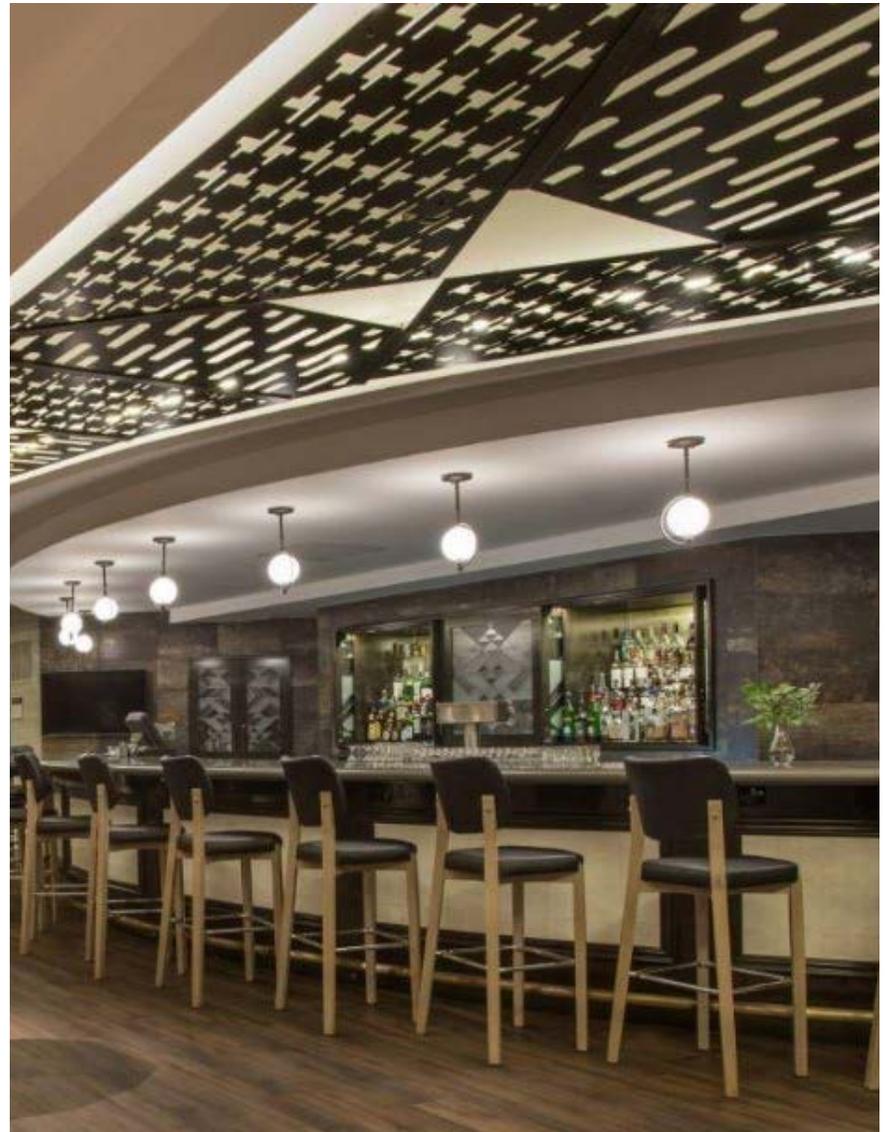
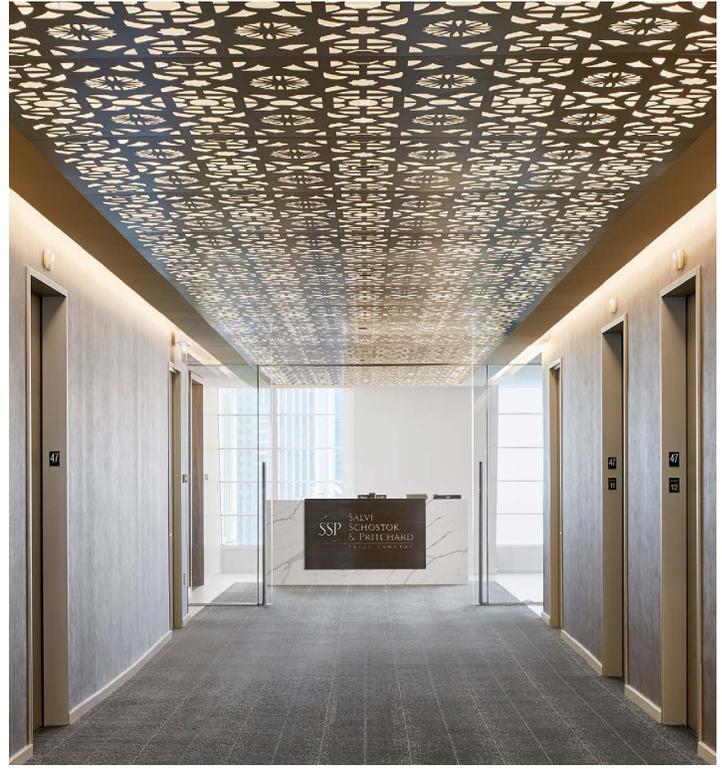


*Parasoleil*

# Ceiling 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*

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6510 W. 91st Avenue, Suite 100  
Westminster, CO 80031  
Phone | (303) 327-9997  
Email | [hello@parasoleil.com](mailto:hello@parasoleil.com)  
**[parasoleil.com](http://parasoleil.com)**

 /ParasoleilUSA  
 /Parasoleil  
 /ParasoleilUSA

*Parasoleil*

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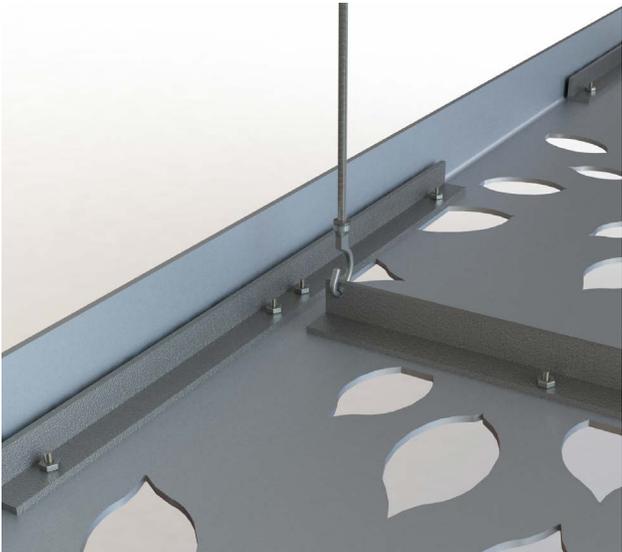
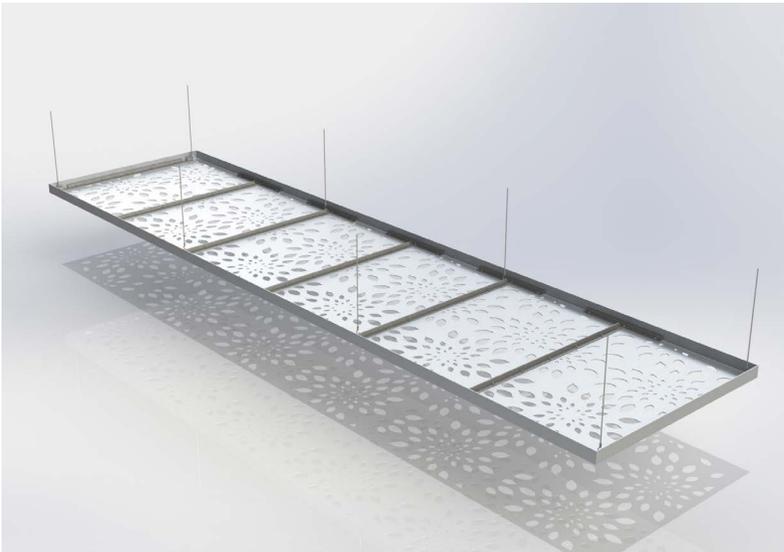
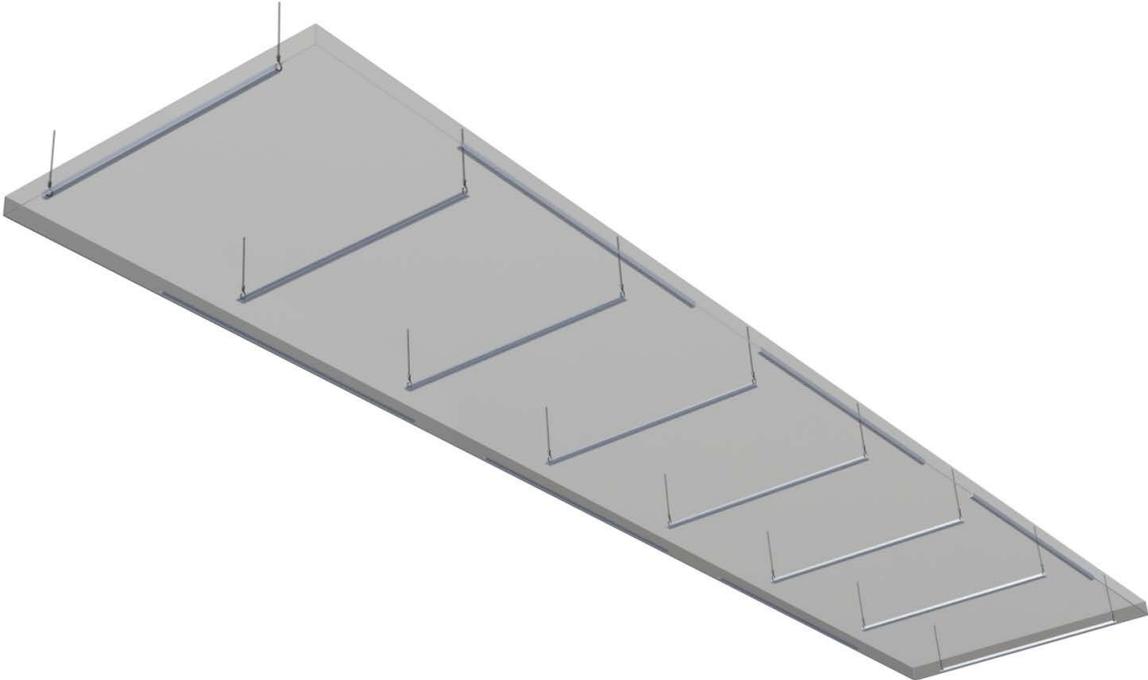
# Assembly & System Options

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## CONCEALED CANOPY SYSTEM

Embedded PEM stud fastening

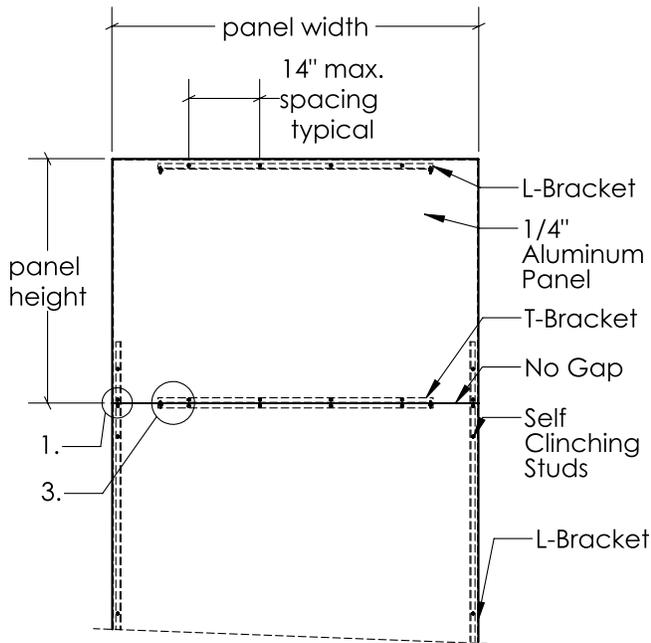
**Best Use:**  
Interior floating corridor feature



# Ceiling Details

## Interior Ceiling | Top View

Scale 1:30

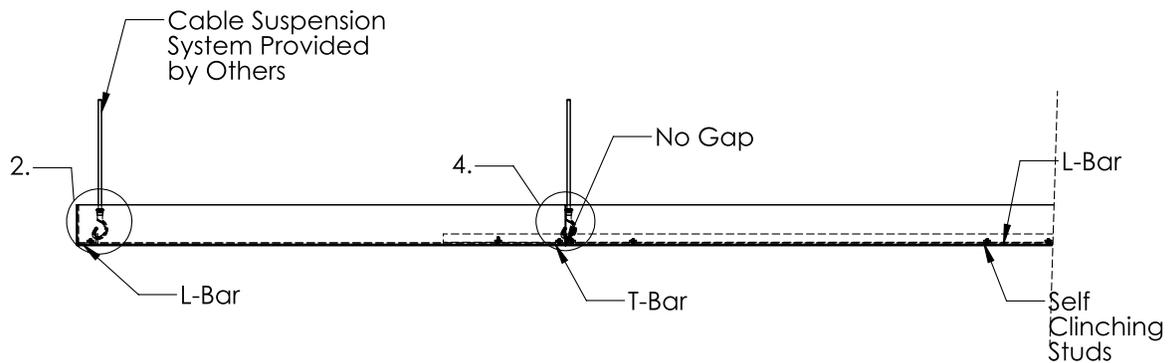


## STUD SPECIFICATIONS

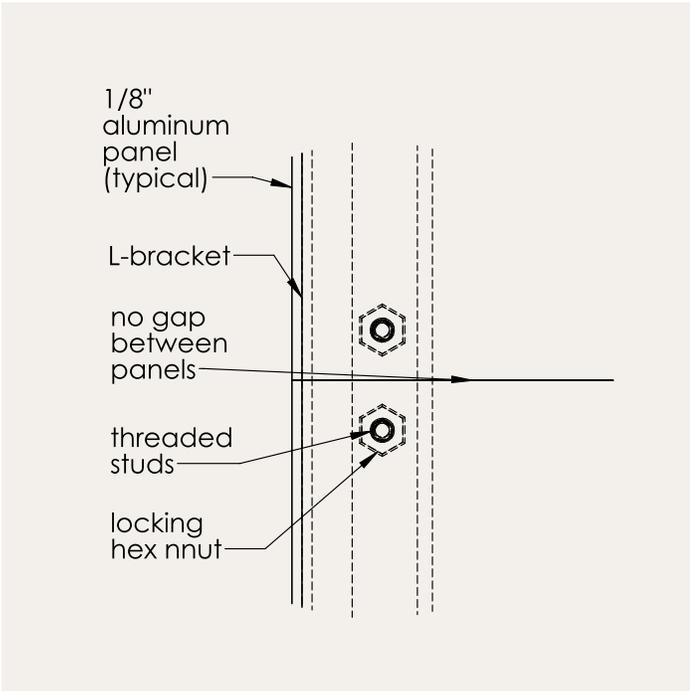
- Material: 300 Series Stainless Steel
- Diameter: 1/4" dia, 20 threads per inch
- Stud Length:  $L = 0.625" \pm 0.015"$  (includes panel thickness)
- Maximum Nut Tightening Torque: 58 in/lbs
- Torque Out Force: 65 in/lbs (tested in 93" steel)

## Interior Ceiling | Side View

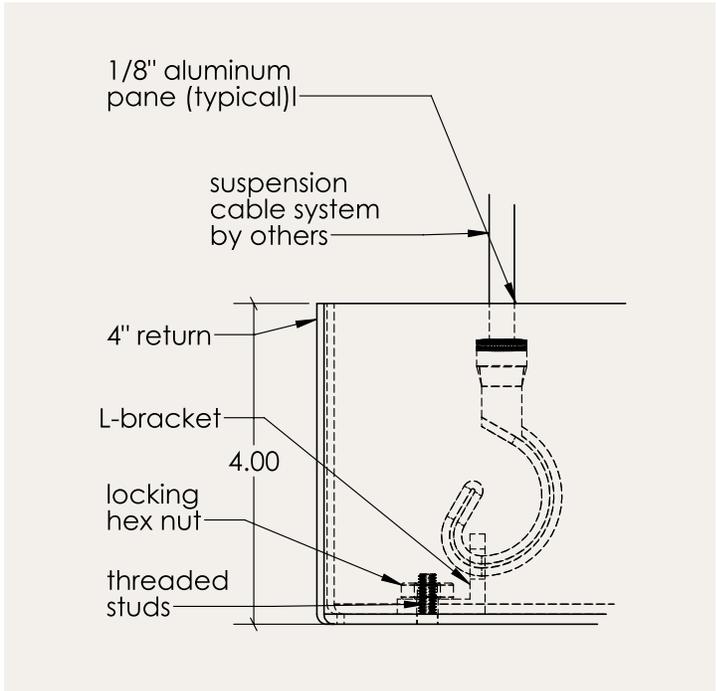
Scale 1:30



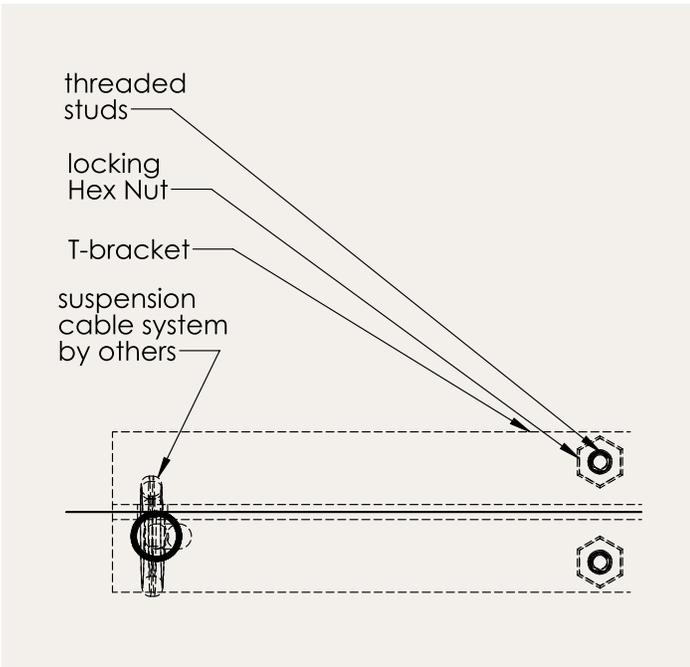
# Ceiling Details (Continued)



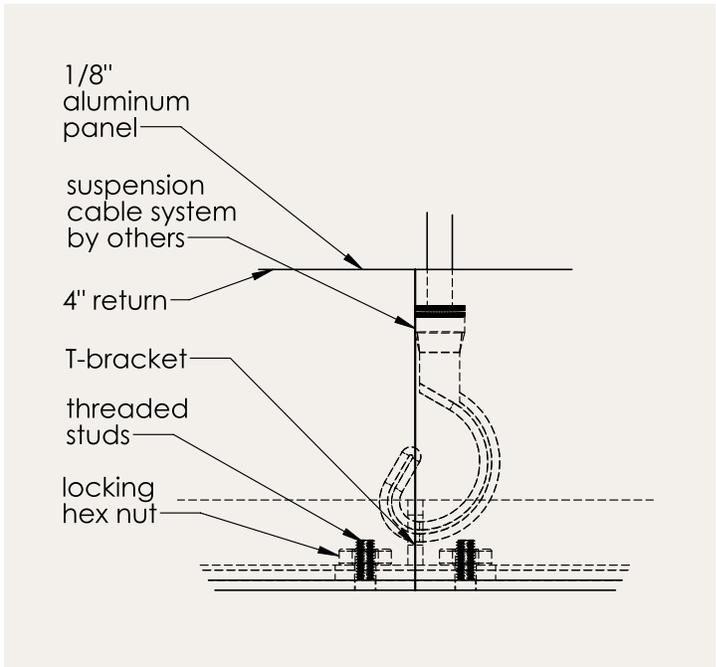
**1 L-Bracket Detail**  
Scale 1:3



**2 L-Bracket Section**  
Scale 1:3



**3 T-Bracket Detail**  
Scale 1:2



**4 T-Bracket Section**  
Scale 1:2

# 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"

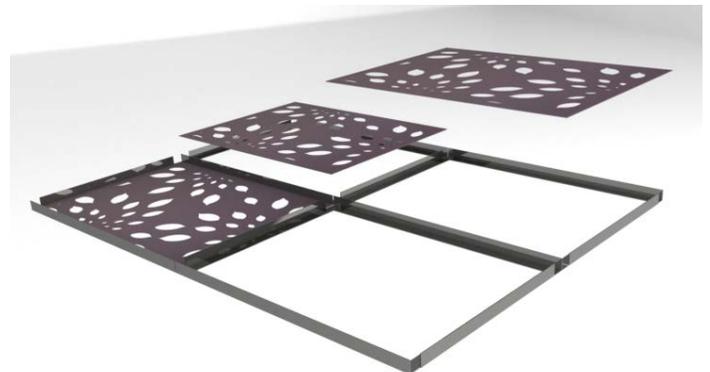
\* Subtract pattern open % for final weight.

\*\* General guideline only, please ask Parasoleil for project specific design assistance.



## ADD PANELS TO SYSTEMS BY OTHERS

Don't hesitate to incorporate Parasoleil panels into any existing ceiling system, regardless of what it is! There are myriad examples and opportunities to utilize already established or familiar structure systems as a way to support Parasoleil panels in your project. Parasoleil's design team is at the ready to discuss the most optimal installation and fastening method for your project, whatever that may turn out to be.



## 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 subtrade.
3. Proprietary patterns and hardware systems for confidence in locking the specification.



# Concealed Fastening Installation Hardware

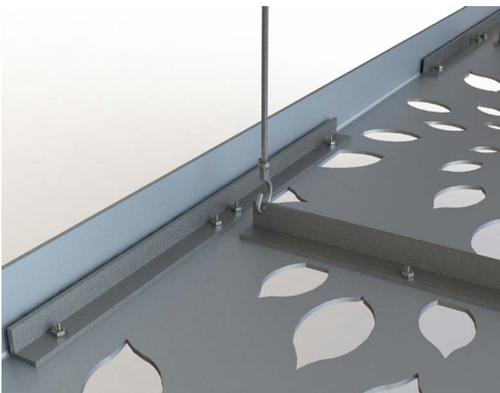
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Parasoleil offers standard hardware that combines beauty, utility, and durability to offer an elegant installation solution for a wide range of projects. For select installations where expressed hardware is not consistent with the design intent or removable panels are needed; Parasoleil offers a custom concealed hardware solution. Flush mounted studs are often used for interior wall mounted and suspended ceiling applications.

## **BENEFITS & FEATURES**

- Installs permanently in 1/8", 3/16", or 1/4" thick aluminum panels to provide strong and re-usable threads for mating hardware in a range of application options
- Factory installation ensures consistent fastening point spacing and easy installation
- Creates smooth panel surface with no visible hardware

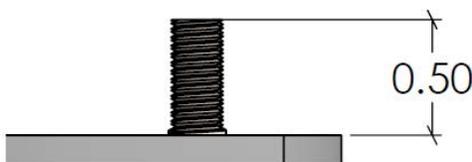


## **SPECIFICATIONS**

- Material: 300 Series Stainless Steel
- Diameter: 1/4" dia, 20 threads per inch
- Stud Length: L= 0.625" +/- 0.015" (includes panel thickness)
- Maximum Nut Tightening Torque: 58 in/lbs
- Torque Out Force: 65 in/lbs (tested in 93" steel)

## **QUESTIONS?**

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



# Aluminum Panel Material and Thickness



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 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.

## 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.

## WARRANTY FOR STANDARD FINISH

All standard finishes 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

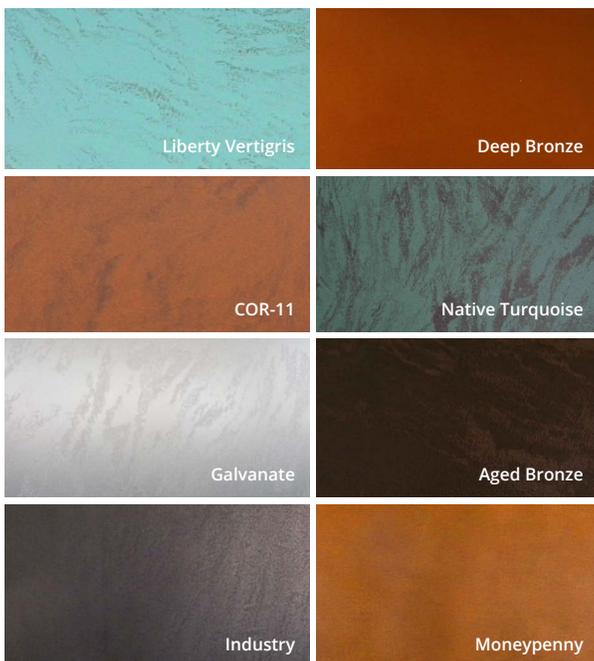
Custom panel finishes for aluminum are available for specified powders. A color matching process is not offered. All custom finishes are subject to approval by Parasoleil and are not covered by Parasoleil's standard finish warranty.

## QUESTIONS?

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

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## Patina Finishes



# Engineering Education

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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.

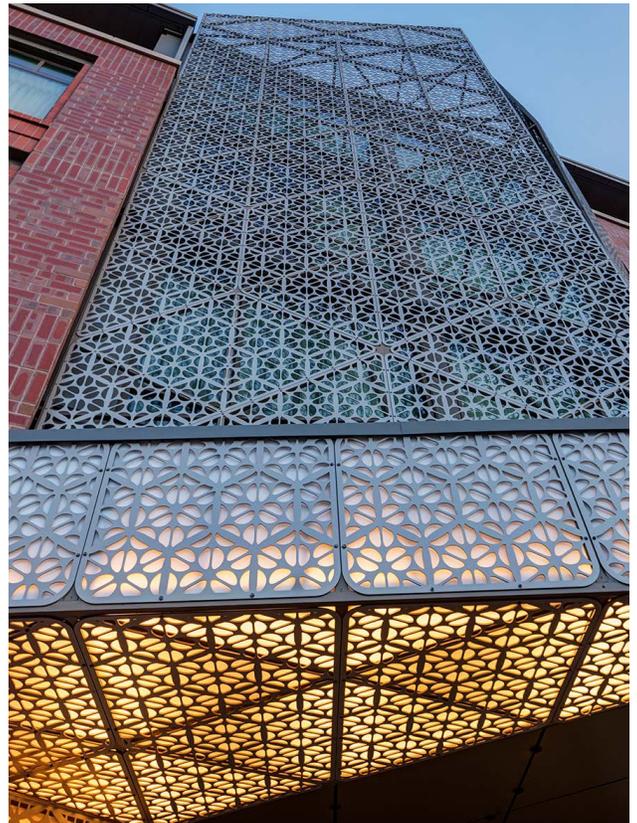
When you engage with Parasoleil from the start, you will:

- 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.

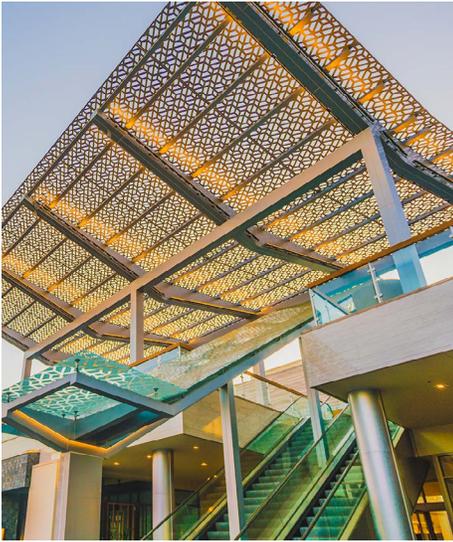
## QUESTIONS?

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



# Custom Design Process Guide

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## 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)*

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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 to 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.

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**We look forward to hearing from you.**

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