

## **poligon**

A Division of

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### **TIARA 41 T/M**

The six-sided Tiara is an elongated hexagonal gazebo. The clerestory roof is beneficial because it allows more light into the structure. This Tiara is a custom design proposed by a local landscape architecture company. This shelter is one of many examples of POLIGON'S willingness to work with design firms applying their ideas to our technology.

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

**\* POLIGON TIARA 41 GAZEBO \***

**TONGUE & GROOVE ROOF**

#### **SUMMARY**

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

Overall length shall be 45'.

Overall width shall be 32'.

Height below the tension member shall be 8'-0".

Area under roof shall be 1588 square feet.

Roof pitch: 3-1/2:12.

Columns: 6" x 6" 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 TIARA 41 T** 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 TIARA 41 T** 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 TIARA 41 T** 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 TIARA 41 T** 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 TIARA 41 T** shall be designed and made with High Strength bolted connections using ASTM A325 structural bolts.

All shop welded connections of the **POLIGON TIARA 41 T** 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 TIARA 41 T** shall be factory 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 2 tiered elongated hexagon. The overall length of the **POLIGON TIARA 41 T** shall be 44'. The overall width shall be 32'. Height below the tension member shall be 8'-0". The area under roof shall be 1588 square feet. There shall be no center columns.

#### ROOF PITCH

The roof pitch shall be 3-1/2:12. Approximately 2/3 way up the roof the center portion shall be "popped up" 24" to break the roof line.

#### FRAME

**COLUMNS** shall be 6" x 6" structural steel tubes. There shall be 6 columns.

**COMPRESSION RINGS** shall be hexagon shaped with a dimension of 12" across the corners.

They will connect tubular steel trusses at the center of the structure.

TENSION MEMBERS shall be structural steel tubes. There shall be a lower and upper tension ring.

TRUSS MEMBERS shall be structural steel tubes. There shall be lower and upper trusses.

PURLINS shall be structural steel tubes.

RIDGE BEAM shall be a structural steel tube.

### ORNAMENTATION

Ornamentation shall span from juncture column to juncture column in all openings between the two tiers of the roof. It shall be the standard diamond style. Each column shall have a curved corbel.

All Polygon ornamental components shall be fabricated by certified welders. The components shall be fabricated from solid steel shapes minimum grade ASTM A50 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 ornamentation components shall be zinc plated after fabrication is complete.

### ROOF SYSTEM

The roof system shall be 2x6 tongue and groove decking, Southern yellow pine, kiln dried, #2 grade or better, edge V'd one side.

Fascia shall be 5/4x6 quality deck grade or better inland cedar.

### ROOFING

Typically, roofing shall be supplied by others. Most standard roofing systems, such as fiberglass shingles, cedar shakes, tile, or metal roofing are appropriate. If heavy tiles are used, check local codes for additional loading.

### 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 TIARA 41 T** 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.