



SECTION 05 10 40
LITESTEEL BEAM STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cold-formed metal load bearing support beams.

1.2 RELATED SECTIONS

- A. Section 05 40 00 Cold Formed Metal Framing.
- B. Section 06 11 13 Engineered Wood Products

1.3 REFERENCES

- A. AISI North American Specification for the Design of Cold-Formed Steel Structural Members, 2007 Edition, American Iron and Steel Ins
- B. ASTM A653/A653M HSLA Type B Grade 50 (340) Zinc-Coated (Galvanized)
ASTM A653/A653M SS Grade 50 (340) Zinc-Coated (Galvanized)
ASTM A653/A653M HSLAS Grade 50 (340) Zinc-Coated (Galvanized)
ASTM A653/A653M HSLAS Grade 60 (410) Zinc-Coated (Galvanized)
- C. ASTM A792 SS Grade 50 (340) Class1 55%Al-Zn Coated
- D. ASTM A875 SS Grade 50
ASTM A875 HSLAS type B Grade 50
- E. ASTM A1003 Structural Grade 50
- F. ASTM A1011/A1011M SS Grade 50 (340)
ASTM A1011/A1011M HSLAS Grade 50 (340)
ASTM A1011/A1011M HSLAS-F Grade 50 (340)
ASTM A1011/A1011M SS Grade 60 (410)
ASTM A1011/A1011M HSLAS Grade 60 (410)

1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Design, engineer, fabricate, and erect cold-form LiteSteel Beam to withstand specified design loads within limits and under conditions required.
 - 1. Design Loads including Dead Load and Live Load: As required by code and as indicated on the Drawings.
 - 2. Deflection: Total load deflection of L/240; live load deflection of L/360. Or live load deflection of L/480 as required on drawings.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Submit manufacturer's product literature, data sheets and installation recommendations for specified products.
- C. Structural Calculations: Submit structural calculations prepared by a professional engineer.
 - 1. Description of design criteria.
 - 2. Engineering analysis depicting stress and deflection (stiffness) requirements for each framing application.
 - 3. Selection of framing components and accessories.
 - 4. Verification of attachments to structure and adjacent framing components.
- D. Shop Drawings:
 - 1. Submit shop drawings showing plans, sections, elevations, layouts, profiles and product component locations, including anchorage, bracing, fasteners, accessories and finishes as required.
 - 2. Show connection details with screw types, locations, and other fastener requirements.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
- B. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's recommendations.
- C. Welding Standards: Field welding to comply with applicable provisions of AWS D1.1 "Structural Welding Code Steel" and AWS D1.3 "Structural Welding Code Sheet Steel."
 - 1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials with manufacturer's identification intact.
- B. Store materials protected from exposure to rain, snow or other harmful weather conditions, at temperature and humidity conditions.
- C. Protect LiteSteel Beams from corrosion, deformation, damage and deterioration when stored at job site. Keep free from dirt and foreign matter.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. During construction, adequately distribute all loads applied to joists so as not to exceed the carrying capacity of any one joist or other component.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer LiteSteel Technologies America, LLC; 100 Smorgon Way, Troutville VA 24175. Tel: (540) 992-1600 Fax: (540) 992-5998. www.litesteelbeam.com. E-mail: sales@litesteelbeam.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 COMPONENTS

- A. LiteSteel Beam with nominal 2.5 inch (60 mm) Flange: Cold formed Galvanized Steel C-Beam
 - 1. Nominal Size: 8 inches (200 mm) deep
 - 2. Nominal Delivered Thickness: 16 gage, 0.059 inch (1.5 mm).
 - 3. Nominal Delivered Thickness: 14 gage, 0.079 inch (2.0 mm).
 - 4. Nominal Delivered Thickness: 12 gage, 0.098 inch (2.5 mm).
- B. LiteSteel Beam with nominal 3.0 inch (75 mm) Flange: Cold formed Galvanized Steel C-Beam
 - 1. Nominal Size: 10 inches (250 mm) deep.
 - 2. Nominal Minimum Delivered Thickness: 14 gage, 0.079 inch (2.0 mm).
 - 3. Nominal Minimum Delivered Thickness: 12 gage, 0.098 inch (2.5 mm).
 - 4. Nominal Minimum Delivered Thickness: 11 gage, 0.118 inch (3.0 mm).
- C. LiteSteel Beam with nominal 3.5 inch (89 mm) Flange: Cold formed Galvanized Steel C-Beam
 - 1. Nominal Size: 12 inches (300 mm) deep.
 - 2. Nominal Minimum Delivered Thickness: 12 gage, 0.098 inch (2.5 mm).
 - 3. Nominal Minimum Delivered Thickness: 11 gage, 0.118 inch (3.0 mm).
 - 4. Nominal Minimum Delivered Thickness: 10 gage, 0.134 inch (3.4 mm)
- D. LiteSteel Beam with nominal 3.5 inch (89 mm) Flange: Cold formed Galvanized Steel C-Beam
 - 1. Nominal Size: 14 inches (350 mm) deep.
 - 2. Nominal Minimum Delivered Thickness: 12 gage, 0.098 inch (2.5 mm).
 - 3. Nominal Minimum Delivered Thickness: 11 gage, 0.118 inch (3.0 mm).
 - 4. Nominal Minimum Delivered Thickness: 10 gage, 0.134 inch (3.4 mm).
- E. Fasteners: Self-drilling, self-tapping screws; Steel, complying with ASTM C1002; Galvanized coating, plated or oil-phosphate coated complying with ASTM B 633 as needed for required corrosion resistance.

2.3 Touch-Up Paint: Zinc rich, containing 95-percent metallic zinc.

2.4 MATERIALS

- A. Cold-Formed Steel Sheet: Complying with ASTM A653/A 653M SS Grade 50; unless indicated otherwise.
- B. Galvanized Coating: G60 coating weight minimum, complying with ASTM C 955.

2.5 FABRICATION

- A. Cut all framing components squarely for attachment to fit against abutting members. Hold members positively in place until properly fastened.
- B. Fasteners: Fasten components using self-tapping screws, bolts or welding.
- C. Welding: Welding is permitted.
 - 1. Specify welding configuration and size on the Structural Calculation submittal.
 - 2. Qualify welding operators in accordance with Section 6.0 of AWS D.1.3.
 - 3. Touch up all welds with zinc-rich paint in compliance with ASTM A 780.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to installation, inspect previous work of all other trades. Verify that all work is complete and accurate to the point where this installation may properly proceed in strict accordance with framing shop drawings.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.2 INSTALLATION

- A. General Installation Requirements:
 - 1. Install cold formed framing in accordance with drawings and specifications.
 - 2. Weld in compliance with AWS D.1.3.
 - 3. Install in compliance with applicable codes and standards.
- B. LiteSteel Beams:
 - 1. Locate LiteSteel Beam directly over bearing supports or provide a suitable load distribution member.
 - 2. Provide web stiffeners at reaction points where indicated in drawings, suggested by manufacturer or required by an engineering professional.
 - 3. Provide web stiffeners at concentrated load points where indicated in drawings, suggested by manufacturer or required by an engineering professional.

3.3 FIELD QUALITY CONTROL

- A. Inspection: If special inspections are required by local code authorities.
 - 1. Owner will hire and pay inspection agency.
 - 2. Submit schedule showing when the following activities will be performed and resubmit schedule when timing changes.
 - 3. Notify inspection agency not less than 3 days before the start of any of the following activities.

3.4 Inspections may be required during welding operations, screw attachment, bolting, anchoring and other fastening of components.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION