OUTDOOR WALK-IN EQUIPMENT BUILDING

# 1 ‑ GENERAL

1.1 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all design, labor, materials, components, and accessories as specified and necessary to provide a complete metal building system.

4. Design of steel stud framing shall be compatible with placement of openings as generally shown.

 5. Provide openings in and attachments to metal building systems to accommodate work under other contracts. Assist other contractors in building on or attaching to metal building systems all items such as fasteners and all items required for which provision is not specifically included under other contracts, required for providing a complete system in accordance with the Contract Documents.

B. Coordination:

1. Review installation procedures under other Sections and coordinate the Work that must be installed with or attached to the metal building Work.

1.2 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies: All Work of this Section shall comply with the requirements of all State and Local Codes.

B. Reference Standards: Comply with the applicable provisions and recom­mendations of the following, except as otherwise shown and specified:

1. AISC Specifications for Structural Steel Buildings.

2. AISC Specifications for the Design of Cold-Formed Steel Structural Members.

C. Fabrication Criteria: Comply with the following:

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

2. Design sizes of prefabricated components and necessary field con­nections required for erection to permit easy assembly and dis­assembly. Fabricate components in such manner that once as­sembled they may be disassembled, repackaged and reassembled with a minimum amount of labor and maximum salvageability.

D. Erection Criteria: Provide erector who is approved by the manufac­turer, and has erected at least two structures fabricated by manufacturer.

1.3 SUBMITTALS

A. Metal Building Shop Drawings: Submit for approval the following:

1. Dimensioned shop drawings and design drawings showing plans, elevations and cross sections of the buildings.

2. Manufacturers product information, specifications and installation instructions for building components and accessories.

4. Foundations Loads: Shop drawing showing all vertical and horizontal reactions on foundation. Include direction and location of application.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver and store prefabricated components, sheets, panels, and other manufactured items so that 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.

1.5 DESIGN CRITERIA

A. The metal building manufacturer is responsible for the structural design of all components of the metal building as generally shown on the conceptual layout drawings and as specified.

B. The design shall comply with the applicable provisions and recommendations of the following codes except as otherwise shown or specified. Where conflict occurs between codes, the more stringent provision shall govern. Latest editions of codes shall apply.

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

2. For light gage steel members, comply with AISI “Specification for the Design of Cold‑Formed Steel Structural Members”.

3. Design primary and secondary members and covering for applicable loads and combination of loads in accordance with MBMA “Recommended Design Practices Manual” and the structural requirements of the State and Local Codes.

4. For welded connections, comply with AWS “Structural Welding Code”.

C. The design shall be based on considering, as a minimum, the design criteria as noted on the conceptual layout drawings and as outlined below:

1. Dead Loads:

a. Use actual weights of materials used in construction.

2. Roof Live Loads:

a. Use minimum roof live load of 40 psf (includes 10 psf collateral).

3. Equipment Loads and Pipe Support Loads:

a. Use actual equipment weights and pipe support loads. Consider dead loads, live loads, impact loads, and overturning moments where applicable on all equipment and piping.

4. Snow Load:

a. Comply with IBC “International Building Code 2012” in the region the building will be located.

5. Windload:

a. Comply with IBC “International Building Code 2012” in the region the building will be located.

6. Stability Factors:

a. Comply with the requirements of the applicable code for minimum factors of safety for stability of structures.

D. All structures shall be designed and constructed to support safely all loads, including dead loads, without exceeding the allowable stresses or specified strengths when appropriate load factors are applied. Consider the most critical combination of loads utilizing the applicable code as the basis for the load combination.

2 ‑ PRODUCTS

2.1 MATERIALS

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

B. Tubing or Pipe: ASTM A 500, Grade B; ASTM A 501; or ASTM A 53.

C. Members Fabricated from Plate or Bar Stock: 42,000 pounds per square inch minimum yield strength; ASTM A 529, A 570, or A 572.

 D. Members Fabricated by Cold Forming: 50,000 (roof) and 40,000 (wall) pounds per square inch minimum yield strength.

2.2 STRUCTURAL COMPONENTS

A. General:

1. All members shall be shop fabricated for field assembly. The surfaces of bolted connections shall be smooth and free from burrs or distortions.

 2. Transmission of horizontal loads across the building shall be made through the wall & roof systems and with diagonal bracing.

B. Primary Framing:

1. Frames: The primary framing system shall be comprised of galvanized steel studs welded together.

C. Secondary Framing:

1. Base Channel: A base member will be supplied by which the base of the wall covering may be attached to the perimeter of the slab. This member shall be secured to the concrete slab with expansion anchors as required.

D. Bracing:

1. Diagonal Bracing: Diagonal bracing shall be accomplished through the use of strap or channel bracing components placed across the building to allow transmission of horizontal loads. All bracing components shall be of nominal 14 gauge galvanized steel.

2.3 ROOF AND WALL FRAMING

A. General:

1. Frame design shall be in accordance with AISI “Specification for the Design of Light-Gage, Cold Formed Steel Structural Members,” and in accordance with sound engineering methods and practices.

1. Frame shall be designed to support live loads and windloads.

B. Framing Description:

1. Roof frame shall be supplied in a single continuous length from eave line to ridge line.

4. Roof and wall frame shall be nominal 16 gauge galvanized steel studs conforming to ASTM A653 specifications with the galvanized coating conforming to G90 (1.25 oz. commercial) standards. Minimum yield strength of panel material shall be 50,000 PSI.

3. Roof and wall frame shall be assembled and connected together by using bronze welding wire. Comply with AWS “Structural Welding Code”.

2.4 EXTERIOR ROOF AND WALL LINER PANELS

A. Exterior liner panels shall be of multi-rib construction manufactured from galvalume material conforming to ASTM A792 specifications. Minimum yield strength of panel material shall be 50,000 PSI.

B. The exterior finish shall have been tested and comply with the following requirements:

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| --- | --- | --- |
| Property  | ASTM Test Method | Performance  |
| Color Uniformity  |  | Meets or Exceeds Specification  |
| Specular Gloss  | D 523 | Medium Gloss  |
| Dry Film Hardness  | D 3363 | Meets or Exceeds Specification  |
| Dry Film Adhesion  | D 3359 | No Adhesion Loss  |
| Wet Film Adhesion  | D 3359 | No Adhesion Loss  |
| Boiling Water Adhesion  | D 3359 | No Adhesion Loss  |
| Impact Resistance  | D 2794 | No Cracking or Adhesion Loss  |
| Abrasion Resistance  | D 968 | Meets or Exceeds Specification  |
| Muriatic Acid Resistance  | D 1308 | No Effect  |
| Mortar Resistance  |  | No Effect  |
| Nitric Acid Resistance  |  | Meets or Exceeds Specification  |
| Detergent Resistance  | D 2248 | No Effect  |
| Humidity Resistance  | D 2247  B 117 | Meets or Exceeds Specification  |
| Salt Spray Resistance  | D 1654 | Meets or Exceeds Specification  |
| South Florida Weathering Exposure |  | Meets or Exceeds Specification  |
| Color Retention  | D 2244 | Meets or Exceeds Specification  |
| Chalk Resistance  | D 4214 | Meets or Exceeds Specification  |
| Gloss Retention  | D 523 | Meets or Exceeds Specification  |
| Erosion Resistance  | B 244 | Meets or Exceeds Specification  |

2.5 INTERIOR WALL LINER PANELS

 A. Interior wall liner panels shall be aluminum 5052-H32 conforming to ASTM B209 specifications with a minimum thickness of 0.063”. Interior wall liner panels shall be attached to wall panels using #8 TEK screws with a maximum distance of 16” apart.

2.6 INTERIOR CEILING PANELS

 A. Interior ceiling liner panels shall be aluminum 5052-H32 conforming to ASTM B209 specifications with a minimum thickness of 0.063”. Interior ceiling liner panels shall be attached to ceiling panels using #8 TEK screws with a maximum distance of 16” apart.

2.7 INSULATION

A. R-11, 3 1/2 inches unfaced fiberglass insulation in wall between panel ribs. R-11, 3 1/2 inch thick unfaced fiberglass above the ceiling sheets.

2.8 DOORS AND HARDWARE

A. Personnel Doors: Provide the following:

1. General: Comply with ANSI A250.8.

2. Door Specifications: All doors shall be 1-3/4-inch thick flush construction. Door leaves shall be nominal 18 gauge steel with a one piece honeycomb insulated core. The door top and bottom shall be reinforced with nominal 16 gauge steel channels. The hinge reinforcement shall be minimum 7 gauge steel and the lock reinforcement shall comply with ANSI A115.2. The door shall have a nominal 14 gauge closer reinforcement. Door frames shall be 4-7/8-inch deep double rabbet type, of nominal 16 gauge steel. All leaves and frames shall have one coat of baked on primer.

4. Door Assembly: All doors shall be provided “assembled” in their frames with all hardware.

B. Door hardware: Provide the following -

1. Standard Door Hardware:

a. (3) 4-1/2 inch x 4-1/2 inch 10gauge hinges per ANSI #A5133 630 Satin Stainless Steel Finish with non-removable pins.

b. 5 inch wide x 1/2 inch high extruded aluminum saddle threshold.

c. 1/4 inch x 1/4 inch silicone rubber weather-stripping.

d. FVSR/FVSR7 Panic hardware that complies with ANSI A156.3 Type 1, Grade 1.

e. Satin stainless steel night latch with freewheeling trim, 6-pin and interchangeable cores. Latch shall comply with ANSI A156.3 Grade 1. All latches shall be keyed the same.

f. Top jamb tri-style door closer with full cover, non-hold open arm, and full power range.

 2. Comply with the following for weather-stripping:

a. Provide EPDM bottom sweep for all exterior doors.

 3. Comply with the following for thresholds:

a. Provide extended aluminum mill-finished thresholds for all exterior doors and where scheduled.

b. Provide complete selection of threshold mounting details.

c. Cope threshold tightly around frame profile.

d. Provide predrilled countersunk fastener holes for attachment of threshold to floor.

3.1 ERECTION

A. Place and secure metal building Work in accordance with manu­facturer's instructions, manufacturer's written specifications, Shop Drawings, and as specified.

B. Anchors: Owner must furnish anchor bolts and other devices to be built into the concrete and masonry construction.