



# Technical Q & A

## Repairs?

by WTCA Staff

Should damaged trusses be replaced completely? Do repairs to damaged trusses impact their structural integrity?

We often receive questions about repairs—more specifically how to repair trusses. Most often these calls are from homeowners wanting to alter configurations. But every once in a while a building official will contact us regarding the validity of a certain repair.

### Question

*While inspecting the attic of a house, two truss connections have been “fixed” with what appears to be plywood. There is documentation available that this was an engineered repair due to plate damage, but shouldn’t the truss have been replaced once it was damaged? Is this a common repair? Is this “fixed” truss as structurally sound as the original undamaged truss?*

### Answer

Sophisticated software is used to design metal plate connected wood trusses. The truss is designed to withstand a given load (specified by your building code) and transfer that load throughout the truss members into the bearings which eventually take that load into the foundation. Truss design drawings are included with the truss packages and outline all the forces that are passed through the different members of the truss.

When a truss member is damaged, it can no longer transfer the load and it is passed onto another member to handle. Truss members can quickly become overloaded if a truss is damaged or altered.

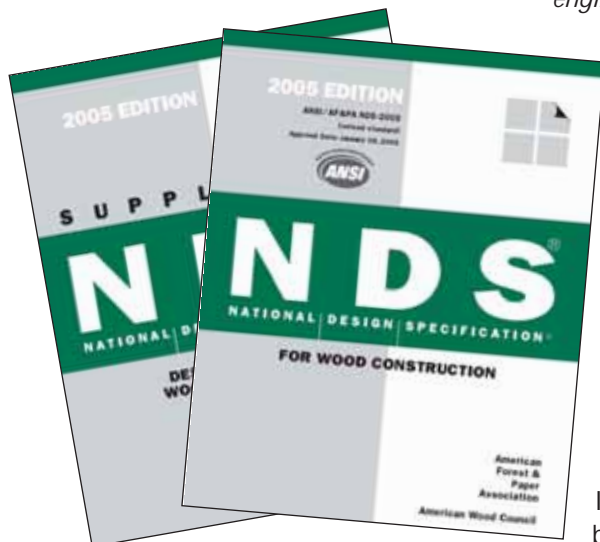
If a truss is damaged or altered, it DOES NOT need to be replaced, but it MUST be repaired. It can be repaired in service. Standard repair details are not available to cover every situation because the truss configurations, extent and location of damage, as well as magnitude and direction of forces differ. However, there are typical ways in which a repair is specified.

Truss designers most often specify plywood or OSB gussets over damaged plates or joints; metal nails on plates, lumber scabs or repair frames over broken chords or webs; or truss plates applied by a portable press. The size of the repair and the location and magnitude of the fasteners are what is needed to have engineering applied to it, based upon the loads and forces within the truss members. The *National Design Specification® (NDS) for Wood Construction* published by the American Wood Council is the primary resource for fastener design values. This, along with the NDS lumber supplement, which provides the lumber design values, gives the engineering foundation needed to prepare the proper repair details.

If the repair detail is followed exactly, the truss will perform at its maximum capacity. In other words, the truss will be just as strong as any undamaged or unaltered truss. If repaired properly with an engineered repair, the truss will perform as well as it was originally designed.

You can read more about repairs in the **BCSI-B5 Summary Sheet**, which can be viewed or purchased online at: [www.woodtruss/pubs/b5repair-d](http://www.woodtruss/pubs/b5repair-d). **SBC**

*To pose a question for this column, call the WTCA technical department at 608/274-4849 or email [technicalqa@sbcmag.info](mailto:technicalqa@sbcmag.info).*



Truss engineers design these repairs using the principles of wood and metal connectors as outlined in the *National Design Specification® (NDS) for Wood Construction* ([www.woodtruss.com/pubs/nds2001-d](http://www.woodtruss.com/pubs/nds2001-d)) from the American Forest & Paper Association. WTCA has recently been provided the rights to sell this document to its members.

### at a glance

- Homeowners and building officials alike often wonder if damaged trusses should be replaced or repaired.
- If a truss is damaged or altered it does not need to be replaced but it must be repaired.
- It is important to repair a damaged truss because truss members can quickly become overloaded if a truss is damaged or altered.

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