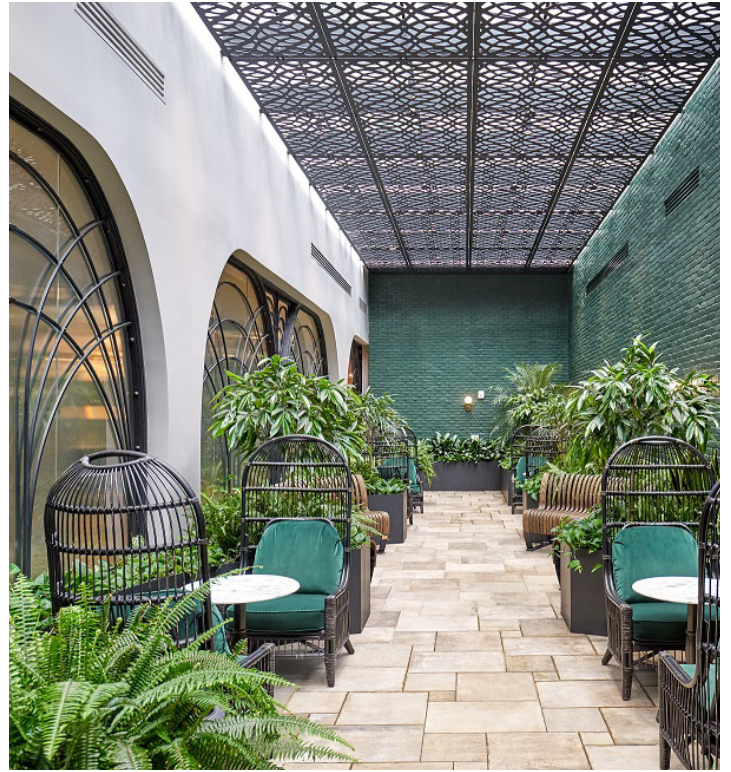


Parasoleil

Shade Design Guide






About Parasoleil

Precision cut, hand-finished artisan architectural panels

Parasoleil designs and manufactures an exceptional line of laser-cut architectural metal panels with unique patterns that offer a profoundly artistic aesthetic to any space. Engineered to withstand the elements and manufactured in the United States, these decorative panels provide a functional and durable design that is warranted to last. Parasoleil's project guidance, proprietary hardware and installation system, production dependability, and beautiful powder coats ensure your project's vision comes to life in a memorable and lasting way.

Contact us to learn more

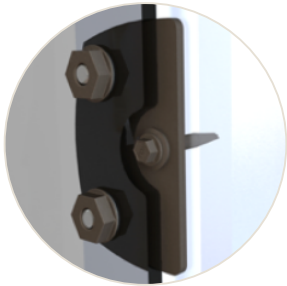
6510 W. 91st Avenue, Suite 100
Westminster, CO 80031
Phone | (303) 327-9997
Email | hello@parasoleil.com
parasoleil.com

 /ParasoleilUSA
 /Parasoleil
 /ParasoleilUSA

Parasoleil

All Parasoleil patterns are protected under copyright law. Copying, modifying, or any unauthorized use of these patterns is strictly prohibited.

Assembly & System Options



PFL SERIES

Parasoleil Flat Mount System

Best Use:

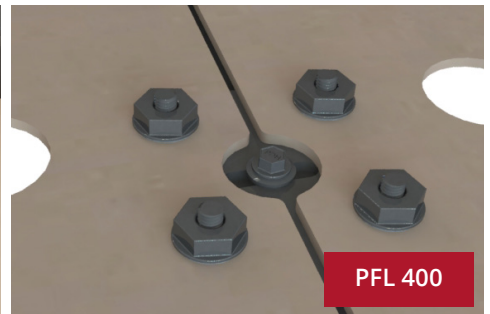
Suspend panels between posts



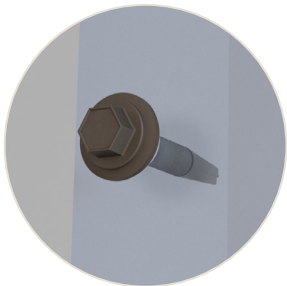
PFL 100



PFL 200



PFL 400

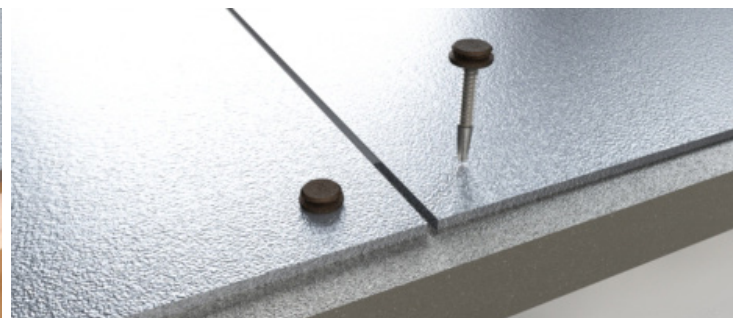
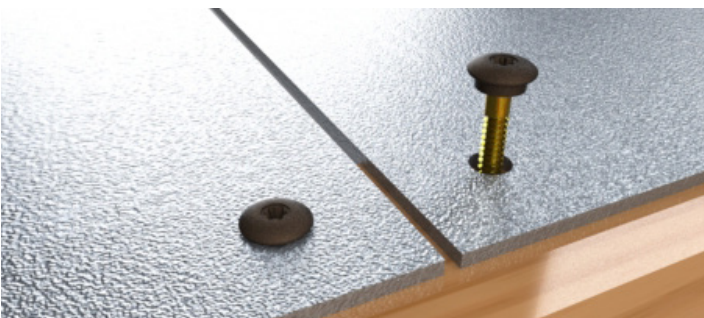


DIRECT MOUNT

Specific screws dependent on substructure material (PDH, PDW, PDS)

Best Use:

Beams/purlins of minimum 2.5 inch width



Eclipse Series™ Standard Structures



FRAMED STRUCTURES

Framed structures are ideal for defined spaces, edges, and rectilinear forms.

Size Options:

- 12'x15'x9' outside dimensions
- 15'x20'x9' outside dimensions

Frame Color Options:



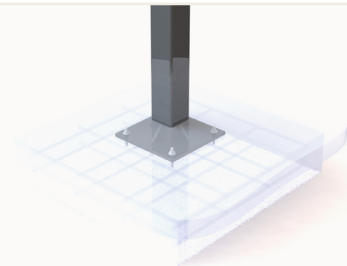
UNFRAMED STRUCTURES

Unframed structures are defined by organic forms creating a sense of unrestricted openness.

Size Options:

- 12'x15'x9' outside dimensions
- 15'x20'x9' outside dimensions

Frame Color Options:



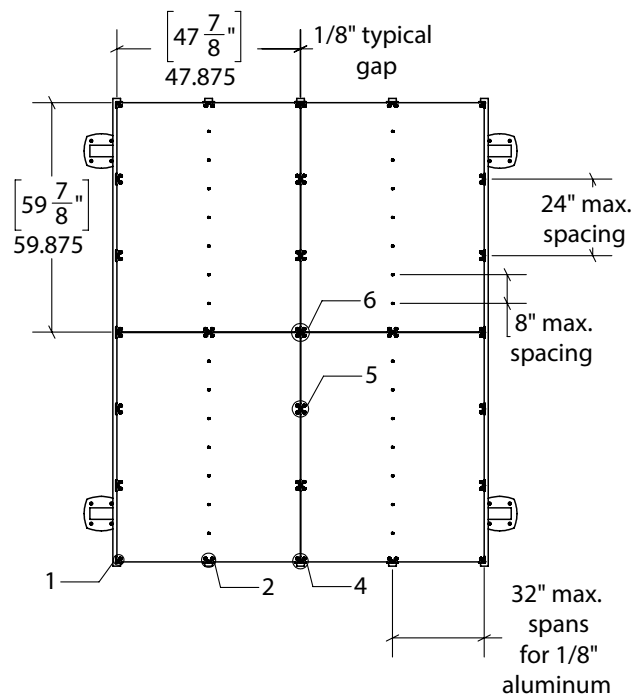
BASE PLATE CONNECTIONS

Base plates are below grade. Reinforced bolt plate attached to footing with anchor bolts and finish concrete.

PFL Series Details

Flat Mount System | Top View

Scale 1:40



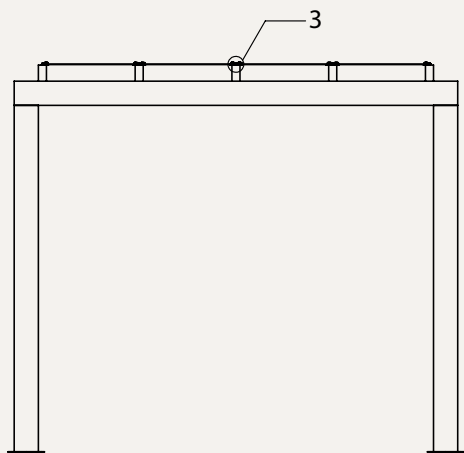
PARASOLEIL FLAT BRACKET (PFL) SPECIFICATION

- 1/8" A36 steel plate
- Stainless steel flat mount $\frac{1}{4}"$ -20 x $\frac{1}{2}"$ long studs
- 70 in/lb max nut tightening torque
- Stainless steel locking flange hex nuts with EPDM washer
- Stainless steel center anchor with bonded neoprene washer

PARASOLEIL DIRECT MOUNT HEX (PDH)

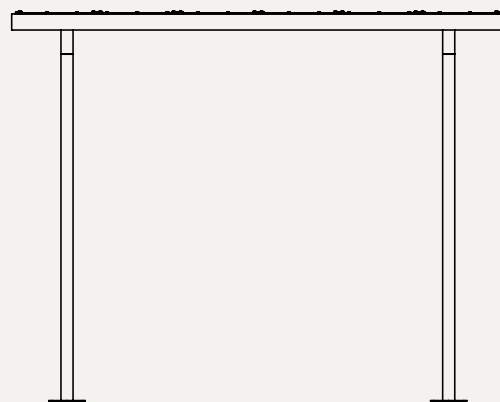
SELF DRILLING SCREW SPECIFICATIONS

- #12-24 x 1-1/2" with #3 drill tip
- 5/16" hex head & driver included
- Carbon steel with dual corrosion resistant coatings
- Bonded neoprene washer
- Salt spray resistance: 1,000 hours per ASTM B117
- Pull-out value: 2,100 lbs when installed in 3/16" steel



Flat Mount System Side View

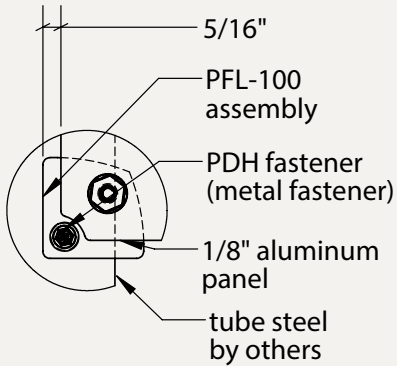
Scale 1:40



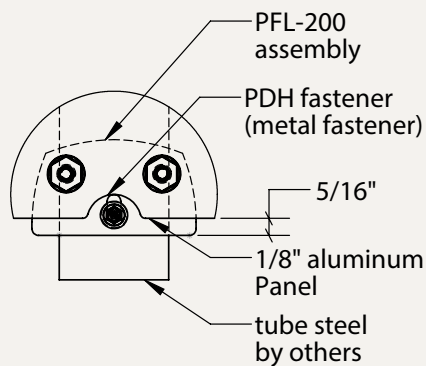
Flat Mount System Side View

Scale 1:40

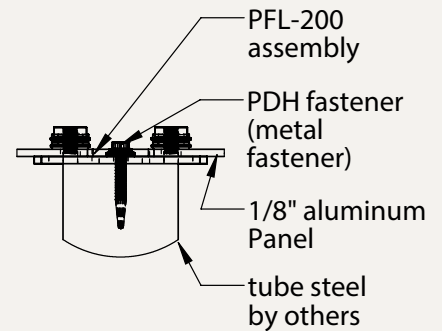
PFL Series Details *(Continued)*



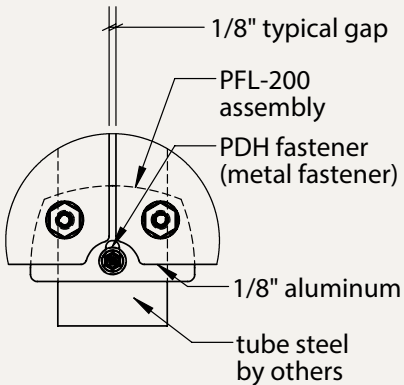
1 (1 Panel) Detail
Scale 1:3



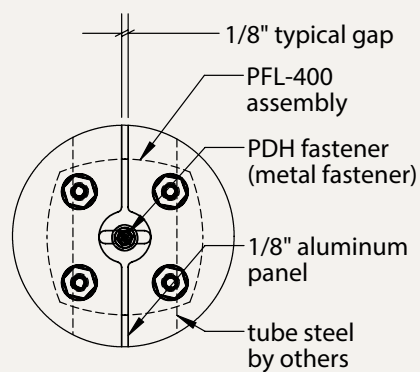
2 (1 Panel) Detail
Scale 1:3



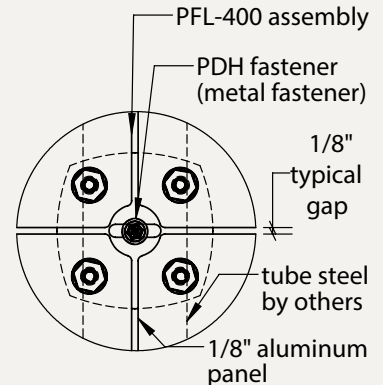
3 Section Detail
Scale 1:3



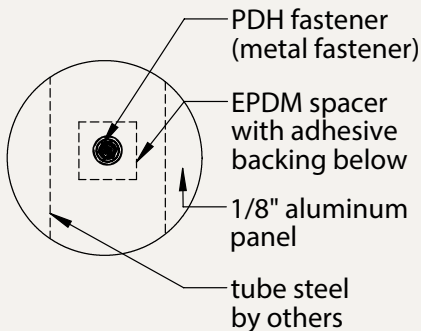
4 (2 Panels) Detail
Scale 1:3



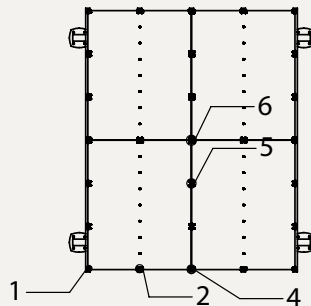
5 (2 Panels) Detail
Scale 1:3



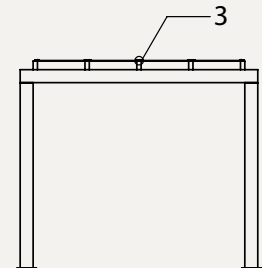
6 (4 Panels) Detail
Scale 1:3



7 Direct Mount Detail
Scale 1:3



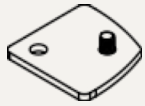
8 PFL Shade Top View
Scale 1:80



9 PFL Shade Side View
Scale 1:80

PFL Series Installation Guidance

PARTS LISTING:



PFL-100
Corners of
panel array



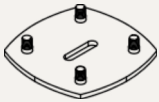
**NEOPRENE
WASHERS**



PFL-200
Perimeter of
panel array



**RUBBER
SPACERS**



PFL-400
Interior at
panel seams



PDH SCREWS
For installing on
metal structures
- OR -



LOCKNUTS
At each
bracket stud



PDW SCREWS
For installing on
wood structures

TOOLS NEEDED

- Measuring tape
- Marking pencil
- Conventional drill with 5/16" and 7/16" drivers

PREPARATION

Confirm beam support spacing is consistent with panel pre-cut fastening holes and are straight and true.

FIELD NOTES

Contact Parasoleil for questions about installation. See Parasoleil's warranty document for warranty coverage.

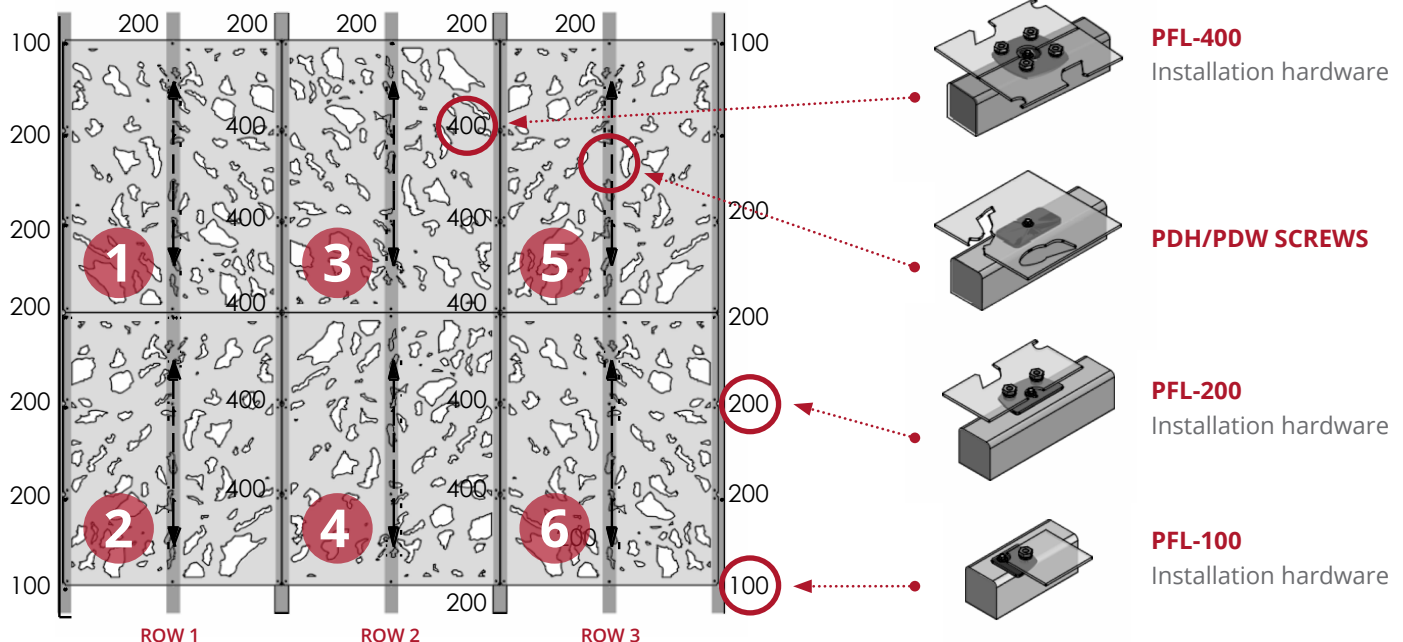
Field drilling Parasoleil panels is allowed under warranty, however field cutting panels are not recommended and will void manufacturer's warranty.

If an alternate panel size is needed, contact Parasoleil for assistance.

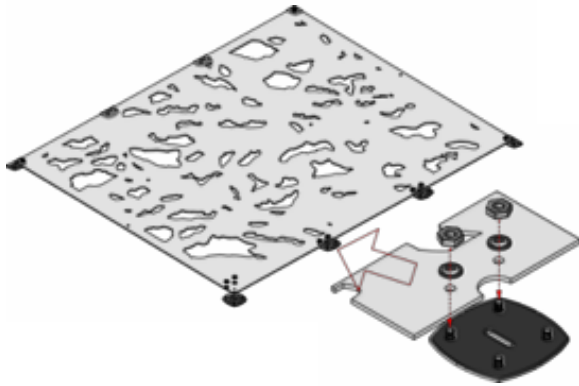
Figure 1: Typical Hardware Layout

EXAMPLE SHADE STRUCTURE

Numbers represent recommended panel installation sequence



PFL Series Installation Guidance *(Continued)*



1

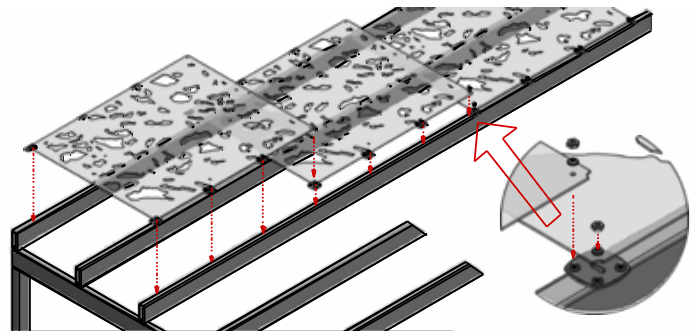
Beginning with Row 1 as shown in Figure 1, attach PFL-Series installation hardware to panels 1 & 2 at factory cut fastener holes using lock-nuts/ washers included and 7/16" driver.

Do not over-tighten. Snug fit only. Maximum nut tightening torque: 58 in/lbs.

2

Position Row 1 panel assemblies on support beams and link together at share hardware points as shown.

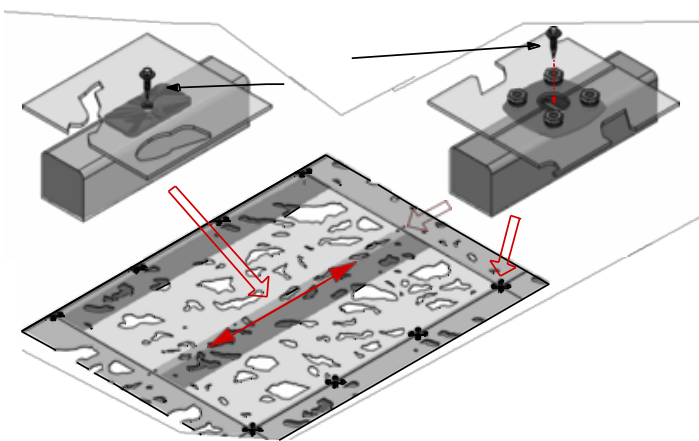
Repeat step 1 for panel row 2 and link to row 1 panels.



3

Confirm hardware and panel alignment with support beams below and install panel assemblies with PD-Series center anchors using 5/16" driver.

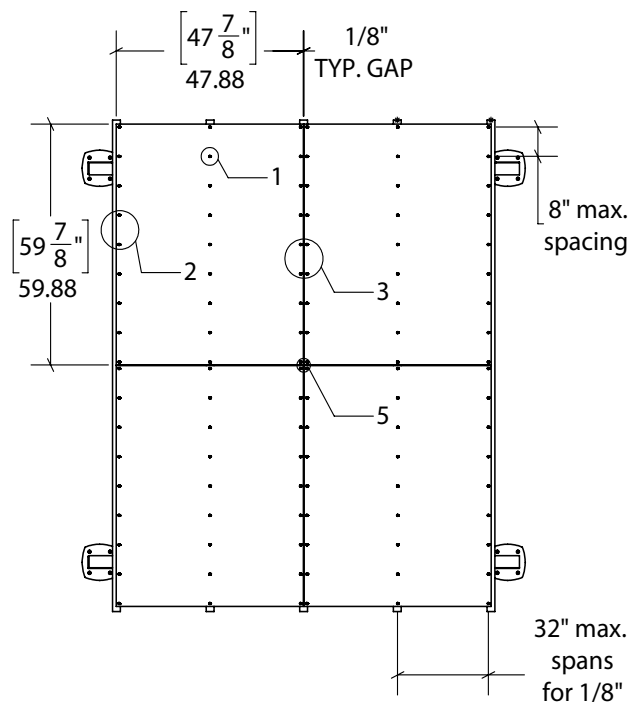
Install PD-series screws with the enclosed neoprene spacers 8" on center along support beams using 5/16" driver. Pilot holes required when using PD-W screws. Maintain min. 3/8" between edge of perforations and edge of drill screw.



Direct Mount Details

Direct Mount System | Top View

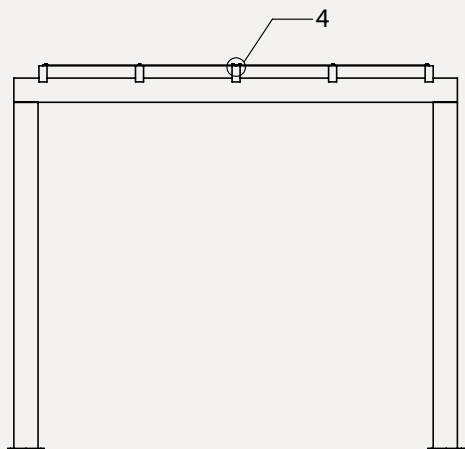
Scale 1:40



PARASOLEIL DIRECT MOUNT HEX (PDH)

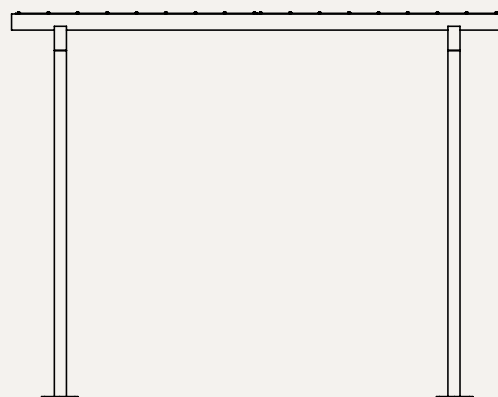
SELF DRILLING SCREW SPECIFICATIONS

- #12-24 x 1-1/2" with #3 drill tip
- 5/16" hex head & driver included
- Carbon steel with dual corrosion resistant coatings
- Bonded neoprene washer
- Salt spray resistance: 1,000 hours per ASTM B117
- Pull-out value: 2,100 lbs when installed in 3/16" steel



Direct Mount System Side View

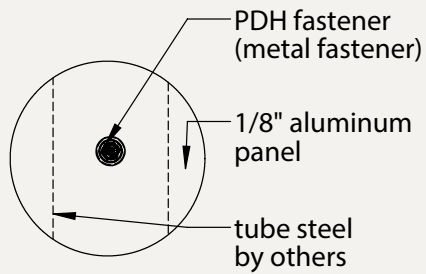
Scale 1:40



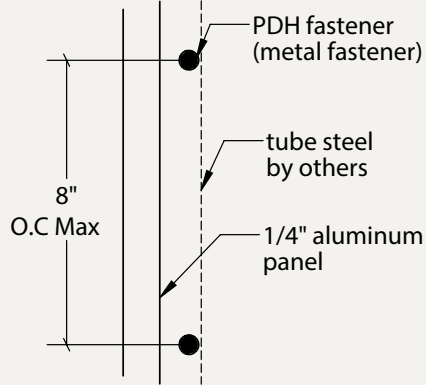
Direct Mount System Side View

Scale 1:40

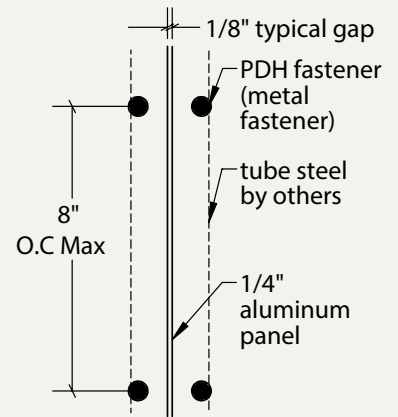
Direct Mount Details *(Continued)*



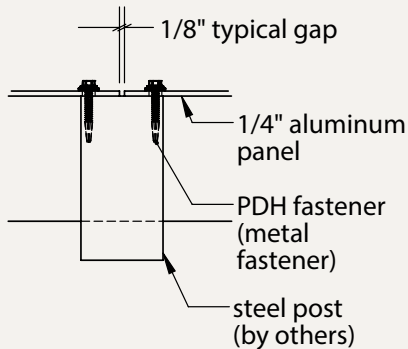
1 Direct Mount Detail
Scale 1:3



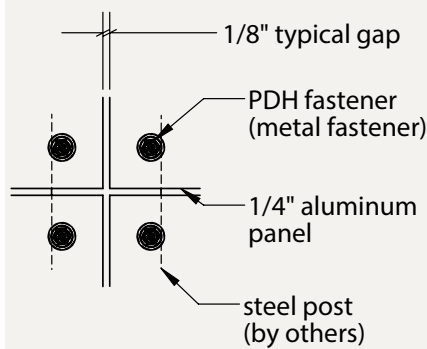
2 (1 Panel) Detail
Scale 1:3



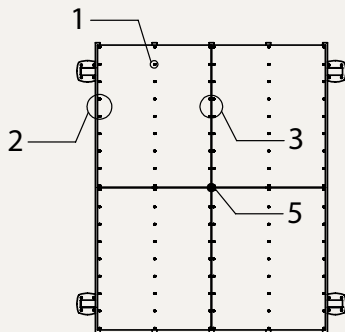
3 (2 Panels) Detail
Scale 1:3



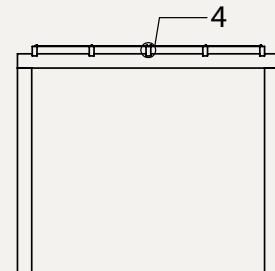
4 (2 Panels) Section Detail
Scale 1:3



5 (4 Panels) Detail
Scale 1:3



6 Direct Mount Shade Top View Scale 1:80



7 Direct Mount Shade Side View Scale 1:80

Spec Guidance & Engineering

PANEL SPANS

Recommended panel thicknesses for certain widths using our Panel Thickness Callibrator to find the more appropriate dimensions.

PANEL SPAN / THICKNESS EXAMPLE TABLE

THICKNESS	WEIGHT*	SPAN BETWEEN SUPPORTS**
1/8"	1.8 lbs/sf	24-36"
3/16"	2.6 lbs/sf	30-48"
1/4"	3.5 lbs/sf	36-52"

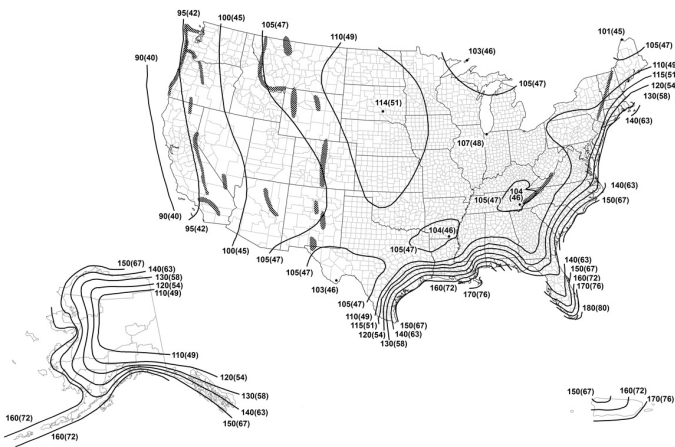
* Subtract pattern open % for final weight.
** General guideline only; please ask Parasoleil for project specific design assistance.



WINDLOADS CONSIDERATIONS

Parasoleil provides engineering for building shade components including our perforated panels, using a calculated design pressure based on key factors such as area wind speed, application height above the ground, project Risk Category, and Site Exposure Category.

Using conventional structural calculations as well as our sophisticated Finite Element Analysis modeling software, this project specific design pressure is then applied to the shade system components to determine their deflection and material stress values as compared to building code requirements.



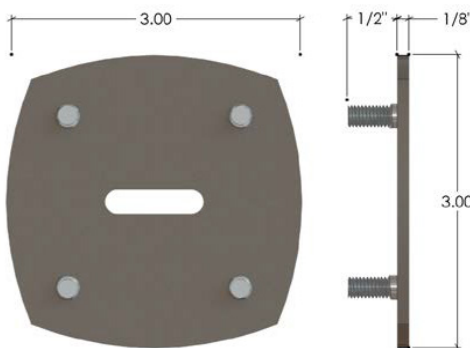
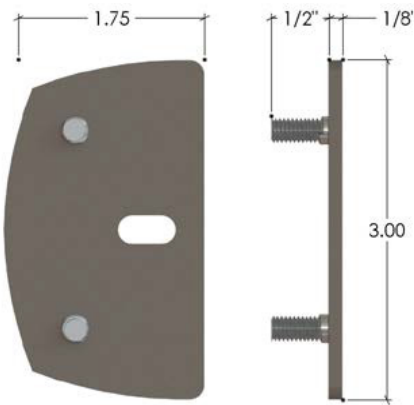
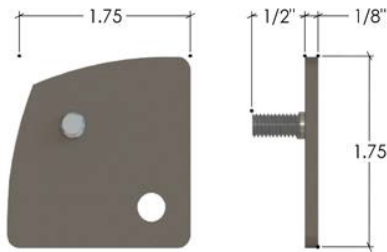
Credit: ASCE 7-16 Risk Category II Basic Wind Speed Map

SPECIFICATION PROCESS

1. Determining exact details to meet project design load requirements.
2. Full specifiable cladding systems for ease of procurement and installation by one substrate.
3. Proprietary patterns and hardware systems for confidence in locking the specification.



PFL Series Installation Hardware



Parasoleil's standard hardware combines beauty, utility, and durability to offer an elegant installation solution for a wide range of projects. It is an expressed element that standardizes the installation process, increases corrosion-resistance and enhances the overall aesthetic of the installation.

BENEFITS & FEATURES

- Universal design for attachment of aluminum panels up to 1/4" thick (US Patent Pending)
- Easy three-step installation
- Universal factory cut fastener holes ensure consistent fastening point and panel spacing
- Adjustable for inconsistent field conditions
- Minimizes moisture and debris collection between panel and support structure
- Attaches to steel or wood support structure
- Ideal for attaching to 1 narrow steel or wood support structures less than 2" width

SPECIFICATIONS

- 1/8" A36 steel plate
- Stainless steel flush mount 1/4" -20 x 1/2" long studs
- 70 in/lb max nut tightening torque
- Stainless steel locking flange hex nuts with EPDM washer
- Corrosion resistant center anchor with bonded neoprene washer

STRUCTURAL RECOMMENDATIONS

- 24" on center max. recommended bracket spacing along panel edges. Supplemental fasteners are required between hardware locations for high wind or snow load conditions
- Contact local building department for the most accurate snow and wind load information for your area

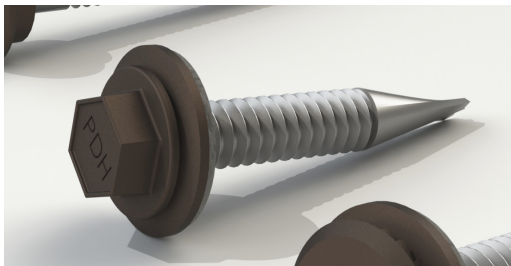
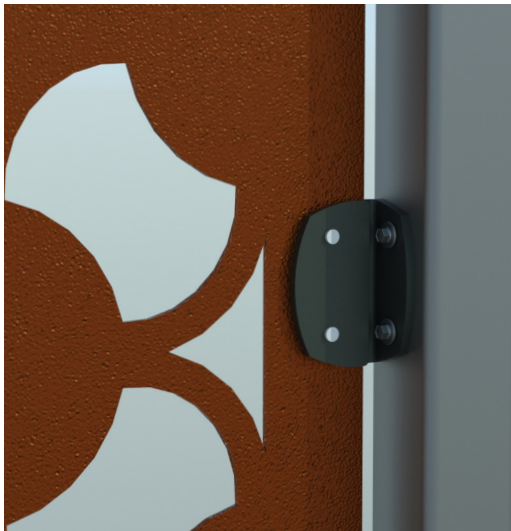
FINISHES

- Available in Graftone™, Nimbus™, and Raven™ as standard finishes, any other finishes are considered custom
- Zinc primer for maximum adhesion and corrosion resistance

QUESTIONS?

Contact Parasoleil for complete specifications, installation requirements and warranty coverage.

PDH Fastener Hardware

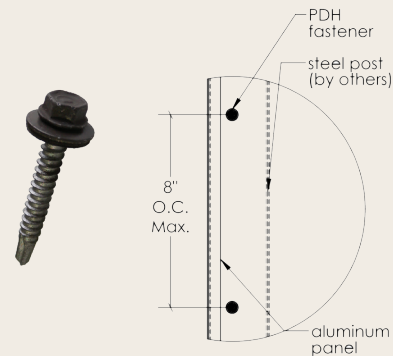


SELF DRILLING SCREWS FOR STEEL SUPPORTS

Parasoleil aluminum panels may be installed directly onto structural steel supports using our PDH drill screw. Factory cut fastener holes in panels are available upon request. For steel thickness no more than 3/8", pilot holes are recommended.

PDH DRILL SCREWS

For installing Parasoleil aluminum panels and hardware to structural steel **up to 3/8" thick** and include neoprene washer for maximum corrosion protection.



INSTALLATION GUIDELINES

- Allow for 1/8" gap between panels for expansion and contraction of the metal due to temperature variations
- Fastener spacing 8" on center maximum at all support locations for engineered applications
- Adjust torque settings as needed to avoid overtightening which may cause fastener twist offs

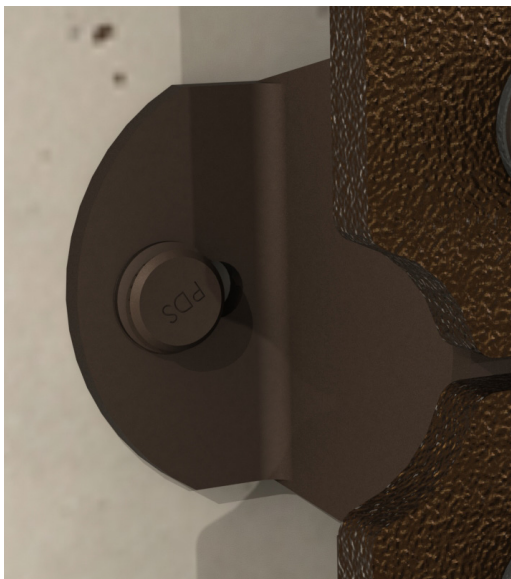
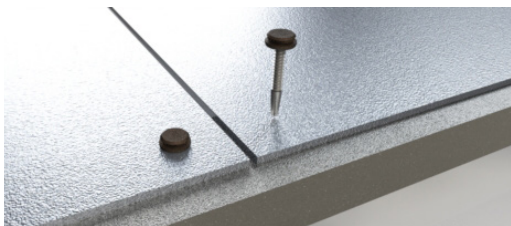
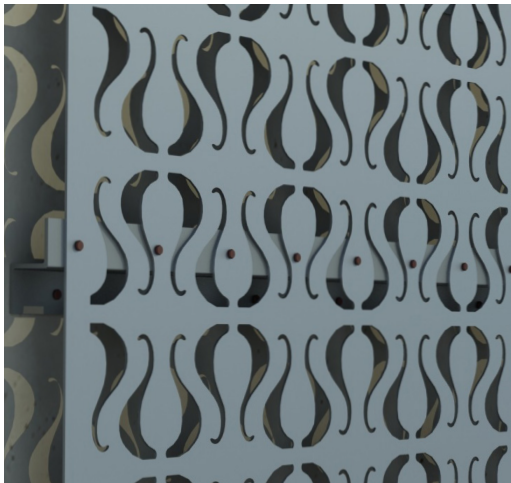
PDH DRILL SCREWS SPECIFICATIONS

- #12 - 24 x 1" with #3 drill tip
- 5/16" hex head & driver included
- Carbon steel with dual corrosion resistant coatings
- Bonded neoprene washer
- Salt spray resistance: 1,000 hours per ASTM B117
- Pull-out value: 1,678 lbs when installed in 1/8" substructure

QUESTIONS?

Contact Parasoleil for complete specifications, installation requirements and warranty coverage.

PDS Fastener Hardware

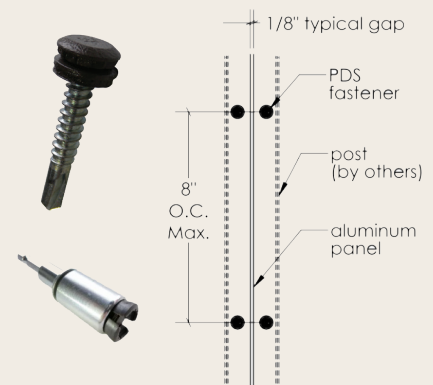


SELF DRILLING SCREWS FOR STEEL SUPPORTS

Parasoleil aluminum panels may be installed directly onto finished light gauge steel supports using our PDS drill screw. Factory cut fastener holes in panels are available upon request. Tamper resistant proprietary head offers a clean aesthetic for a higher level of finish.

PDS DRILL SCREWS

For installing Parasoleil aluminum panels to light gauge steel up to 1/8" thick, or aluminum support structure for design conscious applications and include neoprene washer for maximum corrosion protection.



INSTALLATION GUIDELINES

- Allow for 1/8" gap between panels for expansion and contraction of the metal due to temperature variations
- Fastener spacing 8" on center maximum at all support locations for engineered applications
- Adjust torque settings as needed to avoid overtightening which may cause fastener twist offs

PDS DRILL SCREWS SPECIFICATIONS

- #12 - 14 x 1-1/4" with #3 drill tip
- 1/2" Outside Diameter low profile head
- 300 series stainless steel head & shank
- Bonded neoprene washer
- Tamper resistance fastener head with no accessible driver access
- Provided drive socket ensures positive engagement and prevents damage to painted fastener head
- Pull-out value: 1,282 lbs when installed in 1/8" substructure

QUESTIONS?

Contact Parasoleil for complete specifications, installation requirements and warranty coverage.

Aluminum Panel Material and Thickness



PANEL SPAN / THICKNESS EXAMPLE TABLE

THICKNESS	WEIGHT*	SPAN BETWEEN SUPPORTS**
1/8"	1.8 lbs/sf	24-36"
3/16"	2.6 lbs/sf	30-48"
1/4"	3.5 lbs/sf	36-52"

* Subtract pattern open % for final weight.
** General guideline only, please ask Parasoleil for further design assistance.

Allowable deflection represents the maximum deflection allowed by International Building Code (IBC) L/60.

Notes: Values above are for general reference only and may not be recommended for your specific project requirements.

- Values above are based on:
- Exposure B, Risk Factor IV
 - Lemon Drop as baseline pattern
 - PBI installation hardware

Contact Parasoleil for recommendations for high wind pressure conditions not shown above or for your specific project.

Parasoleil offers decorative laser cut aluminum panels in several standard thicknesses. We offer detailed project specific design assistance to ensure the most appropriate thickness is specified based on the amount of panel.

PANEL THICKNESS SELECTION FACTORS

- Application type
- Panel span between supports
- Project engineering design pressure
- Documented code compliance requirements
- Fastening method

1/8" THICK ALUMINUM PANELS

- Generally recommended span: 24-36"
- Durable plus light weight for ease of installation
- Commonly used for:
 - Residential & commercial shade structures
 - Commercial ceilings
 - Commercial cladding with mid-panel support

3/16" THICK ALUMINUM PANELS

- Generally recommended span: 30-48"
- Good span capability with visual weight for brand conscious eye-level applications and wider clear span over-head applications
- Commonly used for:
 - commercial wider span shade structures
 - Commercial wider span cladding
 - Commercial screens

1/4" THICK ALUMINUM PANELS

- Generally recommended span: 36-52"
- Good span capability with visual weight for brand conscious eye-level applications and wider clear span over-head applications
- Commonly used for:
 - commercial wider span shade structures
 - Commercial wider span cladding
 - Commercial screens

Powdercoat Finishes for Aluminum



Parasoleil's award-winning proprietary powdercoat finishes for aluminum are specifically developed for their versatility, durability, and beauty to match the timeless qualities of our architectural panels.

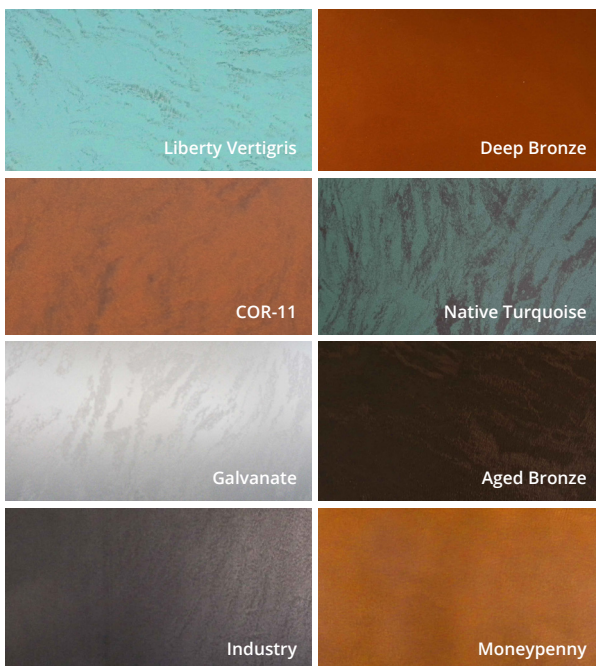
BENEFITS & FEATURES

- 10-year finish warranty for UV performance and adhesion to base metal
- Quality gloss and color retention
- Finished on both sides for maximum versatility
- UV stable, no VOCs, and exterior grade

PROPRIETARY FINISHES

- **Quality Standards:** Consistent in color and texture, these finishes are versatile.
- **Patinas:** With a varied aesthetic, these finishes have unique markings, tones and qualities based on aged metals.

Patina Finishes



WARRANTY FOR STANDARD FINISH

All standard finishes are protected by are protected by a 10-year warranty against cracking and peeling under normal conditions. Panels with sustained exposure to corrosive environments such as chlorinated or non-potable water (irrigation systems & swimming pools), saltwater, and industrial chemicals, as well as panels that have been modified in the field (cutting, bending, etc.) are not covered.

CUSTOM FINISH

Custom panel finishes for aluminum are available for specified powders. A color matching process is not offered. All custom finishes are subject to approval by Parasoleil and are not covered by Parasoleil's standard finish warranty.

QUESTIONS?

Contact Parasoleil for complete specifications, installation requirements, and warranty coverage.

All Parasoleil patterns are protected under copyright © law. Copying, modifying, or any unauthorized use of these patterns is strictly prohibited.

Engineering Education



At Parasoleil, we focus on engineering standards and certifications for our products because we understand the importance of design load compliance. As a result, we have refined our approach to our panel performance in any thickness, pattern, and application.

ENGINEERING AND LOAD TESTING PROCESS

- Finite Element Analysis through computer models to understand a patterned panel's deflection
- Extensive product testing
- Code analysis
- Annual inspection for certification

WHY IT MATTERS

Panels Attached to a Building

Pre-engineered patterns ensure IAPMO-ES 0488 certification is included in the square foot price. Project-specific engineering reports can be created to provide the most accurate analysis that lowers risk and cost for the GC. If additional documentation is required, such as a California DSA or NOA for Miami-Dade county, Parasoleil can provide applied engineering reports to satisfy documentation requirements.

Panels at Ground Level Exterior

Parasoleil's pre-engineered systems prevent building department slow downs and provides instant design flexibility without requiring a change order.

Panels in Interior Applications

Though decorative panels do not require wind or snow load engineering, they should look flat, be safe, and be designed to fit together for easy installation. Parasoleil's engineered systems and dependable process ensures on-time production and expert guidance.

Engineering Education *(continued)*

PROVIDED SERVICES

Below are the following engineering services offered by Parasoleil to ensure your project, standard or custom, is fully supported by our team.

Parasoleil Engineering Services	
Panel Thickness Calibrator	✓
Product Certification (IAMPO - ES 0488)	✓
Custom Pattern FEA	✓
Panel FEA - Engineering Report	Flat Fee
PE Stamp	Flat Fee
Structure FEA - with Design Iterations	Priced Per Project

HOW PARASOLEIL CAN HELP YOU

Use Parasoleil’s expert engineering guidance or certified project reports depending on your project type.

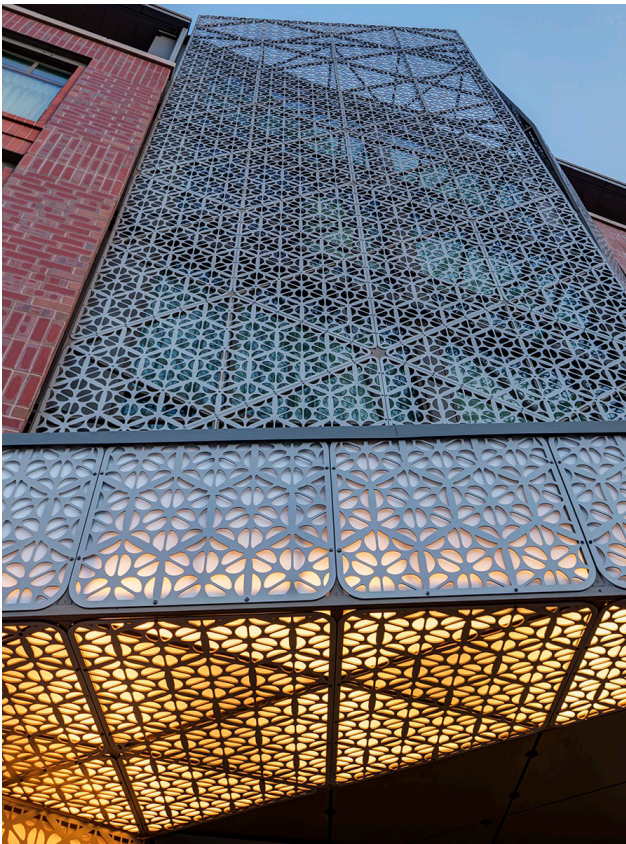
When you engage with Parasoleil from the start, you will:

- Reduce overall cost
- Raise confidence
- Ensure you cruise through permitting
- Reduce your risk as a specifier
- Set up a smooth installation

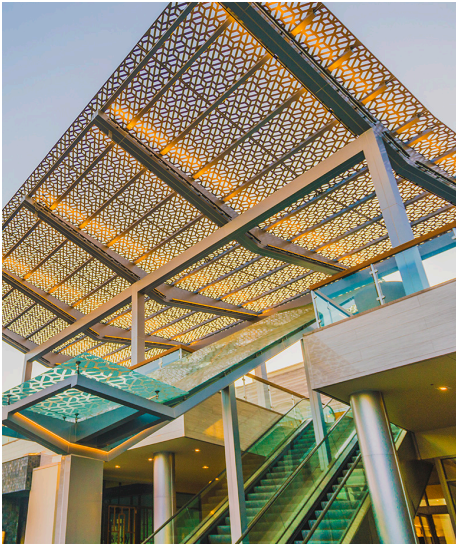
If your project requires engineering, know that our product certification exceeds International Building Code requirements.

QUESTIONS?

Contact Parasoleil for complete specifications, installation requirements and warranty coverage.



Custom Design Process Guide



How to Engage Parasoleil for a Custom Panel Application

STEP 1: CONCEPT REVIEW

During the design phase of your project, start the conversation with the Parasoleil ALFA (Art Lab for Architecture) team to discuss your project from the following perspectives:

- Design Intent
- Manufacturing Feasibility
- Engineering Requirements
- Pattern Development
- Fastening Methods
- Budget Requirements
- Schedule Limitations
- Installation Strategy

STEP 2: CONCEPT DEVELOPMENT

Parasoleil will provide the guidance and expertise to help you dial in your custom design as far as you need to take it for this phase of the project. This guidance includes:

- Preliminary engineering review to verify basic structural requirements
- Pattern review and sign-off for future development by customer
- Preliminary design concept drawing development to include in construction documents
- Tailored specification designed for VE defense

STEP 3: BUDGETING PHASE

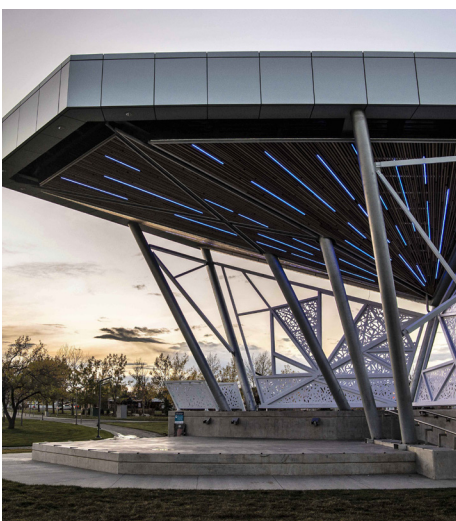
Parasoleil will provide a complete budget pricing review based on your specific project needs. This is a critical step to help ensure contractors have a heads up for this specialty product.

STEP 4: BIDDING PHASE

Parasoleil will reach out to all bidders with formal quotes to provide complete and consistent information to everyone. This critical step ensures there are no uninformed bidders who could potentially “misrepresent” the cost of the system and find themselves in a difficult situation when they finally are required to reconcile these costs when it is time to order the system.

QUESTIONS?

Contact Parasoleil for complete specifications, installation requirements and warranty coverage.



Custom Design Process Guide *(Continued)*

All product customizations add cost and lead time to a project. During the first step of the custom design process, it is critical to evaluate if your project can accommodate the increased cost and lead time for the desired custom features.

Customization Categories

Pattern

The most common customizations we see include the following;

- Evaluating a customer provided custom pattern for manufacturability
- Developing a custom pattern from scratch for your project
- Taking a brand/logo/art piece and overlaying on one of our MESH patterns
- Altering one of our standard patterns for unique cropping's, varying opening percentage, etc.

Finish

Panels, hardware, and structure are all available in custom powdercoat finishes. Parasoleil will provide detailed guidance in what to look for when specifying a custom finish for any element on the project.

Hardware

For non-standard fastening applications, Parasoleil can explore custom fastening solutions for your project. Examples of custom brackets include:

- Connections to round posts
- End conditions with no posts on a screen or railing system
- High wind loads requiring heavy-duty brackets
- Concealed fastening

Substructure

Outside of Parasoleil's standard offerings, we can design custom structures, or when outside our wheelhouse, partner with capable vendors in our network, to help you get exactly what you need. Through the concept review phase, Parasoleil will guide you toward the best steps forward based on our experience and the project's needs and requirements. Examples include:

- Cantilevered overhead structures.
- Non-regular shapes (ovals, circles, polygons)
- Radiused screen structures

Engineering

Many projects will require site specific engineering calculations, most common for exterior building cladding projects and other panel applications that are attached to a building. Parasoleil can provide a wide array of engineering needs, including PE stamped calculations, and engineering analysis submittals to confirm compliance with meeting local code requirements such as DSA, Miami-Dade, and others.

Custom Panel Forming and Welding

Panel bends, panel rolls, panel brakes, embedded PEM studs, weldments—these types of customizations are available yet have some critical limitations to them such as:

- Minimum radius of a bend or break
- Required panel thickness and dimensions
- Pre finish processes and finishing options after customizations




Parasoleil will always ensure feasibility before moving forward.

Contact Parasoleil for complete specifications, installation requirements and warranty coverage.

All Parasoleil patterns are protected under copyright law. Copying, modifying, or any unauthorized use of these patterns is strictly prohibited.

We look forward to hearing from you.

6510 W. 91st Avenue, Suite 100
Westminster, CO 80031
Phone | (303) 327-9997
Email | hello@parasoleil.com
parasoleil.com

 /ParasoleilUSA
 /Parasoleil
 /ParasoleilUSA

Parasoleil