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Technical Bulletin

FROM SPEIGHT, MARSHALL & FRANCIS, P.C.

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On a regular basis, we plan to distribute these informational leaflets about crucial - but often ambiguous - structural engineering topics. With the knowledge of our featured subjects, our goal is to help our clients improve their profitability while reducing their liability. We suggest distributing a copy of our technical bulletins throughout your office and keeping them on hand for quick reference.

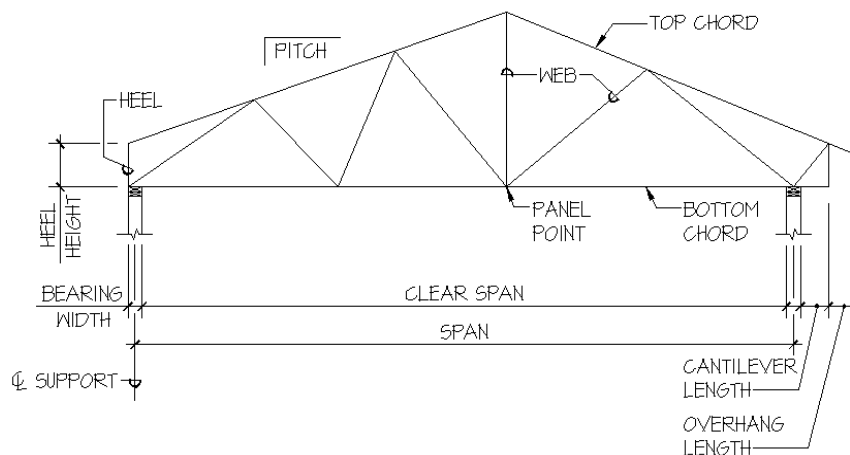
Prefabricated Metal-Plate Connected Wood Trusses

Part I of III - Truss Designation

Introduction:

Design team members are often unclear regarding their responsibilities when specifying prefabricated metal-plate connected wood trusses. In this technical bulletin we will review common truss terms as well as provide a brief overview of what each design team member should be specifying on Contract Documents. Many of the terms and specifications described in this bulletin can be applied to other truss systems (i.e., light-gage metal trusses).

Typical Truss Details:



Typical Truss Definitions:

- O **Bearings (or Supports):** Structural members that have been adequately designed to resist loads on the truss system (gravity, wind, etc.).
- O **Cantilever:** Extension of top **and** bottom chords beyond an end support.

- **Clear Span:** Horizontal measurement between **inside faces** of end supports.
- **Heel (or End Vertical):** Point at which the top and bottom chords intersect.
- **Heel Height:** Vertical dimension of heel, or can be taken as the vertical dimension over support. This dimension defines the vertical location of the truss top chord.
- **Overhang:** Extension of top **or** bottom chord beyond an end support.
- **Panel Point:** A point where one or more web members intersect the top or bottom chord. Panel points are typically located at bearing locations, among other locations.
- **Pitch:** The inches, or fraction thereof, of vertical rise in 12 inches of horizontal run (4:12, 6:12, 12:12, etc.).
- **Prefabricated Metal-Plate Connected Wood Truss:** An assemblage of timber members, oriented to form open webbed triangular shapes, and fastened together using metal connector plates.
- **Span:** Horizontal measurement between **centerline** of end supports.
- **Webs:** Members that connect top and bottom chords to form triangular openings.

Design Team Responsibility:

Following is a minimum set of guidelines that the design team should specify on the Contract Documents. Depending on the complexity of the truss system, more or less information than is listed below may be required.

The Architect is primarily responsible for:

Truss configuration

- Pitch
- Truss profile (top and bottom chords)
- Web configuration (if a specific one is desired)
- Web clearance requirements (storage space, mechanical ducts, etc.)

Truss dimensions

- Span
- Heel height (if greater than zero)
- Overhang length
- Cantilever length

The Structural Engineer is primarily responsible for:

Loading parameters

- Uniform dead and live loads
- Environmental load (wind & seismic)
- Concentrated loads (if any)
- Special or other additional loads (if any)

Truss spacing

Bearings (quantity, locations, and types)

Anchorage to bearings

Permanent truss bracing (bottom chord sheathing or otherwise)

Special deflection requirements (if any)

These parameters should be clearly indicated (via notation, schematic or otherwise) so that it is easily discernable by the Truss Manufacturer. Items such as truss spacing and bearing locations are typically shown on the structural engineering drawings, but may be governed by architectural features.

Conclusion:

Every design team member should be aware of these typical truss terms and responsibilities when specifying a prefabricated metal-plate connected wood truss system. This knowledge will help the design team to properly convey truss information to the Truss Manufacturer. This basic truss knowledge, along with adequate coordination efforts, can help to insure smoother fabrication and construction processes.



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