



Precision Walls, Inc.
1230 NE Maynard Rd.
Cary, NC 27513

Light Gauge Metal Trusses Specification
Architectural Guide Specification

PART 1: GENERAL

**** Instructions, options and comments for the specification writer are included in asterisk windows – delete before completing specification.***

1.1 SECTION INCLUDES

- A. Engineered light gauge metal trusses.
- B. Cold-formed steel framing accessories.

1.2 RELATED SECTIONS

Delete any sections below not relevant to this project; add others as required.

- A. Section 05300 - Metal Decking.
- B. Section 05400 - Cold Formed Metal Framing.

1.3 REFERENCES

- A. AISI (American Iron and Steel Institute) - Specification for the Design of Cold-Formed Steel Structural Members, August 19, 1986 Edition with December 11, 1989 Addendum.
- B. ASTM A 370 - Standard Test Methods and Definitions for Mechanical Testing of Steel Products.
- C. ASTM A 500 - Standard Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- D. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated by the Hot-Dip Process.

- E. AISI (American Iron and Steel Institute) – Design Guide for Cold-Formed Steel Trusses, Publication RG-9518, December 1995.

1.4 SYSTEM DESCRIPTION

Insert project Design Requirements in the following paragraph.

A. Design Requirements:

- 1. Design system components in accordance with AISI references.
- 2. Conform to requirements of _____ code.
- 3. Maximum Allowable Deflection: 1/_____th of span, under total design loads.
- 4. Maximum Allowable Deflection: 1/_____th of span, under live design loads.

B. Performance Requirements: Truss system, with framing components and accessories, shall provide a complete horizontal framing system, ready for deck installation, meeting specified Design Requirements.

C. Component Requirements:

- 1. Truss chord and web components shall be Alpine TrusSteel components.
- 2. Truss chord and web components shall have rolled or closed edges to minimize the danger of cutting during handling. Chord and web components without rolled edges shall not be acceptable.

D. System Definitions

- 1. Truss Component Manufacturer: The approved maker of the components (Alpine Engineered Products, Inc.) that will be assembled into trusses by the Truss Fabricator.
- 2. Truss Fabricator: The approved truss manufacturer who assembles Truss Component Manufacturer's components into completed trusses (refer to Acceptable Fabricators, Section 2..3.A).
- 3. Truss Designer: The design professional, individual or organization, having responsibility for the design of the light gauge steel truss (Alpine Engineered Products, Inc.).

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Truss Component Manufacturer's descriptive literature for each item of cold-formed metal framing and each accessory specified in this section.

C. Shop Drawings: Truss Fabricator's drawings and / or details that

- 1. Indicate special components and installations not fully detailed in product data.
- 2. Indicate in the layout placement drawings the number, types, location, and spacings of trusses and other framing members.
- 3. Indicate details of truss loading, reactions, uplifts, support locations, material sizes and gauges, permanent truss web bracing, and splices as required for a complete installation.

D. Quality Assurance Submittals:

- 1. Truss Component Manufacturer's Instructions: Printed installation instructions for each item of cold-formed metal framing and each accessory specified in this section.
 - 2. Design Data: Results of design analysis, bearing the seal and signature of a professional engineer registered in the State in which project is located.
- E. Truss Component Manufacturer's Recommendations for Handling and Storage: Observe written recommendations.

1.6 QUALITY ASSURANCE

A. Pre-installation Meetings:

- 1. Confer at job site prior to scheduled beginning of construction activities of this section to review requirements of this section.
- 2. Attendees: Representatives of the following:
 - a. Truss Fabricator, if requested by installer of products of this section.
 - b. Installer of this section.
 - c. Other entities directly affecting, or affected by, construction activities of this section, including but not limited to, the following:
 - 1) Installer of truss support framing.
 - 2) Installer of mechanical systems.
 - 3) Installer of electrical systems.
- 3. Review potential interface conflicts; coordinate layout and support provisions.

B. Regular job progress and coordination meetings, as required.

1.7 DELIVERY, STORAGE, AND HANDLING OF STEEL TRUSSES

- A. Packing, Shipping, Handling and Unloading: Handle and lift shop assembled units in accordance with Truss Component Manufacturer's recommendations to prevent damage or distortion.
- B. Storage and Protection: Store shop assembled units in accordance with Truss Component Manufacturer's recommendations to prevent damage, distortion and moisture buildup.

PART 2: PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Truss Component Manufacturer for Light Gauge Steel Truss System: TrusSteel truss component system by Alpine Engineered Products, Inc.

 Delete one of the following two paragraphs; coordinate with Division 01 requirements.

- B. Requests for substitutions will be considered in accordance with provisions of Section 01600. All permitted equals must be approved in writing by the Architect or Engineer-of-Record. All applications for substitution must include samples and technical data.

2.2 COMPONENTS

A. Load Bearing Members: Mechanical properties of components shall be determined by testing conforming to ASTM A 370 - Standard Test Methods and Definitions for Mechanical Testing of Steel Products. Members shall be cold-formed to indicated sizes, profiles, and thickness of steel conforming to ASTM A 653, minimum G60 coating, and ASTM A500 as follows:

- 1. Chord materials - Minimum yield strength 55,000 KSI.
- 2. Web materials - Minimum yield strength 45,000 KSI.
- 3. Shapes: Indicated on shop drawings.
- 4. Size: Indicated on shop drawings.
- 5. Gauge: Indicated on shop drawings.

B. Fasteners Used in Fabricating Trusses: All web to chord connections shall be made with the appropriate screw fastener as recommended by the Truss Component Manufacturer. Each screw shall bear the stamp of the Truss Component Manufacturer for ready identification. Alternative fastening methods, such as welding, are not acceptable.

2.3 FABRICATION

 Retain paragraph below if a listing of Truss Fabricators is desired; consult Alpine for current list of Approved Fabricators known to have the capability of fabricating products of this section.

A. Acceptable Truss Fabricators:

- 1. Precision Walls Inc., Fuquay Varina, NC Truss Plant.
- 2. _____
- 3. _____

 Delete one of the two following points (B1 or B2); coordinate with Division 01 requirements.

B. Substitutions

- 1. Requests for substitutions will be considered in accordance with provisions of Section 01600.

C. Light Gauge Steel Trusses:

- 1. Shop fabricate from cold formed steel components in accordance with shop drawings, using jiggging systems to ensure consistent component placement and alignment of components, and to maintain specified tolerances as shown in Section 2.4 below.
- 2. Field fabrication of trusses is strictly prohibited unless performed by authorized TrusSteel Fabricator using the Fabricator's shop assemblers and proper jiggging systems.

D. Shop fabrication of other cold formed steel framing components into assemblies prior to erection is permitted; fabricate assemblies in accordance with shop drawings.

E. Truss components shall be fastened with Alpine screws only, as shown on the shop drawings.

2.4 SOURCE QUALITY CONTROL

A. Material Tolerances: Steel for cold-formed chord components

1. Nominal 22 ga. members:
 - a. Minimum bare metal thickness: 0.0284 inch.
 - b. Maximum design thickness: 0.0299 inch.
2. Nominal 20 ga. members:
 - a. Minimum bare metal thickness: 0.0329 inch.
 - b. Maximum design thickness: 0.0346 inch.
3. Nominal 18 ga. members:
 - a. Minimum bare metal thickness: 0.0428 inch.
 - b. Maximum design thickness: 0.0451 inch.
4. Nominal 16 ga. members:
 - a. Minimum bare metal thickness: 0.0538 inch.
 - b. Maximum design thickness: 0.0566 inch.

B. Material Tolerances: Steel for cold-formed web components

1. Nominal 20 ga. members:
 - a. Minimum bare metal thickness: 0.033 inch.
 - b. Maximum design thickness: 0.035 inch.
2. Nominal 18 ga. members:
 - a. Minimum bare metal thickness: 0.047 inch.
 - b. Maximum design thickness: 0.049 inch.
3. Nominal 16 ga. members:
 - a. Minimum bare metal thickness: 0.063 inch.
 - b. Maximum design thickness: 0.065 inch.

C. Materials Tolerances: Truss Assemblies: Fabricate to tolerances of maximum variation from plumb, level, or true to line as indicated below:

1. Trusses up to 30 ft long = max 1/2 in. variation from design length
2. Trusses over 30 ft. long = max 3/4 in. variation from design length
3. Trusses up to 5 ft. high = max 1/4 in. variation from design height
4. Trusses over 5 ft. high = max 1/2 in. variation from design height

Truss Component Manufacturer's Material Certifications are available upon request - section below is optional.

D. Material Certification - Provide Truss Component Manufacturer's Material Certification.

PART 3: EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Verify that bearing surfaces and substrates are ready to receive steel trusses.
2. Verify that rough-in utilities and/or chases that will interface with the steel trusses or truss bracing are in correct locations and do not interfere with truss placement.

B. Installer's Examination:

1. Have installer of this section inspect conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable to installer.
2. Installer shall transmit two copies of installer's report to Architect or Engineer-of-Record within 24 hours of inspection.
3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 INSTALLATION

A. Field Fastening: Use correct fasteners.

B. Metal Trusses:

1. Install metal trusses in accordance with Truss Component Manufacturer's instructions and the Truss Fabricator's shop drawing submittal. Place components at spacings indicated on the Truss Fabricator's shop drawings. Install truss installation (erection) bracing. Truss installation (erection) bracing shall hold trusses straight and plumb and in safe condition until decking and permanent truss bracing has been fastened, forming a structurally sound framing system. All sub-contractors shall employ proper construction procedures to insure adequate distribution of temporary construction loads so that the carrying capacity of any single truss or group of trusses is not exceeded.
2. Install required roof and system permanent bracing and bridging as indicated by the drawings and notes of the Architect or Engineer-of-Record. See the Truss Fabricator's shop drawings for any additional bracing requirements. All truss installation (erection) bracing and permanent bracing and bridging shall be installed before the application of any loads.
3. The field removal, cutting or alteration of any truss chord, web or bracing members is not allowed without prior written approval of the Architect or Engineer-of-Record and the Truss Designer.
4. Damaged chords, webs and complete trusses shall be repaired or replaced as directed and approved in writing by the Architect or Engineer-of-Record and the Truss Designer prior to installation or application of the repair or replacement.

C. Site Tolerances for Truss Bearings:

 Required tolerances for truss bearings surfaces are dependent on required tolerances of subsequent construction; coordinate with other sections- modify as required.

1. Variation from Level or Specified Plane: Maximum 1/8 inch in 10 feet.
2. Variation from Specified Position: Maximum 1/4 inch.

Coordinate Section 3.3 below with referenced section.

3.3 FIELD QUALITY CONTROL

A. Site Inspections: Inspection service to inspect field connections in accordance with Section 1400.

END OF SECTION

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Please send your comments to webmaster@alpeng.com

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