

SECTION 10538

CANOPIES

1.1 SECTION INCLUDES

- A. Freestanding, pre-engineered metal canopies including concrete foundation, steel framing, metal roof, roof drains and leaders, fascia components, and metal ceiling and accessories.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete: Concrete islands and curbing.
- B. Section 02870 - Bollards: Metal, concrete, and stone bollards.
- C. Section 05500 - Metal Fabrications.
- D. Section 07900 - Joint Sealers.
- E. Division 15 - Plumbing: Plumbing services and connections.
- F. Division 16 - Electrical: Electrical wiring and connections.

1.3 REFERENCES

- A. American Institute of Steel Construction, Inc. (AISC): AISC 360 - Specification for Structural Steel Buildings (copyrighted by AISC, ANSI approved).
- B. American Society of Civil Engineers (ASCE): ASCE 7 - Minimum Design Loads for Buildings and Other Structures (copyrighted by ASCE, ANSI approved).
- C. American Welding Society (AWS): AWS D1.1 - Structural Welding Code - Steel (copyrighted by AWS, ANSI approved).
- D. ASTM International (ASTM):
 - 1. ASTM A 36/A 36M - Standard Specification for Structural Steel.
- E. National Association of Architectural Metal Manufacturers (NAAMM): NAAMM MFM - Metal Finishes Manual.
- F. National Fire Protection Association (NFPA): NFPA 70 - National Electrical Code (copyrighted by NFPA, ANSI approved) - hereinafter referred to as NEC.

1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide pre-engineered canopies capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated for the specific location where Canopy will be installed:
 - 1. Uniform pressure as indicated on drawings - minimum design wind load per ASCE 7, CH. 6.

- B. Thermal Movements: Provide pre-engineered canopies that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), material surfaces.

1.5 SUBMITTALS

- A. General: Submit under provisions of Section 01300 - Submittal Procedures.
- B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
 - 1. Construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- C. Shop Drawings: Submit shop drawings. Include plans, elevations, sections, details, and attachments to other work. Canopy supplier shall furnish complete canopy drawings signed and sealed by a professional engineer licensed in the state where the canopy shall be installed.
- D. Samples:
 - 1. Submit samples for initial color selection. Submit samples of each specified finish. Submit samples in form of manufacturer's color charts showing full range of colors and finishes available. Where finishes involve normal color variations, include samples showing the full, range of variations expected.
- E. Certificates: Submit product certificates signed by the manufacturer certifying material compliance with specified performance characteristics and criteria, and physical requirements.
- F. Warranty Data: Submit warranty documents specified herein.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in engineering and manufacturing pre-engineered canopies with a minimum documented experience of twenty years and with a quality assurance program utilizing a quality inspection for each system.
- B. Welding: Qualify procedures and personnel according to the following:
 - 1. Welding shall be in accordance with AWS D1.1 (with E70XX electrodes).
 - 2. Steel shop connections shall be welded and field connections shall be bolted (unless otherwise noted on the Drawings). Shop welds may be changed to field welds with the approval of the project engineer.
 - 3. Slag shall be cleaned from welds and inspected. Steel shall be painted with red oxide rust-inhibitive primer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Source Limitations: Obtain pre-engineered metal canopy through one source from a single manufacturer who shall manufacture and install the canopy.
- E. Product Options:

1. Information on the Drawings and in the Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance. Do not modify intended aesthetic effects, as judged solely by the Architect, except with the Architect's approval. If modifications are proposed, submit comprehensive explanatory data to the Architect for review.
2. The Drawings indicate size, profiles, and dimensional requirements of pre-engineered metal canopies and are based on the specific system indicated. Refer to Section 01600 - Product Requirements. Do not modify intended aesthetic effects, as judged solely by the Architect, except with the Architect's approval. If modifications are proposed, submit comprehensive explanatory data to the Architect for review.

F. Coordination:

1. The Contractor shall conduct site meetings to verify project requirements, substrate conditions, utility connections, manufacturer's drawings and installation instructions. Comply with Division 1 section on project meetings.
2. The contractor shall prepare for and pour the concrete footers for the pre-engineered metal canopies. Manufacturer shall furnish recommended footing drawings as per IBC Section 1807.3 and prints and rebar details for concrete footings, as well as provide anchor bolts to be embedded in concrete footer. Such items shall be delivered to project site in time for installation.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Protect components and accessories from corrosion, deformation, damage, and deterioration when stored at job site. Keep materials free from dirt and foreign matter.

1.8 PROJECT CONDITIONS

- A. Field Measurements: The Contractor shall verify location and elevation of footings relative to finished grade, columns, and other construction contiguous with pre-engineered metal canopies by field measurements before fabrication and indicate measurements on shop drawings.
 1. Established Dimensions: The Contractor shall, where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating metal canopies without field measurements. Contractor is responsible to coordinate footer locations and elevations with any interferences with or attachments to abutting structures.

1.9 WARRANTY

- A. Panel Built warrants the products it manufactures to be free of defects in materials, leaks, and workmanship for 1 year from date of shipment.
 1. Panel Built also offers a 20-year limited warranty against peeling, flaking, chipping of canopy deck when properly maintained, and pass on manufacturer's warranties for accessory items.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Panel Built and Company, Inc., which is located at: 302 Beasley St. Blairsville GA 30512 Toll Free Tel: 800-636-3873;; Email: [request info](mailto:request_info@panelbuilt.com) (sales@panelbuilt.com); Web: www.panelbuilt.com
- B. Substitutions: Not permitted.
- C. Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 01600 - Product Requirements.

2.2 MATERIALS

- A. Structural Steel:
 - 1. Material and work shall conform to the latest AISC 360.
 - 2. Structural steel shall be painted with a rust inhibitive (red oxide) primer (std).
 - 3. Structural steel shall be hot-dip-galvanized.
- B. Sheet Metal:
 - 1. Decking: 3 inch (76 mm) by 16 inch (406 mm) by 20 gage smooth white, ASTM A 653/A 653M GR40, Fy = 40 ksi, galvanized steel with baked enamel finish.
 - 2. Center and Tapered Gutter: 24 gage hot-dip galvanized steel baked enamel finish.
 - 3. Perimeter Gutter: 20 gage hot-dip galvanized steel baked enamel finish.
 - 4. Internal Downspout: 3 inch (76 mm) diameter PVC.
 - 5. External Downspouts: 3 inch (76 mm) by 4 inch (102 mm) by 24 gage hot-dip galvanized steel with baked enamel finish.

2.3 PRE-ENGINEERED METAL CANOPY

- A. General: Provide a complete, integrated set of manufacturer's standard design canopy components using a flexible frame with fixed base wherein the steel framing system uses stacked I Beam construction transferring the moment to the concrete footing without requiring a rigid connection between steel frame members. The beam arrangements allow for a canteliever design which can bring the columns from the perimeter of the structure to the inner protected zones between the drive lanes. These mutually dependent components form a pre-engineered canopy, ready for construction on project site. Said pre-engineered metal canopy will be designed to meet all site structural wind, snow and seismic requirements.
- B. Canopy Fascia:
 - 1. Aluminum Composite Panel (ACM): Available with a fluorocarbon paint finish, masked on one side. Shall be warranted for 10 or 20 years depending on color and finish.
 - 2. 2 Inch Laminated Foam Core Fascia: Panel face shall be 24 gage hot-dip galvanized steel with a baked enamel finish. Finishes shall be warranted against cracking, checking, peeling, or adhesion failure. Warranties for 5, 10, 20 years shall be available depending on color selection. The foam core shall be 2 inch (51 mm) expanded virgin polystyrene. The backing shall be 24 gage galvanized steel.
 - 3. Fascia: Various custom fascia to meet design requirements such as architectural shingle, EIFS, standing seam panels.
- C. Canopy Finishes: Comply with NAAMM MFM for recommendations for applying and designating finishes.
 - 1. Appearance of Finished Work: Variations in appearance of abutting or

adjacent pieces are acceptable if they are within one-half of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

- D. Fabrication: Fabricate pre-engineered canopies completely in factory.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
 - 1. Examine supporting foundations for compliance with manufacturer's requirements, including installation tolerances and other conditions affecting performance of supporting members.
 - 2. Verify the rough-in of required mechanical and electrical services prior to placement of the structure.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. A work area shall be required extending 10 feet (3 m) beyond buildings and canopies in all directions to the extent practical. The work area shall be flat, comprised of hard-packed soil or gravel, asphalt, or concrete, and free of open excavation, debris, construction equipment and construction workers. An additional flat work space a minimum of 25 feet (7.6 m) by 25 feet (7.6 m) or as practical shall be provided adjacent to the canopy and/or building for unloading and storing materials. Site to meet OSHA guidelines to allow lift equipment and scaffolding to maneuver the work area.
- B. Set pre-engineered metal canopy plumb and aligned. Level base plates true to plane with full bearing on concrete bases.
- C. Fasten pre-engineered metal canopy columns to anchor bolts and/or foundation bolts.
- D. Provide anchor bolts as follows:
 - 1. Anchor bolts or foundation bolts will be set by the Owner in accordance with approved site specific drawings. They must not vary from the size and dimensions shown on the erection drawings. Use of a plywood template is recommended. Remove template prior to column erection.
 - 2. Anchor bolts shall conform to ASTM A 307, and shall have a minimum of 7 inches (178 mm) of exposed thread and 23 inch (584 mm) minimum embedment with 1-1/4 inch (32 mm) nut and washer as embedment end.
- E. Provide bolted connections as follows:
 - 1. Structural erection bolts shall conform to ASTM A 325/A 325M.

2. Bolts shall be tightened to snug tight per latest RCSC specifications (unless otherwise specified).
- F. Provide screws as follows:
1. Fastening shall be performed per installation prints provided by the manufacturer.
 2. Self-drilling and self-tapping screws shall have a sufficient cut point and a 1/2 inch (13 mm) outside diameter dished metal-backed neoprene washer to be used in water sealing applications .
- G. Provide pedestrian protection and warnings during construction which comply with local, Federal, and OSHA codes.
- H. Prior to steel erection of any kind, the Contractor shall grade, backfill and otherwise prepare the job site to allow for rolling scaffold and ensure safe working conditions including the removal or relocation of overhead power lines.
- I. Any grade or elevation situations which deviate from the approved manufacturer's plans shall be conveyed to the manufacturer prior to fabrication.
- J. All anchor bolts and/or leveling plates shall be set within 1/4 inch (6 mm) tolerance on layout and grade level.
- K. Temporary electrical power shall be provided.
- L. Connect electrical power service to power distribution system according to requirements specified in Division 16 - Electrical.
- M. Dumpster for trash and debris shall be provided by the Contractor.
- 3.4 ADJUSTING AND CLEANING
- A. After completing installation, inspect exposed finishes and repair damaged finishes.
- 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