

RIGGING STORAGE ENCLOSURE SPECIFICATIONS

1. SCOPE

This specification covers the necessary requirements to design, manufacture and furnish steel pre-framed reusable panel Rigging Storage Enclosure. The building shall be of weather proof construction suitable for use as commercial and industrial buildings such as field offices, factories, shops and warehouses. The materials furnished with each building shall be sufficient to allow expedient pre-framing panel assembly, expandability and/or changeability to the configuration of the building. The specification covers general requirements for a pre-engineered steel structured panel building system with the following features:

See pages 8 thru 13 for General Overall Configuration Views and Dimensions.

Description/Features:

| | |
|--------------------------------------|---|
| Minimum inside Plan Dimensions | 22' wide x 48' long x 14'-0" wall height |
| Nominal Eave Height..... | 14'-6" minimum -- 15'-0" maximum |
| Configuration/Roof Pitch | Gable Building with 4:12 Pitch truss frame roof |
| Exterior Sheeting..... | 26 Ga and ¾" Profile |
| Exterior Finish | Galvanized panel painted Regal White |
| Interior Finish | Panel Frames Prime Painted Gray |

Design Criteria:

| | |
|--------------------------|-------------------------------------|
| Model Building Code..... | 2012 IBC to current |
| Roof Load | 20 PSF (Ground Snow Load) |
| Wind Load | 115 MPH (3 Second Gust – IBC 2009) |
| Importance Factor..... | 1.25 |
| Seismic Zone..... | D, Soil Site Class D |
| Risk Category..... | 2 (Occupancy Category 2 - IBC 2009) |
| Drift Load..... | NONE |

Building Features:

| | |
|---|--|
| Personnel Doors..... | 3'0" x 6'-8" personnel with locking knob with closer (2 each) |
| Endwall Equipment Door | 12'W (min) x 14'H (min) Rollup Door (1 each) |
| Factory Installed Rigid Insulation (Roof & Walls)..... | 2" Polyiso Foam |
| Factory Installed Insulation Liner (Roof & Walls) | 29 Gauge Painted Steel Liner painted White |
| Skylights | NONE |
| Ventilation..... | NONE |
| Gutters & Downspouts | Yes |
| Base Flashing..... | Standard Gauge Galvanized painted Regal White |
| Special Features | Anchors for Concrete slab |
| Submittals | Manufacturer's Standard Approval Drawings |

1.1 GENERAL

- 1.1.1 Exterior walls shall consist of factory-assembled pre-framed modular panel units of exterior ribbed sheeting, rigid insulation, interior steel liner and pre-fabricated structural steel panel frame.
- 1.1.2 Roof system shall consist of factory-assembled, pre-framed modular units of exterior ribbed sheeting, rigid insulation, interior steel liner and pre-fabricated structural steel panel frame.
- 1.1.3 All necessary joint sealants, gasket materials, flashings, and other weather sealers shall be included for a weather tight installation.

1.2. Applicable Standards

- 1.2.1 Design primary and secondary structural members, connections and exterior covering materials for applicable loads and combination of loads in accordance with the 2012 IBC Building Code to current.
- 1.2.2 Structural Steel: Comply with the American Institute of Steel Constructor's (AISC) "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" for design requirements and allowable stresses.
- 1.2.3 Welded Connections: Comply with the American Welding Society's (AWS), "Standard Code for Arc and Gas Welding in Building Construction," for welding procedures.
- 1.2.4 Assembly Drawings: Manufacturers must submit to the Purchaser the drawings necessary to supplement the specification and drawings, as required for the proper erection and installation of the building components.
- 1.2.5 Electrical Services: Must comply with the 2014 National Electrical Code (NEC).

1.3. Quality Assurance

- 1.3.1 Installer Qualifications: Engage an experienced installer certified by the manufacturer to erect the pre-engineered metal building who is specialized in the erection and installation of types of metal building systems similar to that required for this project and who is certified in writing by the metal building systems manufacturer as qualified for erection of the manufacturer's products.
- 1.3.2 Manufacturer's Qualifications: Provide pre-engineered metal buildings manufactured by a firm experienced in manufacturing metal building systems that are similar to those indicated for this project and have a record of successful in-service performance.
- 1.3.3 Design Criteria: Metal building systems having equal performance characteristics with deviations from indicated dimensions and profiles may be considered, provided deviations do not change the design concept or intended performance. These performance characteristics include but not limited to the following:
 - 1.3.3.1 True Reuse. Building systems that require the erection of a structural skeleton and then separate installation of the insulation and sheeting are not acceptable.
 - 1.3.3.2 Ease of Expandability. Versatile pre-framed panels that can adapt to changing site conditions.
 - 1.3.3.3 Interchangeable Pre-Framed Panel Components

- 1.3.3.4 Assembly with a crew with no prior experience with system
- 1.3.3.5 Simple Pre-Framed System.
- 1.3.3.6 No Pre-Setting of Anchor Bolts.

2. PRODUCT

2.1 GENERAL

- 2.1.1 Steel Panelized Reusable Buildings shall be the product of a building manufacturer who must have been actively engaged in the fabrication of pre-engineered pre-framed panel buildings for a minimum of at least five years on a continuous basis. The term pre-framed panels as used herein means factory fabricated units of exterior metal sheeting, structural frame and rigid insulation. Panels are to be designed for simple expedient field assembly. Installation of exterior sheeting, structure and insulation with self-tapping screws at the building site is not acceptable. The Purchaser reserves the right to request the name(s) and addresses of at least five customers of these steel structured panel reusable buildings.
- 2.1.2 The minimum building inside dimensions are included under the heading Scope, paragraph 1. The standard used by the manufacturer shall be equal to or greater than those indicated by the amount of the closest standard size thereto.
- 2.1.3 Completed building shall meet specified detailing requirements. The building shall be furnished unassembled and shall include the necessary pre-framed structured panel components, expansion anchors, and other materials specified herein.
- 2.1.4 Roof slope shall be 4 inch in 12 inches minimum.
- 2.1.5 Buildings shall be designed so as to allow simple and easy dismantling, repacking, reshipping and reassembling at other locations after the original installation.

2.2 DESIGN CRITERIA

- 2.2.1 Loadings: The steel panelized buildings described herein shall be detailed for the dead load and the live loads specified under Scope, paragraph 1, as well as, the combination of these loads as set forth in the International Building Code (IBC).
- 2.2.2 Foundation Requirements: The structural design of this steel structured panel building shall be such that it can be readily supported and anchored to an existing concrete slab foundation. Designs requiring accommodating large column point loads with isolated rectangular footings will not be acceptable. Manufacturer shall furnish three sets of drawings showing foundation edge details and schedule of loads delivered to slab foundation.

2.3 COMPONENT

- 2.3.1 Pre-Framed Wall and Roof Panels: Wall and roof panels are to be pre-engineered as pre-framed and fabricated as integral units of panel sheeting on structural steel framework. The reusable, dismantlable building described herein is to consist of pre-framed structured panels with snug fitting anti-siphon side lapping edges.

- 2.3.2 Structural Steel Panel Framework: The structural steel panel framework shall be factory fabricated into pre-engineered, pre-framed modular panels constructed of a combination of steel angle and/or channel having a minimum yield strength of 50,000 psi. when possible, the panel framework shall be symmetrically punched so there are no top, bottom, left or right orientations.
- 2.3.3 Exterior Sheeting: The structural panel framework is to be factory faced with 29 gauge Grade E side lap steel sheets with periodic stiffening ribs having an 80,000 psi. minimum yield strength. Each steel sheet is to be supported approximately 4' on center with intermediate steel angle cross members. Sheeting shall be factory attached to the structural panel framework along all four panel edges and intermediately along all cross members. Systems which require field attachment of sheeting to structural framework will not be acceptable.
- 2.3.4 Painting Structural Framing: All structural framing members shall be cleaned to remove all dirt, grease, oil and loose mill scale and given a shop coat of gray acrylic emulsion primer.
- 2.3.5 Color Finish (Exterior): Wall and roof panels, flashing, trim and other exterior steel surfaces shall be as specified under Scope, paragraph 1.
- 2.3.6 Color Finish (Interior): Wall and roof panels, flashing, trim and other exterior steel surfaces shall be as specified under Scope, paragraph 1.

2.4 FACTORY INSTALLED INSULATION:

- 2.4.1 Aluminum foil-faced, rigid, closed cell, glass fiber reinforced polyisocyanurate plastic foam of uniform core thickness under Scope, paragraph 1,, complying with ASTM C 1289 and Underwriter's Laboratories Test UL 723 with Flame Spread Index of 25 or less and Smoke Development Index of less than 150. Provide reflective 1 mil aluminum vapor barrier to be laminated to both sides of foam insulation boards. Provide 2" inch thick boards, R-13 factory installed in both roof and walls.
- 2.4.2 Pre-framed panelized wall and roof panels to include factory installed flat interior face sheeting to consist of 29 gauge steel structural quality sheeting with baked enamel finish in manufacture's standard color to protect the insulation.

2.5 ACCESSORIES

- 2.5.1 Endwall Equipment Door: Roll-up equipment door shall consist of insulated slats, 22-gauge galvanized steel sections, with the following features;
- a).. continuous steel pipe axle,
 - b) . structural steel support bracket,
 - c).. roll formed galvanized steel door guides,
 - d) . bulb type cushion astragal fitted to a rigid bottom seal angle.
 - e).. vertical track is mounted to a steel casing with building color matched trim kit supplied.
 - f) .. Doors shall be width and heights specified under Scope, in paragraph 1.
 - g).. Door and windlocks shall be capable of resisting a wind load of 20 psf (min).

h) . Insulation between slats shall have an R value of 6.29 (min).

i)... Interior slats shall be painted white and exterior slats shall be painted Regal white.

- 2.5.2 Personnel Doors: Hollow core steel type. Doors shall be standard 3' x 7' hollow core metal doors fabricated from 24 gauge stainless steel with three 4" hinges, ADA closer, ADA Lever lockset and Panic Hardware. The framework consists of 16 gauge cold rolled steel, one piece welded construction. The door and hinges shall be painted with rust inhibitive gray primer, pre-installed in a modular panel, complete with threshold.

2.6 PACKAGING

- 2.6.1 Reuse Packaging: The pre-framed panels described are to be shipped and/or stored in reusable storage racks. Accessory items are to be bundled and/or palletized for convenient unpacking when required.

3. FABRICATION

3.1 GENERAL

- 3.1.1 Design prefabricated components and necessary field connections required for erection to permit easy assembly and disassembly.
- 3.1.2 Clearly and legibly identify each piece and part of the assembly to correspond with prepared drawings, diagrams, and instruction manuals.
- 3.1.3 Shop fabricate holes in frames for anchoring or connections shop-drilled or punched.
- 3.1.4 Provide for field bolted connections.
- 3.1.5 Factory fastened ribbed roof and wall exterior covering sheets. Apply sheeting and associated item for neat and weather tight enclosure. Install screw fasteners with power tools having controlled torque adjusted to compress neoprene washers tightly without damage to washer, screw threads, or sheets.

4. ELECTRICAL REQUIREMENTS

4.1 GENERAL NOTES

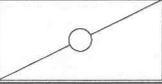
- 4.1.1 All wiring and grounding of equipment will be in accordance with the latest national electric code (NEC). Phasing/color coding of phased circuits shall be A: Black, B: Red, C: Blue, Neutral: White, Ground: Green.
- 4.1.2 Use stranded copper, single conductor, 600VAC (MIN.), 90°C, type THHN, or THWN-2 wire for installation of power and alarm circuits in conduits.
- 4.1.3 All electrical equipment will be Underwriter's Laboratory (UL) listed and approved. Where specific material/ manufacturer are called out, it shall be used unless equivalent material specified by the contractor is approved by PSNS and documented in writing.
- 4.1.4 All circuit breakers provided shall be of the type that are capable of being locked out.
- 4.1.5 All circuit breakers will be industrial or high grade parts (ex Cutler Hammer BR type breaker).
- 4.1.6 All wiring and connections to equipment shall follow manufactures directions unless otherwise specified on the drawing.

- 4.1.7 All equipment shall be located such that it can be accessed and serviced (e.g. 36" clearance).
- 4.1.8 All circuits must carry an independent grounding conductor (conduit runs do not fulfill this requirement).
- 4.1.9 All circuits must have independent neutral conductors, no shared neutrals.
- 4.1.10 Adjacent light outlets/light groups will be supplied using different circuit breaker when more than one corresponding circuit is specified. Similarly, the same requirement applies to adjacent receptacles.
- 4.1.11 Each connection point will be labeled using floater (ex. Brady wire markers).
- 4.1.12 Support conduit per latest NEC. Use unistrut as required.
- 4.1.13 Weld tabs, shot or weld studs as required to install unistrut. Do not weld in structural restricted zones.
- 4.1.14 As much as possible, attach studs or weld supports to the flange and not the web of columns.
- 4.1.15 All exterior electrical components/boxes and equipment shall have a NEMA 3R or 4X rating or shall be approved for use in wet locations (i.e. IP65).
- 4.1.16 All interior electrical components/boxes and equipment shall have a NEMA 12, 3R or 4X rating and shall have non-yellow exterior parts.
- 4.1.17 All interior conduits shall be EMT unless otherwise specified. Use only rigid conduit on exterior of the enclosure.
- 4.1.18 All exterior conduit connections shall be made-up rain tight or shall have welded joints. All exterior threaded conduit fittings shall be sealed with 100% silicone caulk (clear or white in color) where O-rings or gaskets are not installed. All conduit bodies (i.e., LBs, pulling Ls, Tees, etc.) shall utilize gasket covers.
- 4.1.19 Exterior low points in horizontal conduit runs shall include a fitting that can be opened for draining any trapped water.
- 4.1.20 All conduit penetrations made in exterior electrical enclosures/boxes and equipment shall be made using watertight conduit hubs/connectors. Penetrations shall be made in the bottom of exterior electrical enclosures/boxes and equipment whenever possible.
- 4.1.22 All GFCI receptacles will be installed using only line side connections. Thereby precluding an instance where a receptacle becomes GFCI protected by being fed from the load side terminals of an upstream GFCI receptacle on the same circuit.

4.2 Symbol Legend, Standard Installation Height and Label Scheme

4.2.1 Symbol legend and standard height from finished floor to center of part unless otherwise specified

Table 1 – Device Symbols And Heights

| Device | Symbol | Standard Height |
|--|---|-------------------|
| Duplex GFCI Outlet |  | 18" |
| Light Control Motion Sensor |  | 85" |
| Photocell |  | 46" |
| Breaker Panel, 120/240V, 100A, |  | 46" center of box |
| Disconnect Switch |  | 46" on handle |
| Illuminated Exit Sign with Emergency Lights |  | Above Exit door |
| Florescent Light, 2' x 4', 4 bulb, T-8 Troffer Light Fixture |  | Mount in overhead |
| LED Flood Light |  | 168" |
| Induction Wall Pack Only |  | 144" |
| Emergency Light |  | 96" |
| Motion Sensor Junction Box |  | 46" |