Specifications for Pre-Assembled & Unassembled

Fiberglass Buildings

GENERAL SCOPE:

This specification sheet consists of describing the design, materials, fabricating, assembling, options and delivering our Pre-Assembled and Unassembled Fiberglass Buildings.

Engineering

1. The building system uses a schematic of a Finite Element Analysis (FEA) model to determine the acceptable wind and snow loads. The FEA Report is supplied with the approval drawings. 2. FEA must be completed by a recognized third party structural engineering consultant. 3. Certified Panel Testing - ASTM C393 determining the flexural properties of the sandwich construction and ASTM D7250 was done to determine flexural stiffness and the cores shear modulus. These tests are required so there are no assumptions made when doing the modeling. This should be done when designing any FRP building using a sandwich panel design. 4. Sealed engineered drawings by a third party are also available. 5. Wind Load: a. The results of the FEA Engineering report shows that the building standard design meets wind speed of 148 MPH (3 second gust) 6. Snow Load: a. Minimum Allowable Design Snow Load of 50PSF. Note increased snow load is available by increased laminate thickness which is described in the FEA report.

2. FEA must be completed by a recognized third party structural engineering consultant.

3. Certified Panel Testing

   ASTM C393 determining the flexural properties of the sandwich construction and ASTM D7250 was done to determine flexural stiffness and the cores shear modulus. These tests are required so there are no assumptions made when doing the modeling. This should be done when designing any FRP building using a sandwich panel design.

4. Sealed engineered drawings by a third party are also available

5. Wind Load:
   a. The results of the FEA Engineering report shows that standard design meets wind speed of 148 MPH (3 second gust)
6. Snow Load
   a. Minimum Allowable Design Snow Load of 50 PSF .Note increased snow load is available by increased laminate thickness which is described in the FEA report.

Design

1. Walls, Roof and End Sections: All components sections consist of a minimum of one inch of high density foam that is totally encapsulated by 1/8”of fiberglass laminate. Laminate to have a minimum glass content of 25%.
   To eliminate any chance of delamination and to increase stiffness of the components the two laminate skins that sandwich the foam core are linked throughout by resin when manufactured and not by bonding two skins to the foam by an adhesive which increases possibility of delamination and decreases stiffness and strength.
2. No type of metal studs or trusses are required with our Fiberglass building, eliminating possible twisting and bending in transportation. This also decreases the weight of the structure.
3. All buildings have their own internal molded structural fiberglass flanges that are used to stiffen and fasten. The thickness of flanges is determined by the FEA report and based on minimum load requirements described in the FEA report.

Sizes

1. Wall height
   a. Maximum wall height is 14’,
   b. Factory assembled buildings will have a maximum wall height is 10’ due to shipping restrictions.
2. Building length
   a. Length is unlimited
   b. Factory assembled building maximum length is 48’ due to shipping restrictions
3. Widths
   a. Width is up to 20,’
   b. Factory assembled building maximum width is 14’ due to shipping restrictions.

Roof pitch options

1. Buildings up to 10’ in width options are

   a. low profile roof design with a 1 to 12 pitch slope or

   b. a 3 to 12 pitch .

2. Buildings 10’ and wider have a 3 to12 pitch roof.

Insulation

1. Insulation consists of a minimum 1” foam closed cell polyiso foam core with a density PCF (-30 kg/m3) core, Type I Class 1.
2. Foam core meets ASTM E 84-98 FIRE TEST Flame Spread - 25 or less and Smoke Density - 450 or less
3. R-12 minimum with higher R value options available

Laminate

1. All properties to meet or exceed requirements that are laid out in the corresponding FEA report that defines load achievements:

Tensile Strength – ASTM D 638 – 13,390 psi

Flexural Strength ASTM D790 - 22,501 psi

Compressive Strength ASTM D695 - 20,747 psi

Density -- 2.995 g/cc

Exterior Finish:

1. All exterior surfaces are orthophthalic polyester with high quality ultra violet inhibitors and fully pigmented. This provides pigment and ultraviolet protection throughout the laminate and not only on the surface.

Optional Floor System

1. Floors system options include
    a. pressure treated wood,
    b. aluminum,
    c. steel
    d. fiberglass.
    e. fiberglass containment floor
2. Each floor is designed and built to meet the floor load requirement

Concrete mounting

1. There is a 4" wide fiberglass internal mounting flange around the building perimeter. An expandable neoprene sponge rubber gasket to provide a weather tight seal is also provided.
2. The base will be anchored with ½" expandable wedge anchors providing a 2 to 1 safety factor.
3. Base anchors include standard galvanized or optional stainless steel.

Fiberglass Doors and Frames

1. Size: standard door size is 36" wide x 7' high
2. The one piece molded fiberglass composite door shall be 1 3/4" thick with a similar design to the other sections of the building, except it being 1 1/2" thick foam.
3. The frame is a minimum ⅜" thick solid fiberglass designed specifically for this door
4. Door gasket shall be extruded closed cell neoprene sponge rubber providing a tight weather seal
5. Hinges:
    a. There are three 4 1/2" x 4 " ball bearing NRP hinges.
    b. Standard hinge finish is satin chrome
    c. Optional hinge finish is stainless steel
6. Doors can be hung anywhere in the building with left or right swing,
7. Doors can be double hung.
8. All doors come with an adjustable door sweep
9. Option: 12" x 12" safety glass window

Door Hardware Options

1. Standard :
    a. Lever design, entrance function.
    b. Schlage "C" keyway 6-pin rekeyable cylinder,
    c. Satin chrome finish
2. Stainless finish
    a. deadbolt with passage set
3. Stainless finish,
    a. lever design,
    b. grade 1, Schlage "C" keyway 6-pin rekeyable cylinder
4. Stainless handle
    a. with 1/2" padlock loop and single point latch
    b. with 1/2" padlock loop and 3 point latch
5. Panic Push Pad Type
    a. meets ANSI A156.3, Grade 2 requirements with aluminum finish

or

    b. meets ANSI A156.3 Grade 1 requirements with stainless steel finish

If for any reason none of the above serves your needs please let us know and we will find the door hardware that you require.

Threshold Options

1. Standard threshold is 4" wide x ½" high creates a no trip entrance
2. Option- threshold 4" wide x ½" high with thermal break
3. Option- threshold 4" wide x 15/16" high with thermal break, with frost inserts

Door Closer

1. Standard is Heavy duty door chain
2. Option:
    a. Surface mounted, push side mounted door closer, double arm closer meets ADA requirements,

Windows

1. Vinyl windows sealed, dual pane ,any size, most common and stocked is 24” x 24”

   or 36” x 36”

2. Option
   a. Fixed
   b. Sliding
3. Glass Option
   a. Safety glass
   b. Plexiglass
   c. Low - E

Fastening Hardware

1. Standard

   a. 304 Stainless on the exterior, zinc plated on the interior

2. Option

   a. 304 stainless on the exterior and interior

Finished Building

1. CAD drawing is included in the cost of the building along with specification sheets;
2. All buildings are designed to be weatherproof, watertight and corrosion resistant;
3. All buildings will have no exposed joints on the exterior of the roof;
4. All areas that require caulking will receive a high quality silicone sealant that matches the exterior color of the building.

5. All electric wiring and components such as lights , fans and receptacles will be surface mounted
6. Any cutouts done in the walls or roof in the field is acceptable.There is no concern of delaminated because of the linking of the laminates explained in the design section .
7. Assembly Manual
   a. All unassembled buildings will have a assembly manual and contact information

   b. A factory representative will contact the contractor before assembly to review the assembly process.

8. Optional service: The manufacturer can provide a representative to be on site to assure that the building is installed properly. This is not necessary but the option is available.

Shipping

1. All pre assembled buildings are shipped shrinked wrapped for protection from road splatter and debris
2. All pre assembled buildings without a floor will be shipped with lifting eyes
3. All pre assembled buildings without a floor will be braced inside for protection
4. All buildings are quoted delivered to the Job site, off loading is the responsibility of others.

Electrics, Lighting, Venting, HVAC and Heat

1. As noted in finished building section all electric wiring and components are surface mounted
2. All fixtures can be supplied in
    a. explosion proof,
    b. non explosion proof and
    c. non corrosive
3. Specification sheets will be supplied for approval and positioning of equipment will be directed by customer
4. Regular electric items supplied
    a. Panel boxes with breakers as required
5. Lights :
    a. incandescent
    b. fluorescent vaportight ,
    c. emergency lighting .
    d. exterior with photocell.
6. Standard fan has aluminum blades and is wall mounted, size 8”to 36” single or variable speed with or without reverse thermostats,. All fans will have a bird screen and hood.
7. Venting :
    a. Standard fixed 45 degree louver 8” x 8” and 12” x 12” with screens in a PVC finish
    b. Standard manual operated 90 degree louver any size in an aluminum finish with screen and hood
    c. Back draft damper any size in an aluminum finish screen and hood
    d. Manual operated back dampers 90 degree any size in an aluminum finish screen and hood
    e. Motorized back damper 90 degree any size in an aluminum finish screen and hood
8. HVAC
    a. Window air conditioner 8,000 to 25,000 btu
    b. HVAC Manufacture Marvair -Size Range 1 ton to 6 ton
    c. designed for Commercial applications
    d. designed for Telecommunications applications
    e. call to review all options

9. Heating
    a. Standard heater is a fan operated electric heater, size range 1.5 kw to 10 kw Includes built in thermostat, with mounting brackets epoxy-polyester powder coated, 20-gauge steel cabinet, totally enclosed and factory lubricated motor,350 CFM quiet helicoidal fan, adjustable louvers, thermal protection with automatic reset
    b. Standard explosion –proof electric unit heater, Size range 3kw to 35 kw, Designed for Class 1 div.1&2 Groups C, Class 11 div.1 & 2 Groups E, ,F&G, Class 1 Zones 1 & 2 Groups 11A &11B
        1. OPTIONS
        2. Built in thermostat
        3. Built in disconnect switch
        4. Built in light
        5. 3-way switch
        6. Stainless steel Cabinet

Other popular Options

1. Roof Hatch with lifting eyes
2. Roof Hatch that can be opened from ground level with hoist operated option
3. Custom cutouts with removable covers
4. Partitions
5. Fiberglass cabinets and counters
6. Shelving
7. Equipment mounting channels
8. Sky lights
9. Fire suppressant system
10. Eavestrough and downspouts
11. Jack stands and custom anchors
12. Cable trays
13. Entry ports