

poligon

A Division of

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The Pavilion Series is a popular model for covering carousels like this one at the Kentucky Kingdom theme park in Louisville. The shelter pictured is an 80-foot clerestory pavilion with a tongue & groove roof and shingles. POLIGON's 12-sided shelters are available in sizes ranging from 44 feet to 80 feet (or more) in diameter. They can be ordered with a clerestory ("popped up") roof or with a continuous sloped roof.

Constructed of tubular steel, POLIGON frames are easy to install, vandal resistant, and long-lasting. Each shelter comes with a choice of three roof system options and the fasteners and trim needed to complete the shelter. Roof system options are: metal roof deck (12 color choices available), sandwich panel roof, or tongue & groove roof. Standard frame finish is prime paint, but powdercoating and galvanizing are also available.

Consistent quality in design and manufacturing is standard for all of the shelters in the POLIGON product line. Wherever possible, bolt connections are hidden within the tubular steel members, and the columns are bolted to the base with a single anchor bolt hidden inside the column. Most buildings are built with tubular steel and thus designed to minimize bird nesting. All parts bolt together so that no field welding is required.

SPECIFICATIONS

Poligon Pavilion 80 Clerestory Sandwich Panel Roof

GENERAL

The structure shall be a **POLIGON PAV 80 CLS** 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 PAV 80 CLS** 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 PAV 80 CLS** 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 PAV 80 CLS** 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 PAV 80 CLS** shall be designed and made with High Strength bolted connections using ASTM A325 structural bolts.

All shop welded connections of the **POLIGON PAV 80 CLS** 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 PAV 80 CLS** 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 12 sided. The diameter of the **POLIGON PAV 80 CLS** shall be 80' from outside of column to outside of column. The total diameter of the roof for the sandwich panel structures shall be 86'-0". Height below the tension ring shall be 11'-0". The area encompassed by the columns shall be 4800 square feet. The area under roof for the sandwich panel structures shall be 5547 square feet. There shall be no center column.

ROOF PITCH

The roof pitch shall be 8:12. Approximately halfway up the roof, the center portion shall be popped up 24" to break the roof line.

FRAME

COLUMNS shall be 6" x 12" structural steel tubes. There shall be 12 columns.

The **COMPRESSION RING** shall be 12 sided formed from structural channel. It will connect tubular steel trusses at center of structure.

The **TENSION MEMBERS** shall be steel tubes.

The **TRUSS MEMBERS** shall be steel tubes.

PURLINS shall be steel tubes.

ROOF SYSTEM

The roof system for the **POLIGON PAV 80 CLS** shall be structural sandwich panels composed of simulated tongue and groove decking on the underside, foam core, 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 premium grade 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 foam core shall be 3-5/8" expanded polystyrene with a nominal 1 pound density.

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

Sandwich panels shall be joined by 2x4 wood splines and attached to the steel frame with self-tapping screws according to the shelter manufacturer's schedule.

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

All plywood and structure wood components of the **POLIGON PAV 80 CLS** shall be approved by the American Plywood Association (APA).

All laminated structural sandwich panels of the **POLIGON PAV 80 CLS** 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.)

CUPOLA

A small steel cupola shall be supplied. Cupola shall be completely prefabricated to be placed upon roof after installation of roof panels.

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 PAV 80 CLS** 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.