TRUSS / RAFTER TO WALL CONNECTIONS

BUILDING DEPARTMENT

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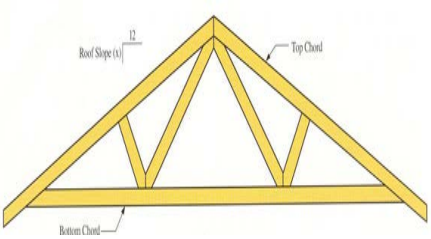


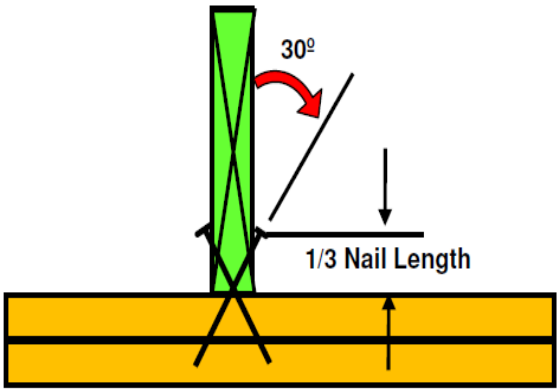
An important aspect of the construction of any building is the connection between the roof and the walls. Trusses or rafters may be attached to walls with a minimum of three of any of the nails shown in the adjoining table as long as the uplift does not exceed 200 pounds. If you are using gun nails, you must use a minimum of a 16d gun nail.

NAIL TYPE	MAXIMUM UPLIFT RESISTANCE CAPACITY (LBS.) FOR THREE TOENAILS
16d Common	178
16d Box	149
12d Common	149
16d Gun Nail	144
12d Sinker	144
16d Sinker	139
10d Common	139
The following do not meet required resistance.	
12d Box	130
12d Gun Nail	120
10d Box	120
10d Gun Nail	110
10d Sinker	106

When using toenails, it is critical that they be properly installed and do not split the heel of the rafter or truss. There are also limitations to the number of toe-nails that can be placed in a member as follows:

- Total number of toe-nails in a 2X4 plate is three (two on one side, one on the other)
- Total number of toe-nails in a 2X6 plate is five (three on one side, two on the other)
- Nailing through metal connector plates is allowed provided the nailing does not damage the metal plates.

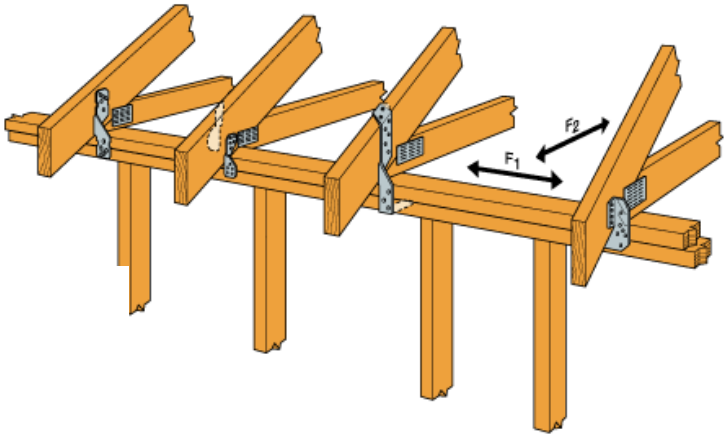
Toenails must be installed at an angle of 30 degrees from the vertical and be installed approximately 1/3rd the length of the nail above the top plate. Toe-nail installations that split framing members or that are not installed properly are subject to rejection during the framing inspection. Appropriate connectors would then be required.

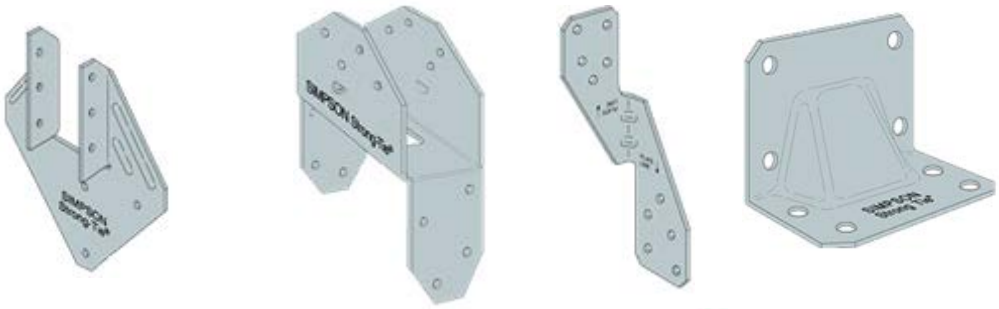


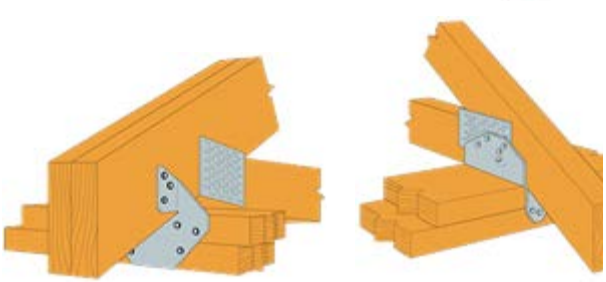
PROPER TOENAILING

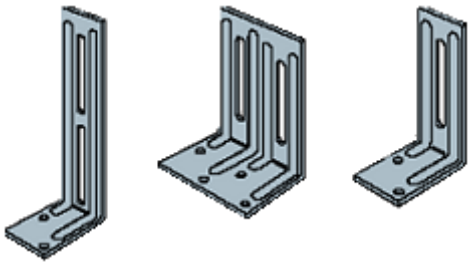
How do you know if the uplift on your truss/rafter exceeds 200 pounds? The truss design drawings should provide that information. You can also use the table below base on rafter/truss spacing, roof span, and roof pitch to determine uplift.

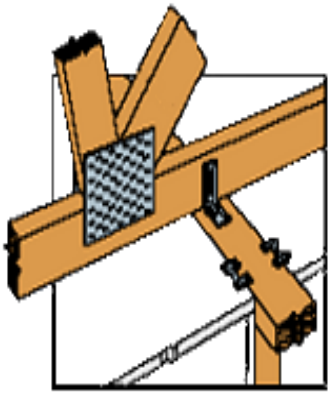
A VARIETY OF CONNECTORS THAT MAY BE USED TO ATTACH TRUSSES TO WALLS











Trusses should not be connected to nonbearing interior partitions but should be allowed “to float”. A number of different types of connectors are made to maintain truss alignment without creating a solid connection. Nails installed in the slots should not be fully driven to allow the truss to move up and down.