



**GROUND MOUNT STRUCTURES FOR
SOLAR MODULE INSTALLATIONS**

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PART 1 – GENERAL

PART 2 – PRODUCTS

PART 3 – EXECUTION

PART 1 – GENERAL

1.01 SCOPE:

- A. This section covers the furnishing and installation of the structures, racking, foundations and all other items required to furnish and install a complete structural system capable of supporting solar module installations.

1.02 DESIGN CRITERIA AND PERFORMANCE REQUIREMENTS:

- A. Structural framing for ground mount solar systems shall be designed and analyzed for applicable wind, snow and seismic loading at the project site. Structure manufacturer shall provide structural analysis by a Professional Engineer licensed in the applicable State to ensure that the structures, racking and the foundations have been designed to satisfy the local structural code requirements.

1.03 QUALITY ASSURANCE:

- A. Installation shall be by experienced crews employed by the structure manufacturer having a minimum of five (5) years experience erecting similar structures. The ground mount structures shall be erected in accordance with manufacturer's instructions and approved drawings.
- B. The structure shall be manufactured in accordance with standard approved practices. Testing shall be performed in accordance with ASTM standards, and test reports shall be certified and submitted by an independent test laboratory. Mill certifications shall be available upon request.

1.04 SUBMITTALS:

- A. Drawings shall be submitted by the manufacturer prior to manufacturing. No ordering or fabrication of materials shall commence until submittal drawings are approved by the owner, and local building authorities.
- B. The structure manufacturer shall submit three (3) sets of drawings signed and sealed by a Professional Engineer licensed in the applicable State for approval by the owner and local building authorities.
- C. At a minimum, submittal drawings shall include the following:
 - a. Title/Cover Sheet
 - b. Foundation Plans
 - c. Anchoring Details
 - d. Structural Plans and Elevations
 - e. Framing Details
 - f. Racking Details (if applicable)

1.05 MATERIAL DELIVERY, STORAGE AND HANDLING:

- A. Materials shall be delivered to the jobsite in manufacturer's packaging.

- B. Access from unloading area to construction site shall be clear and unrestricted.
- C. Materials shall be stored in a clean, dry and covered area that is secure and protected from weather.
- D. Upon delivery, inspect and report any freight or handling damage to the manufacturer immediately. Manufacturer cannot be held responsible for damages occurring during storage prior to construction.

PART 2 – PRODUCTS, MATERIALS AND COMPONENTS

2.01 MANUFACTURES:

- A. The manufacturer of the ground mount structures shall have a minimum of 5 years experience in the design and installation of similar systems.

2.02 GENERAL STRUCTURE DESIGN AND COMPONENT DETAILS:

- A. The structure shall be designed and detailed according to good engineering practice. The structure shall be a series of connected galvanized steel frames supporting galvanized steel purlins. Purlins shall support the solar modules, either directly or using an aluminum racking system.
- B. A minimum of clearance of 1'-6" shall be maintained at the lowest point of the ground mount structure unless otherwise specified.
- C. Typical ground mount structures shall be specified by the client and have a nominal slope ranging between 5 and 40 degrees unless otherwise specified.

2.03 MATERIALS

- A. Steel frame components shall be ASTM A500 steel tubing with a minimum yield stress of 50 ksi and G90, or equivalent, galvanizing.
- B. Steel Z-purlins shall have a minimum yield stress of 50 ksi and G90, or equivalent, galvanizing.
- C. All bolts 1/2" diameter and larger shall be SAE J429 Grade 5 or equivalent. All 1/4" or 3/8" bolts shall be SAE J429 Grade 2 or equivalent. All bolted connections shall be installed to the "snug tight" condition, ensuring that all plies of the connected materials are in firm contact.
- D. Aluminum racking extrusions and other components shall be Alloy 6105 –T5. Bolts used to connect aluminum shall be SAE J429 Grade 5 or equivalent for bolts 1/4" and larger, and stainless steel for 3/16" diameter and smaller.
- E. Welding in the field shall not be required.

2.04 GENERAL NOTES:

- A. All bolts, nuts and washers, unless otherwise noted, shall have a hot dip galvanized finish.
- B. When required, all special inspectors shall be retained by the owner/customer. The extent of the inspection shall comply with the contract documents, applicable code requirements and the local jurisdiction.
- C. All materials shall be new, of good quality and without defects which would lessen quality of work.
- D. Ground mount structure erection drawings shall be furnished at time of material shipment.

PART 3 – EXECUTION

3.01 SITE PREPARATION AND INSPECTION:

- A. General Contractor shall direct, oversee and inspect all site work related to the ground mount structure installation. Site preparation shall be in accordance with final drawings and specifications provided by manufacturer.
- B. Installer shall inspect site and notify general contractor in writing of any condition(s) that may inhibit the proper and timely construction of the ground mount structures. Installer shall be under no obligation to proceed until conditions have been sufficiently corrected.

3.02 INSTALLATION:

- A. Installer shall be responsible for installation of foundations and the ground mount structures only. Unless otherwise noted, solar module installation and wiring shall be by others.
- B. Installation of the structural system and all components shall be in strict accordance with manufacturer's recommendations.

3.03 WARRANTY:

- A. Ground mount structure manufacturer shall provide a ten (10) year warranty on materials and workmanship from the date of substantial completion.
- B. Ground mount structure manufacturer shall provide complete warranty information on all manufacturers providing accessories within the system.