FLORIDA
PRE-FAB, INC.

STRUCTURAL DESIGN
STRUCTURAL FRAMING
ROOF AND WALL PANELS
ACCESSORIES
ERECTION AND INSTALLATION
BUILDING ANCHORAGE AND FOUNDATIONS

METAL BUILDING

SPECIFICATIONS

LISTED
SBCCI®
PST & ESI

METRO-DADE
PRODUCT APPROVAL

UL® Underwriters Laboratory, Inc. ®

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GENERAL

1 The building system as shown in this section shall include the necessary services for the design and fabrication of a Florida Pre-Fab, Inc. (FPF) building in accordance with these specifications and the FPF contract document. The building shall include primary and secondary structural framing members, connection bolts, covering, fasteners and flashing for an FPF building only. Accessories such as ridge vents, skylights, insulation, personnel doors, windows and other miscellaneous items shall be included when called for in the contract.

2. Florida Pre-Fab shall include erection drawings, including an anchor bolt setting plan, elevations and sections as necessary to assemble all parts and accessories furnished by FPF. Drawings shall indicate piece marks and installation details as necessary to indicate the proper assembly of all the building parts.

3. The standards and specifications of professionally recognized agencies such as AISC, AWS, ASTM, AISI, MBMA etc. are utilized as a basis in establishing its own design, fabrication and quality criteria, standards and tolerances. Unless specifically called for in the FPF contract document, Florida Pre-Fab, Inc. design, fabrication, quality criteria, standards and tolerances shall govern the work included. Other interpretations to the contrary or conflicts with other documents are notwithstanding.

STRUCTURAL DESIGN

A. GENERAL

All structural mill sections and welded plate members shall be designed in accordance with latest edition of the AISC, "Specifications for the Design, Fabrication and Erection of Structural Steel Buildings". All light gauge cold formed steel members shall be designed in accordance with the latest edition of the AISI, "Specifications for Design of Light Gauge Cold Formed Steel Structural Steel Members.

B. DESIGN LOADS

1. Design Load requirements shall be as specified, by local code such as the Standard Building Code, or determined in accordance with the design practices of the "Metal Building Systems Manual" by the Metal Building Manufacturers Association. Loads shall be applied in accordance with the MBMA "Metal Building Systems Manual" as interpreted by Florida Pre-Fab. Other design system procedures, or additional loads must be clearly specified and stated in the contract specifications.

2. Roof live loads shall be applied on the horizontal roof projection. Wind Loads shall be assumed to act horizontally upon the vertical projected area of the sidewall and roof. To determine uplift reactions, wind loads shall be specified or as determined in accordance with MBMA "Recommended Design Practices Manual". Collateral, Seismic and Auxiliary loads must be specified on the contract documents.

3. The building components will be designed to meet the most severe conditions produced by the following load combinations:

   Dead + Live
   Dead + Wind
   Dead + 1/2 Wind + Auxiliary
   Dead + Seismic
   Dead + Auxiliary

C. DESIGN CERTIFICATION

Standard drawings and design analysis shall include the seal of a registered professional engineer. Design analysis shall be on file and furnished by the building manufacturer upon request.

D. DIMENSIONS

Roof "slope" shall be 1" rise for each 12" of horizontal run for series RFI, M-1, GC or 4" rise for each 12" of horizontal run for series RFIV. Building width is measured from outside to outside of sidewall girts. Length is measured from outside to outside of purlins. Height is measured from column base to top of eave strut. "Bay spacing" shall be 20', 25' or 30' between frame center lines unless otherwise specified.

STRUCTURAL FRAMING

A. GENERAL FABRICATION

1. All framing members shall be cut, formed, punched, welded, cleaned and painted for bolted field assembly. The surfaces of the bolted connections shall be smooth and free from burrs and distortions.
2. All base plates, splice plates, cap plates and stiffeners shall be factory welded into place on the structural members with bolt holes as required for attachment of secondary members and bracing.
3. All framing members shall carry an identifying piece mark for easy field identification. All shop connections shall be in accordance with the American Welding Society Code for Building Construction. Certification of welder qualification can be furnished when required or specified.

B. PRIMARY RIGID FRAMES

All rigid frames shall be welded, built-up "I" sections. Columns and rafters may be either uniform or tapered depth . Steel for hot rolled structural sections and built-up webs shall conform to the requirements of ASTM specification A-36. Flanges for all built-up sections shall conform to ASTM specification A-572, minimum yield point to 55,000 PSI.

C. ENDWALL FRAMING

Endwall framing members shall be fabricated from stan-

dard mill sections or built-up "I" sections depending on design requirements. Hot-rolled framing members shall conform to ASTM A36 - Modified 50 with a minimum yield strength of 50,000 PSI.

D. Secondary Framing Members

1. Steel used to form purlins, girts, eave struts and "C" sections shall be flat steel stock having a yield point of 55,000 psi, A-570-93, Grade 55.

2. All secondary steel shall be factory pre-painted with a red oxide polyester primer baked in an oven dryer to a dry film thickness of .50 mils.

a) Purlins and Girts: Purlins and girts shall be cold formed "Z" sections with stiffened flange edges. They shall be pre-punched at the factory to provide for field bolting to the rigid frames. Purlins and girts shall be continuous span unless specified otherwise.

b) Eave Struts: Eave struts shall be unequal flange "C" section members formed to provide support for both the roof and wall panels at the building eaves.

c) Base Angle: A continuous member shall be provided for attachment of the base of the wall panels. Base Angle shall be secured to the slab with pin grip rivets.

E. Bracing

1. Cable Bracing: Diagonal bracing in the roof and sidewalls shall be used to transfer longitudinal loads from the structure to the foundation. Brace cables shall be provided which are cut to length and equipped with beveled washers, galvanized eyebolts and nuts at each end. Cable shall be ASTM A-475 extra high strength, galvanized, wire strand.

2. Special Bracing: When diagonal bracing is not permitted in the sidewalls, Wind Column (fixed base) or Portal type bracing must be placed between the frames. Wind bracing in the roof and/or walls need not be furnished where it can be shown that the diaphragm strength of the roof and/or wall covering is adequate to resist the applied wind forces.

F. Flange Bracing

The compression flange of all primary framing members shall be braced laterally with angles connecting to the webs of purlins or girts so that the compressive stress is within allowable limits for any combination of loading.

G. Connections and Splices

All bolts for field assembly of primary structural members shall be high strength bolts as indicated on drawings. Primary structural members shall be connected with bolts conforming to ASTM A-325 with hardened washers. Secondary members shall be connected with Grade 2, zinc plated, machine bolts.

H. Painting

All structural steel members shall be cleaned to remove all loose mill scale, dirt, grease, flux and other foreign matter in accordance with SSPC-SP3, power tool cleaning. One shop coat of a Modified Alkyd, Red Oxide, rust inhibitive primer shall be applied. Primer shall be lead, chrome, and barium free for environmental concerns.

The salt spray performance of painted steel with 2 mils dry film thickness shall withstand 250 hours exposure to 5% salt spray tested in accordance with ANSI / ASTM B-117 without any sign of film failure.

ROOF AND WALL PANELS

A. General

Roof , walls and interior liner panels where shown in drawings shall be covered with Florida-Rib panels. Unless specified otherwise in the FPF contract document, FPF shall furnish 26 gauge Galvalume® finish, roof panels and 26 gauge prepainted galvanized wall panels.

B. Panel Description

All roof and wall Florida Rib 'R' panels shall be cold-formed in a continuous rolling mill. Panels shall provide a 36" coverage and have major ribs 1¼" deep. Major ribs shall be spaced at 12" on center. There are two minor ribs equally spaced between the major ribs. All side laps shall be at least one full major rib with the supporting lap rib in a full purlin bearing condition.

C. Panel Finish

Galvalume Steel Panels

Galvalume sheet shall be ASTM A-792 structural quality steel with a minimum coating thickness of AZ-55 and shall carry a 25 year corrosion free warranty. Steel shall be 80,000 psi for 26 Ga. panels and 50,000 psi for 24 Ga. panels.

Painted Steel Panels

1. Metal Substrate - a minimum spangled, tension leveled base material for all colored and white panels shall be galvanized steel sheets conforming to ASTM A-446, Grade D (50,000 PSI). Steel sheets shall be hot-dipped galvanized with a l.25 ounce per square foot, class G-90 zinc coating.

2. Metal Pretreatment - Material shall be pre-treated with an approved Bonderite System. A primer coat shall be applied with an epoxy primer 9x465 of .5 to 2.0 mils and baked at 450 degrees F.

3. Color Coat - Panels shall be painted with AKZO Ceram-a-Star baked-on silicone copolymer polyester resin for a total dry film thickness of 1 mil which carries a 25 year chalk and fade warranty. Backer coat shall be an epoxy base coat with a whitewash top coat for a dry film thickness of .5 mil. See paint literature for additional paint specifications.

D. Panel Installation

Roof panels shall be continuous from ridge to eave for buildings up to 60 ft. wide. Roof end laps shall be 6" - 8" and occur at a roof purlin. Wall panels shall be continuous from base to

eave up to 30' high. Wall panels exceeding 30' shall have 4" end laps and occur at a wall girt. Endwall panels shall be square cut. Endwall panels for buildings with a pitch of 2:12 or greater must be field cut.

E. Flashing & Trim

Flashing shall be furnished at the rake, corners, framed openings and where necessary to provide weather tightness and finished appearance. Framed openings shall be completely trimmed as not to visually expose any structural steel on jambs or headers. Gutters shall be formed to match the profile of the rake trim. Downspouts shall include wall attachments and an 80° elbow at the floor line. All exterior flashing and trim shall be 26 gauge pre-painted, galvanized steel .

F. Fasteners

1. Roof fasteners shall be #12 x 1¼" hex head, self-drilling, non-corrosive ZAC® screws. Roof stitch fasteners shall be #14 x ¾", type "A", self-tapping ZAC® screws.

2. Wall fasteners shall be #12 x 1¼", hex head, self-drilling, non-corrosive ZAC® screws. Wall stitch fasteners shall be Type AA44D ⅛" diameter high strength aluminum closed end pop rivets color-matched to wall panels. FPF standard fasteners carry a 25-year non corrosion Warranty.

G. Sealants

1. Corrugations of the roof and wall panels shall be filled with solid or closed cell, pre-formed, non-shrink laminated polyethylene WG-7 closures along the eave and rake for a weather tight condition. Closures shall be provided with ridge vents when furnished.

2. Roof panel side laps and end laps shall be sealed with 1/2" wide x 3/32" diameter elastomeric butyl rubber-based mastic sealant extruded onto silicon release paper and wound into 50' rolls.

3. Gutter joints shall be sealed with parbond aluminum gutter seal.

ACCESSORIES

A. Personnel Doors

Standard personnel doors shall be 3'-0" x 7'-0" x 1¾". Door panel shall be 20 gauge galvanized steel sheet over a one-piece polystyrene core. Frames shall be fabricated from 16 gauge cold-rolled galvanized steel. All units are packaged for shipment. Hardware shall include (3) 4½" x 4½" 26D, dull chrome, standard weight ball-bearing hinges with non-removable pin, saddle threshold and door sweep. A Grade 2, heavy duty, lever type lockset with ASA strike shall be provided. Door panel shall be solid style "M" or half-glass style "G".

B. Skylights (Translucent panels)

Skylights shall be translucent and made in the same configuration as the metal panels. Width shall be 38" and length shall span (2) purlin spaces. Skylights are manufactured with 100% Acrylic resin and Acrylic Gel Coat for yellowing resistance and panel deterioration. Light transmission shall exceed 92% after 10 years of exposure. There will be no noticeable yellowing after a 1000-Hr. yellowing exposure test, ASTM D-1925. Panels are guaranteed to resist Fiberbloom for 10 years.

C. Windows

Standard windows shall be single hung, aluminum flange type #22, #23 or #24 in size, mill or painted finish with clear or tinted glass . They shall be furnished complete with glass, hardware and aluminum screens. Windows shall conform to all requirements of the Aluminum Window Manufacturer's Association Specification A-A2-H (Hurricane Series) for commercial buildings. Standard windows shall be mounted on a steel angle structural frame and the wall panel flashed with sheet metal as required.

D. Sliding Doors

Standard sliding door sizes shall be specified per design. Door shall be made from wall sheeting and light gauge components as defined in the building. Doors shall include V-groove bottom roller casters and top guides with hood (if required) for protection. Doors shall roll on inverted painted angle track.

E. Ridge Ventilators

Gravity ridge ventilators shall be manufactured from 24 Ga. Galvalume or 26 Ga. painted galvanized steel. Vents shall be 10' long with a 9" throat. The ventilator body shall include a skirt adjusted to the roof slope. Chain operated dampers shall be furnished when specified and ordered. Vents shall be equipped with bird screen and riveted end caps.

ERECTION AND INSTALLATION

The erection of the metal building and the installation of accessories shall be performed in accordance with the Building Manufacturer's erection drawings by a qualified erector using proper tools and equipment. Erection practices shall be in accordance with MBMA "Code of Standard Practices". There shall be no field modifications to primary structural members except as authorized and specified by FPF.

BUILDING ANCHORAGE AND FOUNDATIONS

The building anchor bolts shall be designed to resist the maximum column reactions resulting from the specified loading conditions. Minimum thickness anchor bolts shall be specified by FPF and layout plan provided. Anchor bolts shall be supplied by others. Foundation design is not within the scope of FPF design.