

## **poligon**

A Division of

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### **GIW 16 S/SSR**

Standing seam copper roofing installed on top of our sandwich panel roof deck sets this Ironwood gazebo apart from the rest. What a beautiful setting! Ironwood gazebos come in 16', 20' or 36' diameters with Diamond pattern railing packages as standard. A small metal cupola can also be added.

#### **\*\* SPECIFICATIONS \*\***

#### **\* POLIGON HEX 16 IRONWOOD GAZEBO \* SANDWICH PANEL ROOF**

#### **SUMMARY**

Loading: 30 psf snow, 90 mph wind, seismic zone 4.

Diameter: 16' from outside of column to outside of column.

Outside eave diameter: 20' from tip of eave to tip of eave.

Height below the overhead ornamentation shall be 7'-6".

Area under roof: 255 square feet.

Area encompassed by the columns: 166 square feet.

Roof pitch: 3:12 at the eave bending to 9:12 at the peak.

Columns: 5" x 5" structural steel tubes.

#### **FULL SPECIFICATIONS**

#### **PRE-MANUFACTURED SHELTER CONSTRUCTION**

#### **APPROVED MANUFACTURER**

The use of a manufacturer's name and model or catalog number is only for the purpose of establishing the standard of quality, design details and general configuration desirable. Products of other manufacturers will be considered in accordance with the requirements in this and as follows.

All components for the shelter shall be manufactured or supplied by **Poligon/W. H. Porter, Inc.**, Holland, MI, (616) 399-1963. Contractor may submit other manufacturer for approval with following conditions.

The owner or his representative shall determine all approved equals. In order to be considered an approved equal, the following criteria must be met:

1. Manufacturer's literature: Submit complete manufacturer's literature and technical data. Literature must include address of manufacturer's physical facility and manufacturer's telephone number.

2. Certification: Submit, via transmittal, properly identified with project name, location and date, certification of manufacturer's compliance with the requirements specified herein signed and sealed by a Professional Engineer registered in the State of \_\_\_\_\_. Data must be specific to the project spelling out exactly what will be supplied and not of a general nature.
  3. Submit complete set of shop drawings signed and sealed by a Professional Engineer registered in the State of \_\_\_\_\_. Drawings must be specific to the project spelling out exactly what will be supplied and not of a general nature.
  4. Submit samples, certifications and specification sheets on the following items: Roof decking, beams, panels, welding, columns, fascia, interior finish and exterior siding.
  5. All equals must be approved (10) ten days before the bid date.
  6. All approved equals shall be notified with written statements of their approval. Manufacturers shall not bid this project without this written notification.
  7. Only primary manufacturers of shelters will be allowed to bid. The product shall be from a single source. Design firms which sub-contract different components from different sources will not be allowed to bid. The manufacturer shall have been making steel frame pre-manufactured shelters for a minimum of (5) five years and demonstrate quality by listing (3) three similar projects in the territory. The owner may review their projects to determine quality, design details and durability in service.
  8. Approved equals shall be attentive to design details of the entire structure. Design details in the method of clean appearance and hidden fasteners must be equal to that of **Poligon**.
- Fabrication using open "I" beams, open "CEES," or open channels shall not be accepted. Any open members must be covered or boxed-in for a tubular appearance. Tapered columns shall not be accepted.
- Approved equals using a ribbed or seamed metal roof shall have the ribs or seams running with the slope of the roof.
9. Field labor will be kept to a minimum by pre-manufactured parts. Any equivalents to **Poligon** shall list all materials that must be field cut, custom fit and field fabricated. Roof deck and/or panel work shall be detailed as to field work required. Field work required for erections shall not exceed that of a **Poligon** structure.
  10. Foundation and anchor bolt configurations shall be the same "foot print" as that of the specified **Poligon** structure. Surface mounting with a single hidden anchor bolt per column will be the only accepted method.
  11. Any equivalent structure manufacturer must submit information indicating they meet specified area under roof and area encompassed by columns.
  12. Shelter shall be "Made In America."
  13. The manufacture will be operated under a quality control program equivalent to Mil I.
  14. A Five-year warranty shall be provided by the bidder.

15. All components and details shall meet or exceed **Poligon** specifications as follows:

#### GENERAL

The structure shall be a **POLIGON GIW 16 S** manufactured by W. H. Porter, Inc. of Holland, Michigan. It shall be designed in strict accordance with the Uniform Building Code (current edition) using a minimum Snow Load of 30 psf, a minimum Wind Load based on a 100 mph wind speed, and a Seismic (earthquake) Load based on Zone 4. (Consult factory if heavier loads are required.)

The **POLIGON GIW 16 S** shall be designed as a Space Frame using three dimensional (3-D) structural analysis to determine member loads and forces. The structure shall be surface mounted over internal anchor bolts.

All structural framing (except the compression ring) of the **POLIGON GIW 16 S** shall be steel tubes or structural steel sections with cover plates to form a clean, neat appearance and no place for bird nesting. The compression ring shall be structural channel. Since all connections will bolt together, field welding shall not be required. Bolts shall be concealed within the tubing where possible.

All steel members of the **POLIGON GIW 16 S** shall be designed in strict accordance with the requirements of the "American Institute of Steel Construction" (AISC) Specifications and the "American Iron and Steel Institute" (AISI) Specifications for Cold Formed Members.

All structural field connections of the **POLIGON GIW 16 S** shall be designed and made with High Strength bolted connections using ASTM A325 structural bolts.

All shop welded connections of the **POLIGON GIW 16 S** shall be designed and made in strict accordance with the requirements of the "American Welding Society" (AWS) Specifications. Structural welds shall be made in compliance with the requirements of the "Prequalified" welded joints where applicable and "Special" welded joints developed by W. H. Porter, Inc. (tested and certified in accordance with AWS requirements). All "Special" welded joint procedures are the property of and for the exclusive use by W. H. Porter, Inc.

The steel frame of the **POLIGON GIW 16 S** shall be prime painted with a rust inhibitive modified alkyd primer according to Steel Structures Painting Council (SSPC-SP2) as outlined in AISC 6.5. The frame shall be finish painted in the field with a weather resistant paint, supplied and applied by the contractor.

#### SIZE

The structure shall be a Hexagon. The diameter of the **POLIGON GIW 16 S** shall be 16' from outside of column to outside of column and 20' from tip of eave to tip of eave. The height below the overhead ornamentation shall be 7'-6". The area under roof shall be 255 square feet. The interior clear spanned space encompassed by the columns shall be 166 square feet. There shall be no center column.

#### ROOF PITCH

The roof pitch shall be 3:12 at the eave bending to 9:12 at the peak.

#### FRAME

**COLUMNS** shall be 5" x 5" structural steel tubes. There shall be six columns.

The COMPRESSION RING shall be a hexagon formed from steel plate. It will connect tubular steel trusses at center of structure.

The TENSION MEMBERS shall be structural steel tubes.

The TRUSS MEMBERS shall be structural steel tubes.

#### RAILINGS AND OVERHEAD ORNAMENTATION

The railing and ornamentation package of the **POLIGON GIW 16 S** shall be the STANDARD DIAMOND PATTERN. It shall consist of five handrails, six overhead ornamentation sections and six upper sections between the two tiers of the roof.

The lower hand rails shall be 36" high and span from column to column. The main horizontal rail shall be 3/8" x 2", the vertical pickets shall be 1/2" x 1/2" and be 6-3/8" on center. The diamond ornaments shall be formed from 3/16" x 3/4" bar stock bent to form 6-1/2" diameter squares measured from point to point. Diamonds shall be individually welded above the pickets. Each section shall be structurally fastened to the column.

The overhead ornamentation shall span from column to column under the tension member on all sides. The ornamentation is to be 7-1/4" high and have curved corner brackets at each column. It shall be fabricated in the same fashion as the lower rails. It shall be structurally fastened to the columns.

The upper ornamentation shall span from juncture column to juncture column in all openings between the two tiers of the roof. Assembly shall be similar to overhead ornamentation except there shall be no corner brackets.

All Poligon ornamental components shall be fabricated by certified welders. The components shall be fabricated from solid steel shapes minimum grade ASTM A36 structural steel. All ornamental components shall be individually formed from solid steel material. There shall be no overlapping, lattice effects, or through piercing designed into the components. All ornamental components shall be solidly and completely welded to one another. There shall be no tack welding. All assemblies and ornamental components shall be cleaned of slag and dress ground if required.

All railing and ornamentation components shall be zinc plated after fabrication is complete.

#### ROOF SYSTEM

The roof system for the **POLIGON GIW 16 S** shall be structural sandwich panels composed of simulated tongue and groove decking on the underside and a wood decking on top. Panel size shall be based on 4' wide module with lengths and angles pre-cut.

The simulated tongue and groove decking shall be 5/8" rough sawn fir plywood (APA T1-11 18W) with grooves 4" on center. It shall have 18 or fewer patches per 4' x 8' unit. It shall have no plastic or synthetic filler.

The exterior surface shall be 7/16" strand board.

Fascia shall be 5/4 x 6 quality deck grade or better inland cedar.

All plywood and structure wood components of the **POLIGON GIW 16 S** shall be approved by the American Plywood Association (APA).

All laminated structural sandwich panels of the **POLIGON GIW 16 S** shall have available test data done by a BOCA licensed third party professional engineering agency. Testing has been done for racking, compressive, and transverse loadings in accordance with the American Society for Testing Materials (ASTM) E-72-80.

Panels shall be laminated with adhesive approved by the International Congress of Building Officials (ICBO) test report #3462.

Most standard roofing systems, such as fiberglass shingles, cedar shakes, tile or metal roofing are appropriate to be applied over POLIGON sandwich panels. (If heavy tiles are used, check local codes for additional loading.)

**\*\*NOTE: IF STANDING SEAM ROOF DESIRED, INSERT SPEC FOR REQUIRED MATERIAL HERE.\*\***

#### SURFACE MOUNTING ON CONCRETE FOUNDATION

The shelter shall be set on prepared footings and/or concrete slab. Foundation will be constructed to local codes, the shelter manufacturer's specifications, and good construction practices for the specific site conditions. The structure shall be attached to the top of the concrete by use of anchor bolts as specified and furnished by the manufacturer. Anchor bolts shall be inside the column.

#### PRE-ENGINEERED PACKAGE

The **POLIGON GIW 16 S** shall be a pre-cut and pre-fabricated package that shall include the structural frame, panelized roof, fasteners, trim and installation instructions. The structure shall be shipped in a knocked down manner for minimum shipping charges.

#### BUILDING CODES

Building codes vary widely in the USA. W. H. Porter, Inc. has attempted to design within most common codes. It is the owner's responsibility to check with code officials to see that the structure conforms. Consult W. H. Porter, Inc. for specific design information that can assist in obtaining code approval. Certified stamped engineering drawings will be supplied upon request for a fee.