

SUN SHADES ENGINEERING SUMMARY

PalmSHIELD recognizes that free standing louvered screening requires a great deal of structural engineering to assure this large surface area structure can withstand the latest wind load codes. This level of investment should be met with professional analysis. Responsible designers should be provided with this information in a usable format demonstrating full compliance. PalmSHIELD has provided this analysis herein.

PART 1 – PREPARATION

Structural calculations were prepared by the following structural engineering firm:

- A. Rise Structural Associates
- B. 1405 Prairie Parkway
- C. West Fargo, North Dakota
- D. Professional Engineer
- E South Dakota License #15041
- F. September 25, 2024
- G. Sun Shade Design

PART 2. – DESIGN CRITERIA

- A. Risk category: III
- B. Wind speed: 120 mph
- C. Exposure: C
- D. Importance factor: Open Sign Structure, Case A
- E. $K_{zt} = 1$
- F. $G = .85$
- G. $K_z = .85$
- H. $K_d = .85$
- J. $P_w = 13.78$ psf

PART 3 – MATERIALS. The above performance criteria is based on the following material types.

A. SQ Tube: 1/4" 6063-T52 Aluminum.

B. Rect. Tube Purlin: 1/8" 6061-T6 Aluminum.

C. Baseplate: 3/4" 6061-T6 Aluminum

D. Bolts: 3/8" Stainless Steel Bolts

E. Plate: 3/4" Aluminum 6061-T6 FB

PART 4. – DESIGN CRITERIA

The above performance criteria are based on the following critical design characteristics.

A. Purlins to allow a 50% open area based on 4" spacing and 2" opening.

C. Each purlin spans between 2 square tubes.

PART 5. – ENGINEERING

Below is the data stating the specific member sizes required for height and span.

Height= 9' or 12' Span: 12' or 8'

Square Tube: 4" x 4" x 1/4" beam

Square Tube: 4" x 4" x 1/4" column

Rectangular Purlin: 2" wide x 8' long x 1/8" thick.

Base Plate: 10" wide x 10" long x 3/4" thick

PART 6. – ENGINEERING DISCLAIMER

PalmSHIELD recognizes that every site has unique site conditions. The above engineering summary is not intended to represent form or fitness for any particular installation. The above engineering is for reference purposes only to demonstrate basic design criteria and performance characteristics. PalmSHIELD strongly recommends that every customer employ engineering within their jurisdiction specific to the installation and site conditions.

PART 7. – ENGINEER STAMP

