

Each building shall be supplied complete with all necessary components to form a complete building system, and all parts shall be new and free from all defects or imperfections.

The building width ____ and length ____ shall be measured from the outside of the building wall panels, and the height of the building shall be the distance measured from the bottom surface of the base channel to the exterior juncture of the roof and side wall panels.

Design Criteria

All buildings shall be designed in accordance with the applicable sections of the latest edition of the AISC "Specifications for Structural Steel Buildings" and the AISI "Specification for the Design of Cold-Formed Steel Structural Members".

Each building shall be designed for the following loads:

1. The vertical Live Load of the building shall not be less than 40 pounds per square foot applied on the horizontal projection of the roof.
2. The horizontal Wind Load of the building shall not be less than 110 MPH and shall be distributed and applied in accordance with the applicable edition of the Metal Building Manufacturer's Association (MBMA) publication titled, "Low Rise Building Systems Manual".
3. The building and portion thereof shall be designed to resist the effects of seismic ground motions that might be expected in seismic zones.

Reduction of loads due to tributary loaded areas shall not be permitted. All combining and distributing of auxiliary equipment loads imposed on the building system shall be done in accordance with the applicable section of the MBMA publication titled, "*Low Rise Building Systems Manual*".

Upon request, a complete design certification signed and sealed by a registered professional engineer shall be provided.

Roof Panel Design

Roof panels shall be supplied in a single continuous length from eave line to ridgeline and shall be designed to tightly interlock, so that no fasteners are required at intermediate points along the panel side laps.

Roof panels shall be 16" or 12" wide with a smooth surface between the interlocking side ribs. The interlocking ribs shall be a minimum 3" high and shall be turned upward. All roof panels shall be factory punched for connection at the eave line of the building.

There shall be no fastener penetrations through the roof covering, except at eave lines, ridgelines, and roof accessory openings such as skylights and ventilators.

Roof panels shall be nominal 20 gauge galvanized steel conforming to ASTM A-653 specifications with the galvanized coating conforming to G90 (1.25 oz. commercial) standards. Minimum yield strength of the panel material shall be 50,000 psi.

Roof panels shall receive a roller-applied paint coating having an exterior coating thickness of 0.8 to 1.2 mils of dry film thickness.

The roof panel color coating shall carry a low fire hazard rating equal to a Class 1 material as defined by Factory Mutual. The panel coating shall have achieved a Flame Spread Index of 0 and a Fuel Contributed Index of 5 or less when tested in accordance with ASTM E-84 test procedures.

The finish coat shall be a white siliconized polyester formulation that shall meet the following performance standards after 10 years continuous exposure to normal atmospheric conditions not containing corrosive fumes such as chemicals or salt spray:

1. Panels shall show no evidence of blistering, peeling, or chipping.
2. Panels shall not show surface chalking in excess of the No. 4 rating D659 as established by the American Society for Testing and Materials (ASTM).
3. Panels, after cleaning, shall not show color change in excess of 7 NBS units when measured in accordance with the ASTM D-2244 standard.

The above performance standards shall not apply where panels have been damaged by fire, radiation or other physical damage.

Wall Panel Design

Exterior wall panels of the building shall be a single continuous length from the base channel to the roofline of the building, except where interrupted by wall openings.

Wall panels shall be 16" wide with a 3" deep inward turned interlocking side rib. Wall panels shall contain two 3/4" deep by 3-1/8" wide fluted recesses, each starting 2-7/16" from the panel edge.

Wall panels shall be fastened internally to the base channel and eave cap of the building with 3/8" diameter electro-galvanized machine bolts placed within the panel interlock. The fastening system shall be designed so that no wall fasteners are exposed on the exterior surface of the walls.

Wall panels shall be nominal 24 gauge galvanized steel conforming to ASTM A-653 specifications with the galvanized coating conforming to G90 (1.25 oz. commercial) standards.

Minimum yield strength of panel material shall be 40,000 psi. Panel material shall be embossed with a random pattern pebble emboss of approximately .007 — .008 depth.

All exterior surfaces of the galvanized steel wall covering and exterior trim shall receive a roller-applied paint coating having an exterior coating thickness of 0.8 to 1.2 mils of dry film thickness. The finish coat for wall panels shall be a siliconized polyester formulation.

The wall panel color coating shall carry a low fire hazard rating equal to a Class I material as defined by Factory Mutual. The panel coating shall have achieved a Flame Spread Index of 0 and a Fuel Contributed Index of 5 or less when tested in accordance with ASTM E-84 test procedures.

Exterior color coatings shall meet the following performance standards after 10 years continuous exposure in normal conditions.

1. Panels shall show no evidence of blistering, peeling, or chipping.
2. Panels shall not show surface chalking in excess of the No. 7 rating D659 as established by the American Society for Testing and Materials (ASTM).
3. Panels, after cleaning, shall not show color change in excess of five (5) NBS units when measured in accordance with the ASTM D-2244 standard.

The above performance standards shall not apply where panels have been damaged by fire, radiation or other physical damage.

Formed Wall Liner

The interior of the metal walls shall be lined with 32" wide, nominal 26 gauge galvanized steel panels, prepainted Arctic White with 1/4" high by 1" wide flutes on 8" centers. The exterior panel void shall have 3-1/2" thick R13 unfaced fiberglass insulation.

The liner system shall be furnished complete with white base molding and white trim.

The U-value of the finished wall system shall be 0.16 Btu's per square foot when calculated in accordance with the "Zone Method" contained in ASHRAE *Handbook of Fundamentals*, 1981 edition.

The ceiling shall be insulated with 16" wide by 3-1/2" thick R13 unfaced fiberglass insulation laid at right angles to the panel ribs. The U-value through the finished ceiling shall be a maximum of 0.09 Btu's per square foot when calculated in accordance with the "Zone Method" contained in ASHRAE *Handbook of Fundamentals*, 1981 edition.

Below are the insulation packages for each zone.

- 2006 Zone 1–4 – Walls R-13 insulation (R13 fiberglass)
Ceiling R-30 insulation (2 layers of R13 fiberglass and 1 layer R7 low'e' – insulation is compressed)
- 2006 Zone 5–6 – Walls R-20 insulation (R13 fiberglass and 1 layer R7 low'e')
Ceiling R-30 insulation (2 layers of R13 fiberglass and 1 layer R7 low'e' – insulation is compressed)
- 2006 Zone 7 – Walls R-20 insulation (R13 fiberglass and 1 layer R7 low'e')
Ceiling R-38 insulation (3 layers of R13 fiberglass and 1 layer R7 low'e' – insulation is compressed)
- 2009 All Zones – Walls R-20 insulation (R13 fiberglass and 1 layer R7 low'e')
Ceiling R-38 insulation (3 layers of R13 fiberglass and 1 layer R7 low'e' – insulation is compressed)

Building Type

Each building shall have an interlocking panel roof system with a 1-1/2" pitch over the building width. Roof panels shall be attached to the wall cap through factory punched holes, with #14 corrosion resistant fasteners.

The roof system shall include a gutter and downspout system at the low sidewall, eave trim at the high sidewall, and matching rake trim at the building end walls. All gutters and trim shall be galvanized steel prepainted Arctic White or Roman Bronze.

Transmission of horizontal wind loads across the building shall be made through the panel roof system and no separate roof or wall diagonal bracing shall be required.

Where required for proper transmission of lateral wind loads, structural frame wind bents shall be installed. Wind bents shall consist of a prime painted column and rafter bolted assembly of steel conforming to ASTM A-36 specifications.

Hollow Metal Doors

All doors shall be 1-3/4" thick flush type. Door panels shall be nominal 20 gauge galvanized steel reinforced by laminating to a honeycomb core enclosed with 16 gauge end channel. The hinge reinforcements shall be nominal 7 gauge and the lock reinforcements shall be nominal 16 gauge. Door frames shall be 4-3/4" deep double rabbeted type of nominal 16 gauge galvanized steel.

Doors and frames shall be painted with one coat of baked-on primer. All doors shall be preassembled in their frames and hardware installed and tested. Field installation of single leaf door units shall not require any frame assembly or door hanging.

Door Hardware

Door hardware shall consist of the following:

3 – 4-1/2" x 4-1/2" standard weight, plain bearing hinges per ANSI A5133 630 Satin Stainless Finish with nonrising pins.

3 – 11/16" wide x 5/8" high-extruded aluminum threshold (out swing).

1/4" x 1/2" silicone rubber weather striping.

Mortise lockset per ANSI A156.13, Series 1000, Grade 1, Function F13, 626 Satin Chrome Finish (levers both sides) .

Exhaust Fan

Exhaust fan shall consist of shutter, fan assembly, wall sleeve, and rear guard. Fan shall have a 115-volt, 1/6 hp direct totally enclosed motor for continuous duty with thermal overload protection built in. Rear guard shall conform to OSHA specifications.

A/C Motor Operator Louver (Temperature Activated)

Louvers shall be O flanged self-framing design. The louver frame shall be of nominal 14 gauge formed aluminum, and the louver blades shall be nominal 12 gauge extruded aluminum. Finish shall be natural mill finish and shall not require field painting.

Blades shall be pivoted on 1/2" diameter aluminum pivot pins through nylon flanged bearings and operated by means of a pull bar-operating handle connected to solenoid. All louvers shall be complete with an 18-14 aluminum mesh insect screen.

The motor activator provides true spring return operation for reliable fail-safe application and positive close-off on dampers. The actuator provides 95 degrees of rotation and is provided with a graduated position indicator showing 0 to 90 degrees. The activator may be installed anywhere in its normal rotation without the need of mechanical end switches.

Heater

Heater has an advanced pull-through airflow design that draws air across the heating element during operation. The unit heater is equipped with a built-in thermostat capable of maintaining a minimum inside temperature of 40 degrees F. Heater wattage varies from 3 kW to 15 kW, depending mainly on the building size, ambient outside temperature and desired temperature in the building.

Mini Power Zone

This is a general purpose 460 volts to 230/120 volts transformer (Typical) for supplying power via double pole/single pole circuit breakers to electrical components in the building rated at different voltages. The transformer and the circuit breakers are housed in a rugged NEMA 3R enclosure.

Wireway with Distribution Block (Single Point Power Customer Connection)

The distribution block is housed in a NEMA 3R rated enclosure. The distribution block splits the customer supplied single source power (typically 3 phase 3 wire 460 volts) to supply the electric controllers (same voltage rating as the customer supply) and feeds the Mini Power zone for supplying to equipment rated at different voltages.

Other Electrical Components in Building

4' interior fluorescent ceiling lights (operates on single-phase, 120 volts)

High-pressure sodium exterior lights above the door (operates on single-phase, 120 volts)

Wall mounted GFCI receptacles (operates on single-phase, 120 volts)

Emergency lights, for A/C power failure, inside building (operates on 12V batteries)

Sprinkler System – Standard for Diesel-Driven Pumps

Building is to have its own sprinkler system designed and installed per NFPA 13. Sprinkler heads to be rated for 155 degrees F and would have a minimum sprinkling capacity of all be 0.25 gpm/ft².