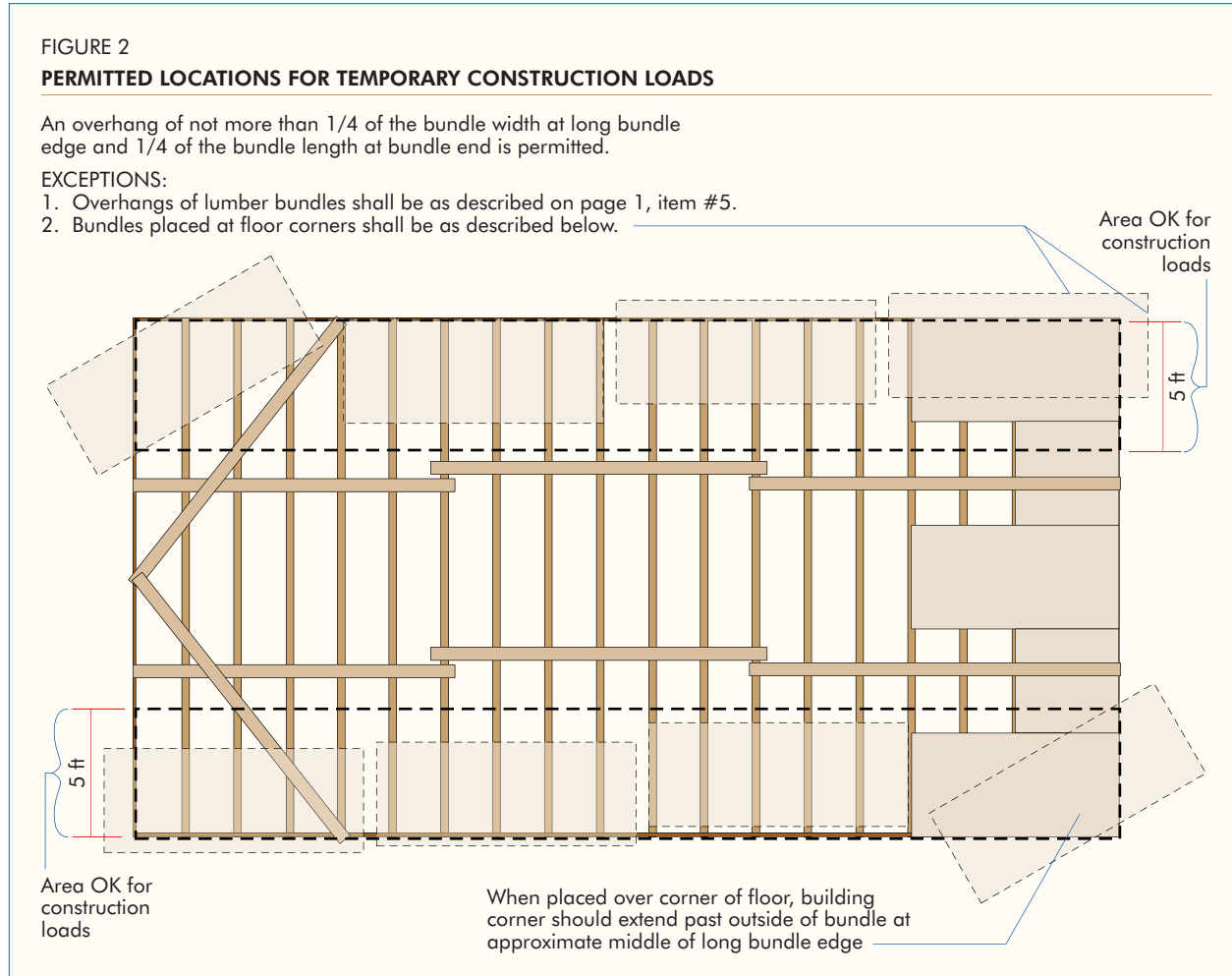
1. One unit of wood structural panels (4 feet wide x approximately 32 inches high x length of the wood structural panel), or
2. One unit of gypsum wall board (5 feet wide x approximately 30 inches high x length of the wall board), or
3. One unit of lumber (3 feet wide x approximately 24 inches high x the length of the lumber).
4. Multiple units may be placed on floor providing they are not stacked and all units fall within “Area OK for construction loads.”

**FIGURE 2
PERMITTED LOCATIONS FOR TEMPORARY CONSTRUCTION LOADS**

An overhang of not more than 1/4 of the bundle width at long bundle edge and 1/4 of the bundle length at bundle end is permitted.

EXCEPTIONS:

1. Overhangs of lumber bundles shall be as described on page 1, item #5.
2. Bundles placed at floor corners shall be as described below.



Temporary Construction Loads Over I-joist Roofs And Floors

We have field representatives in many major U.S. cities and in Canada who can help answer questions involving APA trademarked products. For additional assistance in specifying engineered wood products, contact us:

APA HEADQUARTERS

7011 So. 19th St. ■ Tacoma, Washington 98466 ■ (253) 565-6600 ■ Fax: (253) 565-7265

www.apawood.org



PRODUCT SUPPORT HELP DESK

(253) 620-7400 ■ E-mail Address: help@apawood.org

DISCLAIMER

The information contained herein is based on APA – The Engineered Wood Association's continuing programs of laboratory testing, product research and comprehensive field experience. Neither APA, nor its members make any warranty, expressed or implied, or assume any legal liability or responsibility for the use, application of, and/or reference to opinions, findings, conclusions or recommendations included in this publication. Consult your local jurisdiction or design professional to assure compliance with code, construction and performance requirements. Because APA has no control over quality of workmanship or the conditions under which engineered wood products are used, it cannot accept responsibility for product performance or designs as actually constructed.

Form No. J735B/Revised September 2008



REPRESENTING THE ENGINEERED WOOD INDUSTRY