

Placing a rafter tie in the middle of a rafter also causes complications. Hanging a drywall ceiling from the rafters will add dead load to the rafter at its maximum bending point. This additional load can cause the ceiling to sag and creates more outward thrust on the exterior walls.

The most effective way to reduce outward thrust is to use a structural ridge beam. The ridge beam must be supported on both ends (and, if necessary at intermediate point(s), along its length) and must be sized to carry the load that will be imposed on it.

Properly connecting the rafters to the structural ridge beam is critical. Given the forces at work, a toe-nailed connection is not adequate. Joist hangers, attached with proper nails, provide a strong connection. Or, cut a birdsmouth notch in each rafter and attach them as they rest on the top of the ridge. Remember, for a birdsmouth, cut no deeper than 1/4 the depth of the rafter.

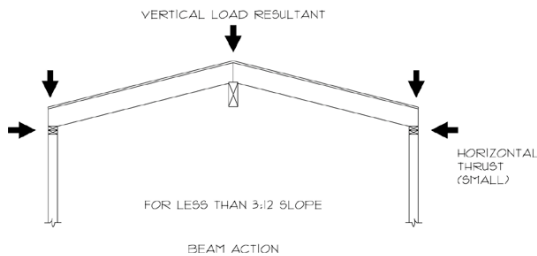


Figure 11: Ridge beam load

Trusses

Metal-plate connected wood trusses offer many advantages on the job site. But since trusses are engineered components, they should be treated differently from standard framing lumber.

Field alteration of trusses on the job site should be avoided. Cutting any truss will destroy the structural integrity of the truss. If it becomes necessary to cut a truss, a truss engineer should be consulted before any cuts are made.

Conventional wood trusses are designed to bear on the outside walls and clear span everything in between. The bottom chord of the trusses should not be attached to interior partitions. Attaching a truss to an inside wall can cause the web members designed for tension to become compression members.

Nailing the top plate of an interior wall to a truss can lead to cracked interior finishing in the wall and ceiling. During winter months, the uninsulated top chord picks up moisture from the surrounding air, causing the wood to expand. As it expands, it arches and pulls the bottom chord up with it. If the chord is nailed to the wall plate, it can either pull loose or pull the wall off the floor, opening a gap at the baseboard.

Special truss clips can be used to attach trusses to interior walls. These clips tie the two elements together, but allow the truss and wall to move independently.

Temporary bracing should be installed according to standard procedures outlined by the Wood Truss Council of America (www.woodtruss.com). Diagonal bracing at the ends and lateral bracing of the top and bottom chords can keep the trusses in place safely. Most truss makers include instructions for bracing with the specification sheets and other documents when the trusses are delivered.

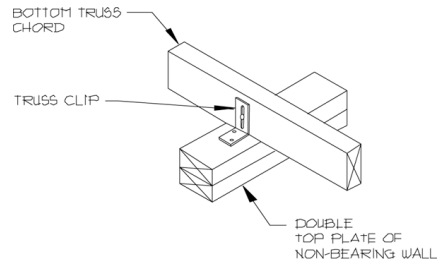


Figure 12: Using truss clips

Additional Information

Technical information on Western lumber products manufactured by WWPA mills is available through the Association's web site at www.wwpa.org.



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