



Division of Occupational Safety and Health
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HAZARD ALERT

Truss Accidents Increase in North Carolina

Simple mistakes in recent months have led to serious truss accidents in North Carolina.

Most of the factors that put construction workers in the hospital with serious injuries resulted from a hurry to get the job done. Companies were in a hurry to return the rental cranes, or proper bracing was left out to save a little time and money. The shortcuts backfired.

Truss work is dangerous. Done improperly, truss work can lead to accidents that maim or kill workers and destroy property.

There are safety measures that experienced companies take to avoid danger. These include:

- ✓ Upon delivery, check the trusses to make sure they comply with specifications.
- ✓ Check to make sure the trusses are not cracked or missing connector plates or have other defects.



The N.C. Department of Labor investigation into the accident pictured here was attributed to several sloppy omissions during construction.

Inadequate bracing led to the collapse of a truss system in 2005, injuring several workers. The collapse happened in late afternoon as workers hurried to get the trusses up before dark.

- ✗ Diagonal or lateral bracing was not installed every three to six trusses.
- ✗ The employer used old and defective 1-by lumber for braces instead of the required minimum of 2x4 braces.
- ✗ The employer did not use lateral or diagonal overlap bracing.
- ✗ Workers did not use two 16d size nails on each connection for the braces or blocking. Two 16d size nails were used on one occasion when the wood split.
- ✗ Employees were inadequately trained. Employees were unaware of a site truss plan, were not briefed or trained on the plan, and did not install the trusses according to safety standards.

The accident could have been easily avoided if the employer had trained his employees in the proper way to install trusses and to recognize the dangers of improper truss handling.

What the Experts Recommend

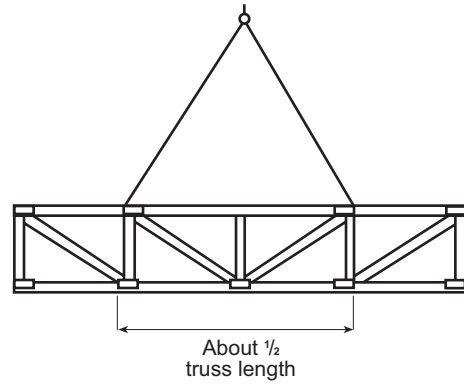
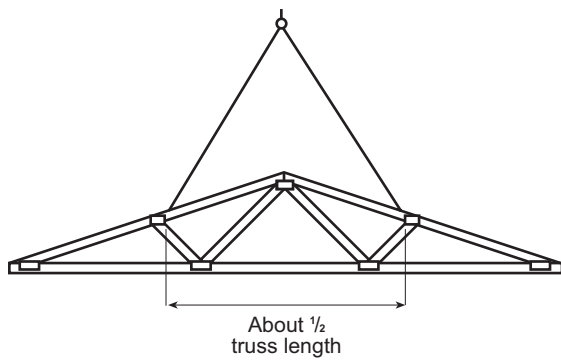
Protect trusses from weather, corrosion, bending, damage and deterioration. When trusses are stored at the jobsite for longer than one week, use blocking pallet, platforms or other supports to store them off the ground or in a braced upright position to avoid damage from bending.

Web Member Permanent Bracing and Web Reinforcement

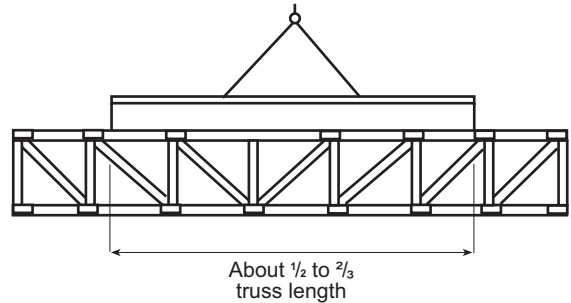
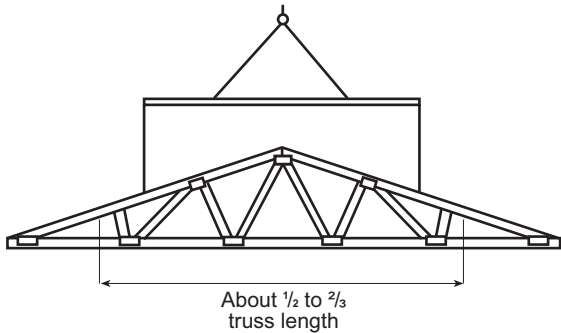
Web members within the truss may require some type of permanent bracing or reinforcement to prevent buckling under design loads. Bracing reduces the buckling length of the web. Reinforcement material increases the section properties of the web and makes it more stable. Truss design drawings show which web bracing/reinforcement option has been assumed in the design.

Recommended Guidelines for Mechanical Lifting

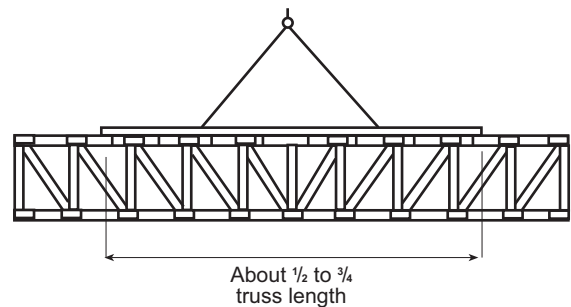
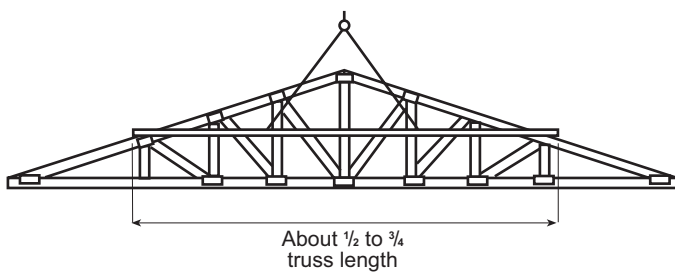
1. For trusses 30' or less



2. For trusses 60' or less



3. For trusses more than 60'



Construction Loading DOs ...

- 🔗 Braces or reinforcement must be at least 2x4 stress-graded lumber, unless specified otherwise by the building designer.
- 🔗 Fasten bracing to each truss with two 10d nails, two 12d nails, or two 16d nails.
- 🔗 Always refer to the truss design drawing for specific information.
- 🔗 Distribute loads over as many trusses as possible. Position sheets flat with the longest edge perpendicular to the trusses as shown.
- 🔗 Stack materials along outside supports or directly over inside supports of properly braced structures.
- 🔗 Leave construction materials on lifting equipment until installation, if possible.

and DONTs

- 🚫 Don't stack materials on unbraced trusses.
- 🚫 Don't overload the trusses.
- 🚫 Don't exceed stack heights listed in the table.
- 🚫 Don't allow the stack to lean against walls or stack materials so they overload single or small groups of trusses.
- 🚫 Don't overload trusses with materials midway between supports.
- 🚫 Don't stack materials at locations that will produce instability, such as cantilevers near truss-to-girder connections.