

by WTCA Staff

Even though the invention of the metal connector plate made nails unnecessary in truss construction 50 years ago, they still show up every now and then.

Metal plate connected wood trusses originally hit the market in 1952 when the first metal plate for trusses was invented by the late A. Carroll Sanford. Sanford's plate was a big step up from plywood gussets and a bunch of nails (widely used in truss construction before Sanford's metal plate), but it still required a few nails to "keep" the plate fully seated in the wood. Shortly thereafter, Cal Jureit invented the first plate that did not require additional nailing (see Figure 1 and "Gang-Nail's Golden Anniversary" from the Sept/Oct 2005 issue of *SBC*). It may seem strange that over 50 years later, we are addressing a question regarding nails in metal connector plates.



Figure 1.



Figure 2.

Question

During a recent new home inspection, I encountered typical roof trusses with standard truss plates and noticed additional nails were added through the plates (see Figure 2). Would this be an indication of increasing the load capacity or some other correction?

Answer

What you are referring to are "keeper nails," a term defined in ANSI/TPI 1-2002 Section 1.6:

Keeper Nails - nails driven through the metal connector plate during truss fabrication to hold the plate's location on the wood before pressing.

Some component manufacturers fasten nails or staples on joints through the metal connector plates to hold the plate and lumber together before the pressing process begins. The use of nails or staples to hold plates in place prior to final embedding with a finish press is a common industry practice for wood trusses. This is also a very common method use to construct jacks and small-span trusses that are fabricated on "jack" tables.

This is not a repair nor is it done to compensate for a plate that is too small. It was merely done to hold the plate in place. Nailing

through a metal connector plate is allowed, provided that the nailing does not damage the metal plate.

Actually, Table 11P of the 2001 National Design Specification® (NDS®) for Wood Construction, lists design values for common wire, box or sinker nails for single shear connections with up to 20 gauge ASTM A653, Grade 33 steel side plates. Therefore, as long as the truss plate is not damaged by the addition of nails and the wood does not split, the joints are actually stronger because of the nails. (Visit **Support Docs** at www.sbcmag.info to view Table 11P.)

In conclusion, truss nails are used in some cases to prevent the metal connector plates from moving around and the lumber itself from shifting out of place during the fabrication process. In general, as the NDS says, this will increase the strength of the truss plated joint to boot. **SBC**

Thanks to Tony Harris at A-1 Building Components LLC for submitting photos for this article. To pose a question for this column, call WTCA at 608/274-4849 or email technicalqa@sbcmag.info.

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at a glance

- ❑ Placing nails through metal connector plates into wood members is allowed.
- ❑ The 2001 National Design Specification® for Wood Construction lists design values for common wire, box or sinker nails for single shear connections with up to 20 gauge ASTM A653, Grade 33 steel side plates.

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