RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-l Specifications sections apply to work specified in this section.

PART 1 - GENERAL

DESCRIPTION OF WORK:

Extent of pre-engineered buildings work is shown on drawings.

Manufacturer's standard components may be used, providing components, accessories, and complete structure conform to the specific architectural design, dimensions, and appearance shown and to specified requirements.

Manufacturer is responsible for design of complete system and conformance to the current North Carolina Building Code, and the current North Carolina Energy Conservation Code

Related Work Specified Elsewhere:

Concrete floor and foundations, and installation of anchor bolts are specified in Division 3.
07200 Building Insulation
07210 Pre-Engineered Building Roof Insulation
07610 Metal Roofing

QUALITY ASSURANCE:

Design Criteria:

For structural steel members, comply with AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings".

For light gage steel members, comply with AISI "Specification for the design of Cold-Formed Steel Structural Members".

Design primary and secondary members and covering for applicable loads and combination of loads in accordance with the 2012 North Carolina Building Code.

For welded connections, comply with AWS "Structural Welding Code".

Design Loads: Basic design loads, as well as auxiliary and collateral loads, are indicated on drawings.

Design each member to withstand stresses resulting from combinations of loads that produce maximum percentage of actual to allowable stress in that member, as prescribed in MBMA "Recommended Design Practices Manual".

Provide thermal insulation as required for compliance with the 2012 North Carolina Energy Conservation Code.

Fabrication Criteria: Provide prefabricated metal buildings as produced by a manufacturer who is regularly engaged in fabrication of pre-engineered metal structures of type and quality indicated.

Clearly and legibly mark each piece and part of assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.

SUBMITTALS:

Product Data: Submit manufacturer's product information, specifications and installation instructions for building components and accessories.

Building Design and Certification of Drawings: Submit complete drawings showing building structure design, in compliance with Drawings, including anchor bolts settings, sidewall, end wall, and roof framing, transverse cross sections, covering and trim details, and accessory installation details to clearly indicate proper assembly of building components. Building structure design drawings shall be prepared and sealed by a Professional Engineer, registered to practice in the State of North Carolina, and shall state that the building design meets the indicated loading requirements and codes of authorities having jurisdiction.

Provide roof thermal blocks, roof thermal insulation and vapor barrier product data and manufacturer's specification indicating compliance with the current North Carolina Energy Conservation Code, coordinated with 07200 and 07210.

Shop drawings showing locations and layout of steel support strapping for roof insulation.

Load and reaction reports for all frame members for all load cases.

Samples: Submit samples of the following:

12" long by actual width of roofing and trim panels, with required finishes.

Fasteners for application of roofing and trim panels. Sealants and closures.

Vapor Barrier: 12" x 12" sample vapor barrier fabric, painted support strapping

Maintenance Stock: Furnish at least 1% excess over required amount of nuts, bolts, screws, washers, and other required fasteners for each building. Pack in cartons and store on site where directed.

WARRANTIES:

Provide manufacturer's standard warranties for:
1. Standard written warranty on Pre-engineered Building materials and workmanship: 3 years
2. Roof Panel paint film finish: 20 years NDL (No Dollar Limit) Manufacturer's written warranty. Reference 07610 requirements.
3. Roof Panel perforation: 20 years NDL (No Dollar Limit) Manufacturer's written warranty. Reference 07610 requirements.
4. Roof Weathertightness: Manufacturer's NDL (No Dollar Limit) written roof weathertightness warranty - twenty (20) years. Reference 07610 requirements.
5. Inspection and Report Services: Contractor shall retain independent third party agent who shall perform an inspection of the entire roof system and shall submit a written report to the Owner detailing all conditions requiring maintenance and repair by parties under the above warranties. Third party agent shall be a registered roof consultant (RRC) with minimum of 5 years as a registered roof consultant and 5 years of active project experience. Provide written certification of qualifications.

DELIVERY, STORAGE AND HANDLING:

Deliver and store prefabricated components, sheets, panels, and other manufactured items so they will not be damaged or deformed. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weather tight ventilated covering. Store metal sheets or panels so that water accumulations will drain freely. Do not store sheets or panels in contact with other materials which might cause staining.

PART 2 - PRODUCTS

MATERIALS:

Hot-Rolled Structural Shapes: ASTM A 36 or A 529.

Tubing or Pipe: ASTM A 500, Grade B; ASTM A 50l; or ASTM A 53.

Members Fabricated from Plate or Bar Stock: 42,000 psi minimum yield strength; ASTM A 529, A 570, A 572 or A 36 modified.

Members Fabricated by Cold Forming: ASTM A 607, Grade 50.

Galvanized Steel Sheet: ASTM A 446 with G 90 coating; "Class" to suit building manufacturer's standards.

STRUCTURAL FRAMING COMPONENTS:

Rigid Frames: Hot rolled structural steel. Factory welded and shop painted built-up "I". shape or open web rigid frame consisting of tapered or parallel flange beams and tapered columns. Furnish complete with attachment plates, bearing plates, and splice members. Factory drilled for bolted field assembly.

Length of span and spacing of frames as indicated except slight variations acceptable to meet manufacturer's standard.

Where indicated on Drawings, rigid frames profiles to be inside of and flush with exterior wall.

End Wall Columns: Factory welded, built-up "I" shape or cold formed sections. Fabricate of minimum 14 ga. material. Shop painted.

Where indicated on Drawings, rigid frames profiles to be inside of and flush with exterior wall.

Tube Steel Wind Beams: ASTM A 500, Grade B; ASTM A 50l; or ASTM A 53. Concealed above ceilings.

Wind Bracing: Adjustable, threaded steel rods, 1/2" diameter minimum; ASTM A 36 or A 572, Grade D.

Secondary Framing: Purlins, girts, eave struts, tube steel wind beams, end wall beams, flange and sag bracing; minimum 16 ga. rolled formed sections. Shop painted.

Base channel, sill angle, end wall structural members (except columns and beams), purlin spacers; minimum 14 ga. cold formed steel, galvanized.

Any members required for door or window openings shall be accounted for in bid.

Any members required for the mounting of specified basket ball goal backboards from the roof framing.

Bolts: ASTM A 307 or A 325 as necessary for design loads and connection details. Shop painted, except provide zinc-or cadmium-plated units when in direct contact with panels.

Fabrication: Shop fabricate to the indicated size and section, complete with base plates, bearing plates, and other plates as required for erection, welded in place, and with all required holes for anchoring or connections shop drilled or punched to template dimensions.

Shop connections power riveted, bolted, or welded.

Field connections bolted.

Shop Painting: Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease, and other matter precluding paint bond.

Follow procedures of SSPC-SP3 for power tool cleaning, SSPC-SP7 for brush-off blast cleaning, and SSPC-/SPI for solvent cleaning.

Prime structural steel primary and secondary framing members with manufacturer's standard rust-inhibitive primer having over 50% rust-inhibitive pigment, such as red-lead mixed pigment alkyd varnish (FS TT-P-86, Type II) or zinc chromate iron-oxide alkyd (TT-P-636).

PANELS:

ROOFING PANELS: Provide factory formed 24 gauge prefinished galvalume steel panel with Kynar 500 finish roofing panels, equal to 16″ wide panel with striations and 2″ high ribs equivalent to Varco Pruden SLR II standing seam roof panels, attached with UL 90 Rated panel clips at 5'-0" o.c. Provide flashings, closers, fillers, metal expansion joints, ridge covers, fascias, and other sheet metal accessories, factory formed of same material and finish as roofing and siding. Roofing system shall meet UL 580: Class 90 Uplift rating and Class A. Roofing system shall have been tested in accordance with ASTM E-1592.

Make connection of roof panels to structural members, except at eaves, with clips with movable stainless steel tabs, seamed into standing seam side lap.

WALL PANELS: Corrugated wall panels where indicated on Drawings shall be fabricated from 24 gauge Galvalume AZ50 ASTM A 792 galvalume steel, PVDF fluoropolymer Kynar 500 factory applied paint system with a 20-year finish warranty, formed to provide a weathertight closure assembly. Panel shall be a 1 ½" deep ribs x 30" wide panel, exposed fastener type, smooth finished, corrugated profiled. Provide all accessories, corrosion resistant color matching fasteners, trims, channels and flashings for a complete weathertight assembly. Provide "T10-B Wall Panel" by Metal Sales Manufacturing Corporation, or approved equivalent.

SOFFIT PANELS: Metal soffit panels and trim where indicated to be 22-gauge galvalume steel, flat profile and smooth textured, with a factory KYNAR 500 finish, selected from standard colors. Provide 12 inch wide solid non-vented panels, unless otherwise noted. Soffit system shall be equivalent to Metal Roofing Systems (MRS) Flush Seam panel, or equivalent products by MBCI. Provide soffit panels in compliance with ASTM 1592, and the Architectural Aluminum Manufacturers Association (AAMA) Specifications 1402-86 Standard Specifications for Aluminum siding, soffit, and fascia. Provide all necessary accessories and trims for complete assemblies.

SHEET METAL ACCESSORIES:

Coordinate with requirements of Section 07600 – Flashing and Sheetmetal.

General: Unless otherwise indicated, provide coated aluminum accessories and trim with coated steel roofing. Provide Kynar 500 prefinished coating, colors to match existing.

THERMAL INSULATION:

Foundation Insulation: Coordinate with Section 07200 Building Insulation.

Wall Insulation: Coordinate with Section 07200 Building Insulation.

Roof Insulation: Coordinate with Section 07210 Pre-Engineered Building Roof Insulation.

Roof Insulation Vapor barrier: Coordinate with Section 07210 Pre-Engineered Building Roof Insulation.

Roof Insulation Retainer Strips: Coordinate with Section 07210 Pre-Engineered Building Roof Insulation.

Roof Purlin Thermal Blocks: Coordinate with roof panel system and 07210 Pre-Engineered Building Roof Insulation.

Locations: Coordinate with Section 07210 Pre-Engineered Building Roof Insulation, Section 07200 Building Insulation, and Drawings.

PART 3 - EXECUTION

ERECTION:

Framing: Erect structural framing true to line, level and plumb, rigid and secure. Level base plates to a true even plane with full bearing to supporting structures.

Purlins and Girts: Provide rake or gable purlins with tight fitting closure channels and fascias. Locate and space wall girts to suit door and window arrangements and heights. Secure purlins and girts to structural framing and hold rigidly to a straight line by sag rods.

Bracing: Provide diagonal rod or angle bracing in both roof and sidewalls as indicated.

Movement resisting frames may be used in lieu of sidewall rod bracing, to suit manufacturer's standards.

Where diaphragm strength of roof or wall covering is adequate to resist wind forces, rod or other forms of bracing will not be required.

Framed Openings: Provide shapes of proper design and size to reinforce opening and to carry loads and vibrations imposed, including equipment furnished under mechanical or electrical work. Securely attach to building structural frame.

ROOFING:

Manufacturer’s standard erection guidelines meeting UL 90 requirements.

Sheet Metal Accessories: Install gutters, downspouts, ventilators, louvers, and other sheet metal accessories in accordance with manufacturer's recommendations for positive anchorage to building and weather tight mounting. Adjust operating mechanism for precise operation.

Thermal Insulation: Install in accordance with manufacturer's published directions, performed concurrently with installation of roof panels and roof purlin thermal blocks . Install blankets straight and true in one-piece lengths and both sets of tabs sealed to provide a complete vapor barrier. Install retainer strips at each longitudinal joint straight and taut, nesting with roof rib to hold insulation in place.

END OF SECTION