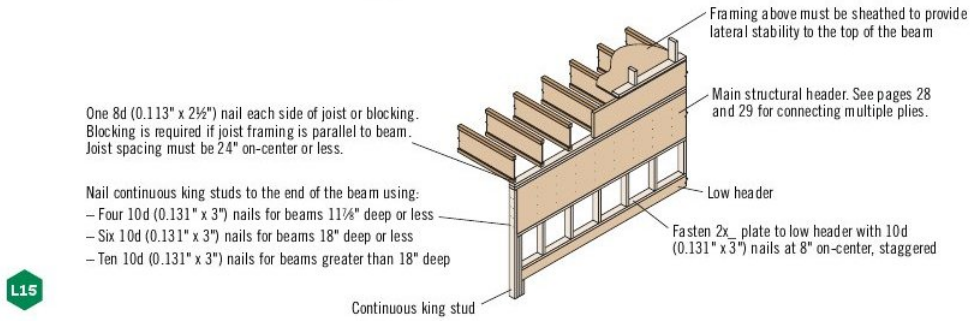
Dropped vs. Raised Headers

FOLLOW

In many parts of the country it is standard practice to install headers (especially garage door headers) dropped. A "dropped header" is a header that is installed below the roof or floor framing with a short wall (knee wall) between the header and the top plate. This detail can be problematic if the beam is not designed for the unbraced condition.

Consideration of the stability of a beam is important to prevent buckling or "kicking out" of the header at the top edge. Detail **L15** illustrates a single span condition where lateral support has been provided by raising the primary structural header tight to the top plate which restrains the top edge of the header.

Dropped Header with Full Lateral Bracing



In cases where it is impractical to raise the header as shown in detail **L15**, the header should be designed for the unbraced condition. Forte software can be used to calcuate the maximum allowable unbraced length of the header based on the loads. The unbraced length is the interval that bracing is required on the compression edge (generally the top) to prevent buckling. In these dropped situations the calculated allowable unbraced length should be equal to the header clear span. The equations used to calculate the maximum unbraced length are related to the member bending stress. The calculation also takes into account the fact that **multi-ply members are not as stable as a solid section** even when fastened properly. For this reason is it often desirable to use wider solid section beams rather than multi-ply members to enhance buckling resistance.

Another option, limited to shallow headers and short spans, is to provide bracing by installing sheathing continuous from bottom of beam to top of wall. This detail, **L16**, has specific fastening requirements that must be followed to achieve a fully braced dropped header condition. Note that detail **L16** is limited to the conditions below.

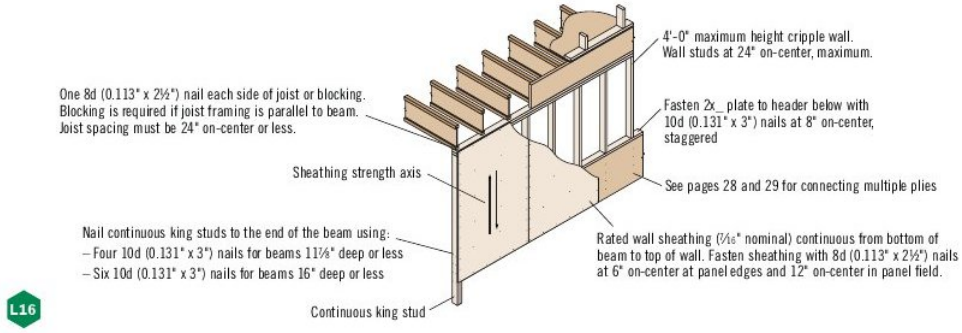
Single-ply:

- 1¾" wide headers, 117⁄8" deep or less
- 3½" wide headers, 16" deep or less, with a maximum span of 18'-6"

Multiple-ply:

- Headers up to four 1¾" plies, 117⁄8" deep or less
- Headers up to four 1¾" x 14" plies, with a maximum span of 8'-6"

Dropped Header with Acceptable Lateral Bracing



Details **L15 & L16** are found in our Specifiers Guide TJ-9000 (page 25) for the US & TJ-9505 (page 11) for Canada.

The *Wood I-Joist Manufacturer's Association* provides similar details and design information in their Design Guide - WIJMA Dropped Header Design Guide.

This critical issue was also highlighted in STRUCTURE Magazine - Lateral Support of Wood Beams in Residential Structures.

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