From:	DSPS PracticeFAQ1
To:	Rockweiler, Sam - DSPS
Subject:	FW: Block Perpendicular to Truss
Date:	Friday, January 31, 2014 1:28:36 PM

From: dsps@wisconsin.gov [mailto:dsps@wisconsin.gov]
Sent: Thursday, January 30, 2014 3:20 PM
To: DSPS PracticeFAQ1
Subject: Block Perpendicular to Truss

Board: Dwelling Code Council
First Name: Philip
Last Name: Borchardt
Association/Organization: City of Wausau Building Inspector
Address Line 1: [redacted]
City: [redacted]
State: [redacted]
Zip: [redacted]
Phone Number: [redacted]
Email: [redacted]

In conjunction with the coed addition I requested on truss gable end wall bracing, one needs to properly transfer the loads to the supporting shear walls. Generaly there's no problem with a standard truss, but according to the Building Component Safety Information guide (page 66), if you exceed 6" between the diaphragm and the shear wall, blocking or some other means shall be provided to transfer the load directly between the roof sheathing and the top plate. This area is very often not knowen or missed by builders & inspectors, and it occurs often at energy heal trusses and were a truss cantilevers out over a porch. In addition, the area in concern (Between the eave end roof sheating and the and the outside wall top plate should be blocked off with a solid material to prevent air drafting directly into the end of the cieling insullation. I propose that the code council/State of Wisconsin develop code to structualy transfer the roof loads to the top plate and prevent air passage directly into the insullation at the eave ends (exception would be the requirement for attic ventilation generaly done by the use of a proper vent) Will send attachments to Jeff

☑ The National Design Specification® (NDS®) for Wood Construction provides the engineering basis for Toe-nail and slant-nail Connections when used to resist withdrawal and lateral Loads. The design values included in this document were developed using the provisions of the 2005 edition of NDS®.

TOE-NAILING USED WITH BOTTOM BEARING APPLICATIONS

☑ Trusses designed to bear directly on top of a structural wood support are often attached by Toe-nailing the Truss chord to the support. Toe-nailing used in this type of application is typically required to resist uplift and lateral forces.

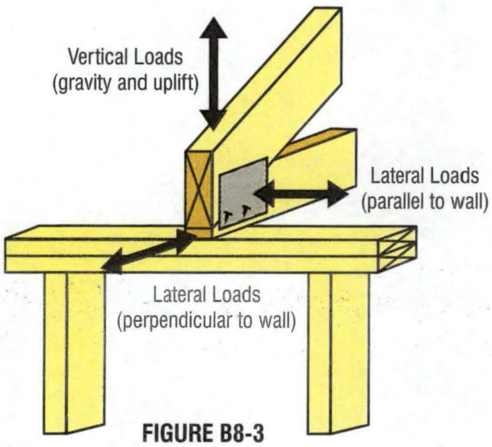


FIGURE B8-3

☑ Wind Loads acting on a Truss, as well as certain multi-span Truss applications supporting gravity Loads, can produce uplift reactions at Truss bearing locations. The magnitudes of these uplift reactions are typically provided on the Truss Design Drawing (TDD).

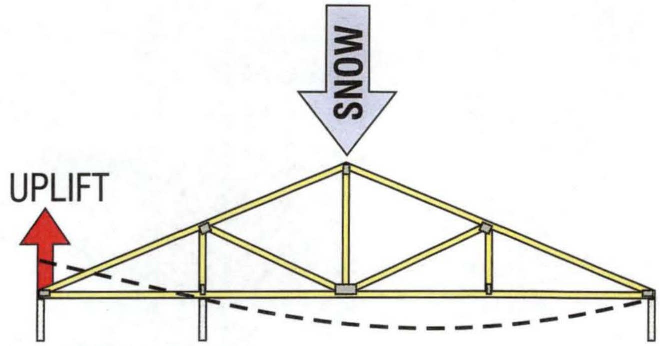


FIGURE B8-4

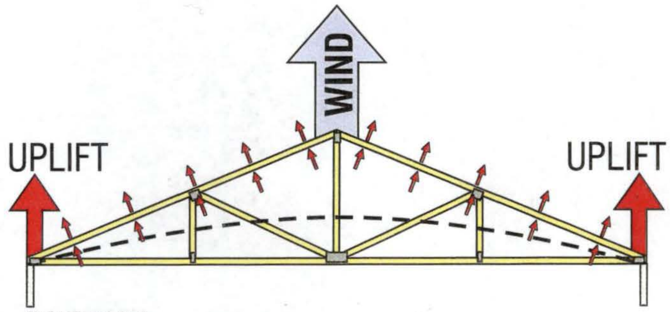


FIGURE B8-5

☑ Wind and seismic forces acting on the Building produce lateral Loads that are often transferred at the Truss bearing locations. The magnitude and direction of these wind and seismic Loads are to be provided by the Building Designer.

Example of lateral Load paths through the roof of a Building

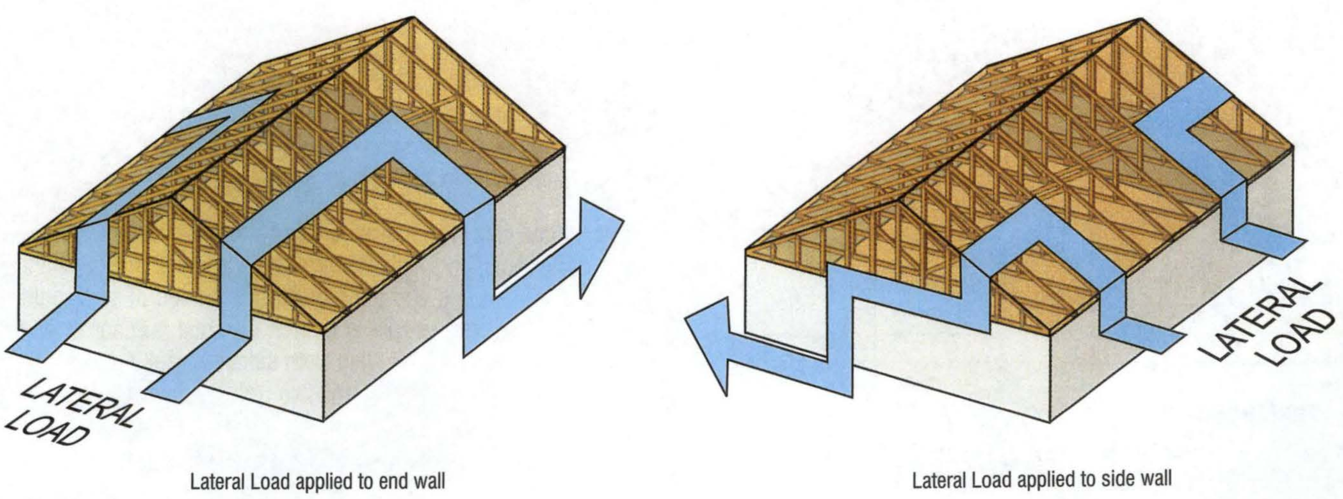
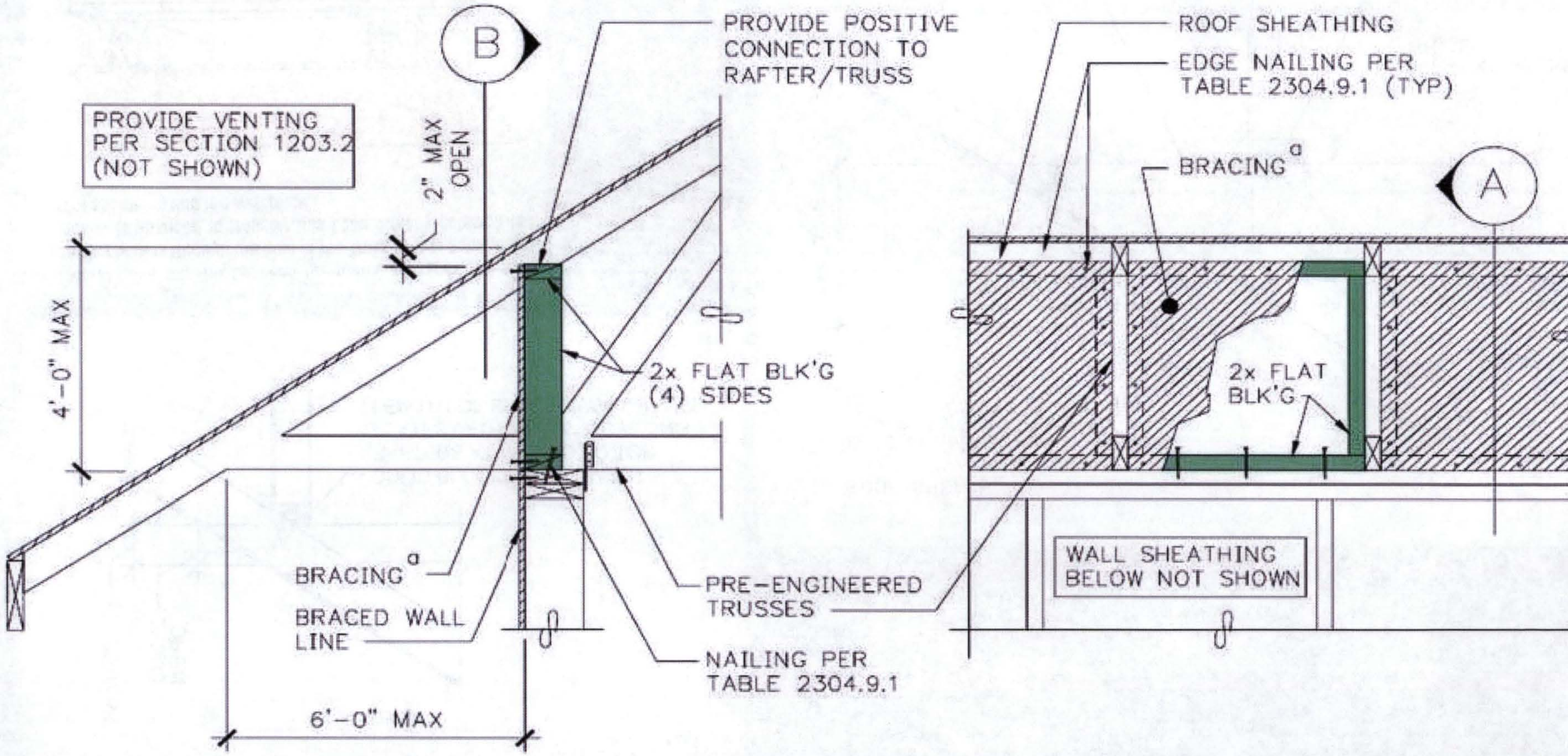


FIGURE B8-6

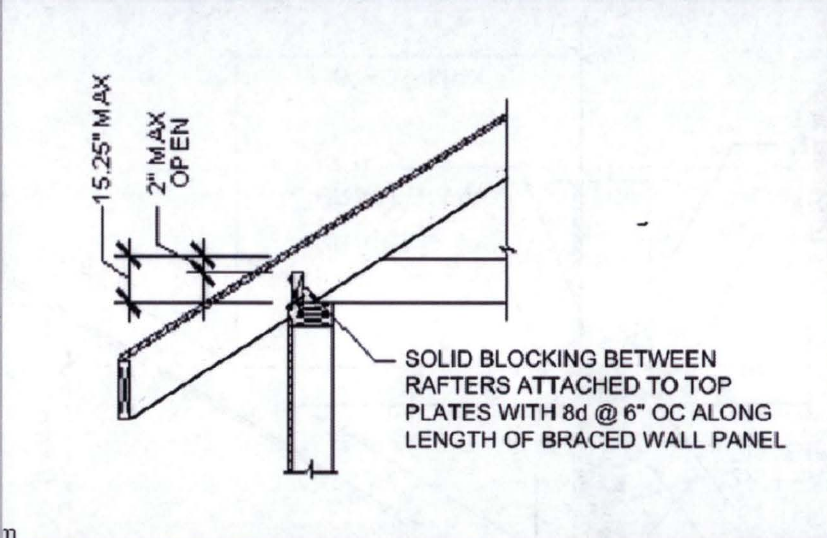
Block perpendicular to truss

BCSI: PAGE 65-66



Block at heels over 9 1/4" / Block perpendicular to truss

BCSI: PAGE 65-66



Lateral Load transfer between the roof Diaphragm and supporting wall is through the heel of the Truss unless some other means is provided to transfer this Load directly between the roof sheathing and the wall plate.

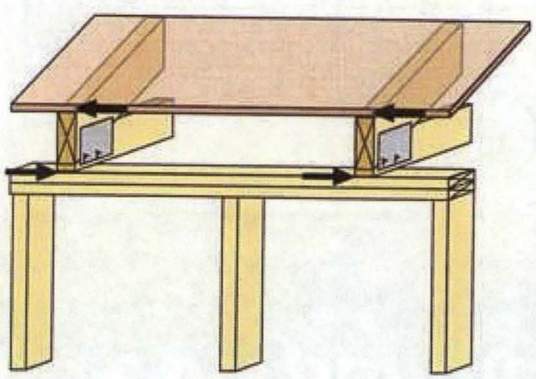
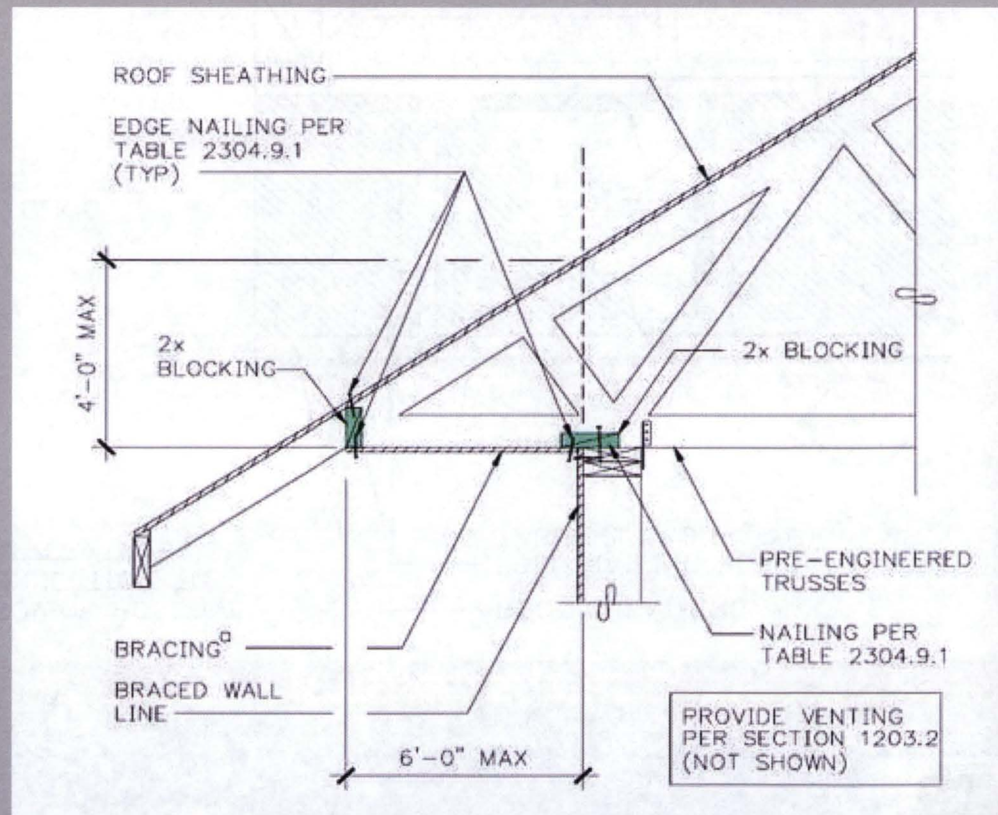


FIGURE B8-7



Note: Trusses are intended to carry Loads applied parallel to their plane (i.e., depth) and not perpendicular to it. The lateral Load transfer through the Truss as depicted in Figure B8-7 occurs unless Blocking or some other means is provided that will transfer this Load directly between the roof sheathing and top plate of the wall. The Truss industry places the following general limits on this Load transfer through the Truss:

> Trusses shall be permitted to transfer Load between Diaphragms and supporting shear walls, provided that the distance between the Diaphragm and the shear wall does not exceed 6", the Trusses are spaced no greater than 24" on-center (o.c.), and the horizontal Load transfer between the Diaphragm and the shear wall does not exceed 50 plf.

LOAD DURATION FACTOR, C_D (FOR CONNECTIONS)

TABLE B8-2 Load Duration Factor, C_D (for Connections)

LOAD DURATION	C_D	TYPICAL DESIGN LOAD
Permanent	0.9	Dead Loads
10 Years (Normal)	1.0	Floor Live Loads
2 Months	1.15	Snow Loads
7 Days	1.25	Construction Loads
10 Minutes/Impact	1.33/1.6*	Wind/Earthquake

*Check with local code.

Lateral Load transfer between the roof Diaphragm and supporting wall is through the heel of the Truss unless some other means is provided to transfer this Load directly between the roof sheathing and the wall plate.

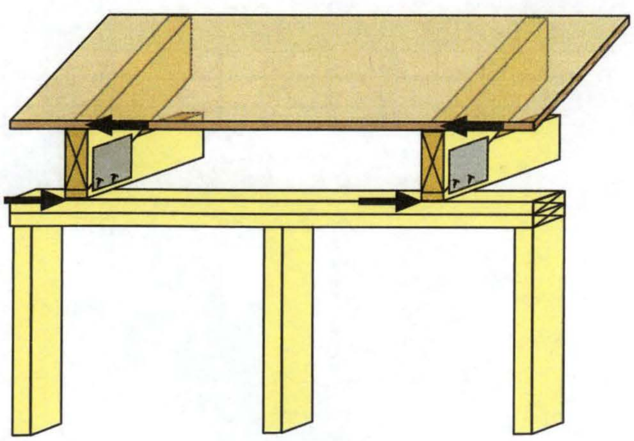


FIGURE B8-7

TOE-NAILING USED TO ATTACH JACK TRUSSES TO A GIRDER

☑ Toe-nailing is often used to attach corner and end jack Trusses to Girder Trusses. The relatively short spans and light end reactions associated with typical jack Truss applications makes Toe-nailing an efficient and effective attachment method.

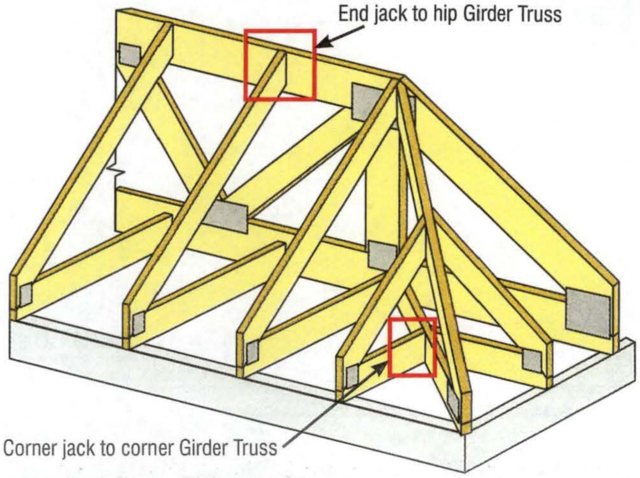


FIGURE B8-8 Open Jack Hip Framing

☑ Table B8-3, page 67, provides the nominal lateral design capacity of Toe-nailed Connections consisting of two-, three-, and four-nails for various types of nails and species of wood. The capacities listed are for Toe-nailed Connections attaching the Top and Bottom Chords of a 2x_ end jack Truss to a single or multiple 2x_ hip Girder Truss (Figure B8-9, page 67) or for the Toe-nailed Connections attaching the Top and Bottom Chords of a 2x_ corner jack Truss to a corner Girder Truss that intersect at angles from 30° to 60° (Figure B8-10, page 67).

Note: The nails for these Connections are assumed to be installed at either L/3 (i.e., length of nail divided by 3) or 1-1/8" from the end of the jack Truss (Figures B8-9 and 10, page 67). Also, the Connection between the corner jack and corner Girder Truss assumes that the nails are driven normal to the face of the jack into the Girder Truss as depicted in (Figure B8-10, page 67).

☑ To reduce the chance of splitting, rafter Connections such as those depicted here are typically limited to a maximum of three Toe-nails for 2x4 chords and four Toe-nails for 2x6 chords.