

U.S. Fire Administration / National Fire Academy

## *Warning: Hot Coffee!*

### Hot Topic: Finger-Jointed Trusses

The student shall be able to identify finger-jointed floor trusses and related fire test data.

The attached picture is from a presentation making the e-mail rounds accompanied by dire fire safety warnings about trusses without gusset plates. But what are the facts?

These “gusset-less” trusses were introduced in 1989 and are used primarily to support floors. They usually are found in residential construction, but can be used in any construction type that allows wood floor joists. The trusses shown here are made using a glued finger-joint process.

Finger-joints can occur wherever two wood members need to be joined. The adhesive used in these trusses is phenol resorcinol.



Phenol resorcinol adhesive's autoignition temperature is approximately 1,130 °F (610 °C) compared to wood's 520 to 880 °F (270 to 470 °C). The glue does not soften, lose bonding capabilities, or break down chemically at temperatures below the wood's charring temperature.

Tests conducted at the Forintek Canada Corporation showed that the finger-joints survived fire exposure until the wood members themselves were consumed; and when a web or chord failed, it did not cause the others to dislocate.

Finger-jointed trusses are tested by Underwriters Laboratories (UL) as components of fire-rated construction using the ASTM E119 Standard Test Methods for Fire Tests on Building Construction and Materials.

For additional information on fire performance of finger-jointed trusses, visit

- Carbeck Structural Components Institute training and click on Fire performance of finger-joints at <http://www.fire.carbeck.org>,
- WTCA Resources for Fire Professionals at <http://www.sbcindustry.com/firepro.php>
- Open Joist 2000 at <http://www.openjoist2000.com>