

# GEO METAL DESIGN GUIDE

## INTRODUCTION

### PURPOSE OF THIS DESIGN GUIDE

This document aims to outline details of the GeoMetal™ decorative metal panel system, including possible applications, materials, size availability and attachment options. This guide also contains general recommendations for designing a with GeoMetal™ and is written with the architect/specifier in mind, but anyone intending to use GeoMetal™ will benefit from reading it.

### GEO METAL OVERVIEW

The GeoMetal™ Decorative Panel system can be utilized in many ways. From seamlessly integrated Equipment Screen cladding to ornate facades, stairwell siding and ground-level vision barriers, GeoMetal™ can add an intricate blend of artistry and refinement to any project.

### EQUIPMENT SCREEN INTEGRATION

GeoMetal™ can be seamlessly integrated into our RoofScreen® system as equipment screen cladding to bring an elevated and refined look to projects needing a vision-proofing solution. To learn more about designing a RoofScreen®, see the RoofScreen® Design Guide.

### ENGINEERING

We offer span tables for all our standard panels and can provide Fusion models for wind load calculations. Wet stamped engineering is available for all of our products. We recommend wind loads be calculated by a licensed engineer.

During the design stage of a project, we offer free assistance to architects to ensure projects are designed in a way that makes sense and won't need major revisions during final engineering. Please contact us for more information at 831-421-9230 or at [info@roofscreen.com](mailto:info@roofscreen.com).

## MATERIALS & ACCESSORIES

The following is a brief overview of material offerings, nominal sizing and attachment options the GeoMetal™ System offers. For detailed information on these topics, see the following section titled “Design Considerations”.

### **Material Options:**

GeoMetal™ decorative metal panels come in three material offerings. Each material has its own benefits and ideal applications, which are covered in the section of this guide titled “Design Considerations”.

- Aluminum (powder coated)
- Stainless Steel (2B)
- Weathering Steel

### **Thickness Options:**

Material gauge, or thickness, will determine how far panels can span between supporting members. The appropriate material gauge will vary based on application, wind loads, design pressure and material type. Span tables are available for all our Standard panel offerings. GeoMetal™ panels come in the following thicknesses in all our material offerings:

- 1/8”
- 3/16”
- 1/4”

### **Fasteners:**

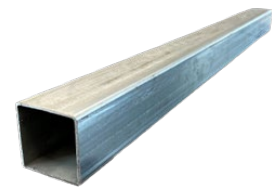
- Standard Fastener:  
410 Stainless Steel #12-14 x 1” Tek3 w/ Stainless steel backed EPDM sealing washer.  
Color match available.
- Premium Fastener:  
300 Stainless Steel #12-14 x 1.5” Tek3 w/ Stainless steel backed EPDM sealing washer.  
Low profile, tamperproof head. Color match available.
- Custom Fasteners:  
For unique applications, we can provide a variety of custom fastener options.



### **Square Girt Attachment:**

While GeoMetal™ can attach to a variety of substrates, Square Girts are the standard attachment substrate we have designed for the GeoMetal™ system.

- Nominal Dimensions: 2.0”d x 2.0”w
- Material Gauge: 14ga CRS, ASTM A653
- Fy = 50ksi (min)
- Finish: G90 Galvanized



# DESIGN CONSIDERATIONS

## MATERIALS AND RECOMMENDED APPLICATIONS

### Aluminum Panel Information:

Aluminum is the most versatile and popular material we offer. The lightweight, yet high strength nature of the material makes installation and transportation easy. When coated with one of our powder coat finishes, it ensures a maintenance-free, non-rusting finished product that can withstand even the harshest conditions.

### Stainless Steel Panel Information:

Stainless steel is the perfect choice for indoor or outdoor applications when a raw metallic look is desired. While more expensive than our other material offerings, it provides a range of benefits including resistance to corrosion even when uncoated, easy maintenance and aesthetic appeal.

### Weathering Steel Information:

Weathering steel offers a unique combination of benefits for decorative metal paneling. It is highly resistant to corrosion, has a distinctive appearance with a natural, weathered look, is very durable and requires no maintenance. Weathering steel is the perfect material for a rustic aesthetic in naturally corrosive locations. Our weathering steel panels do not come pre-weathered and are recommended for applications that will not be negatively affected by staining.

## POWDER COAT FINISH OPTIONS

Whether you are looking for a coating that will hold up in South Florida, or are using GeoMetal™ indoors, our color offerings are sure to meet your project specifications. GeoMetal™ finish options for aluminum panels are available in powder coats meeting AAMA 2604 or AAMA 2605 specifications. AAMA 2605 powders typically have higher minimum order quantities, so are often more cost-efficient for larger projects. To explore our full range of color offerings, see the GeoMetal™ color chart.

### AAMA 2604 powder coat:

- 10-year finish Warranty, no warranty in corrosive coastal applications
- Finished on both sides for consistent, versatile coverage
- Color and gloss retention meeting AAMA 2604

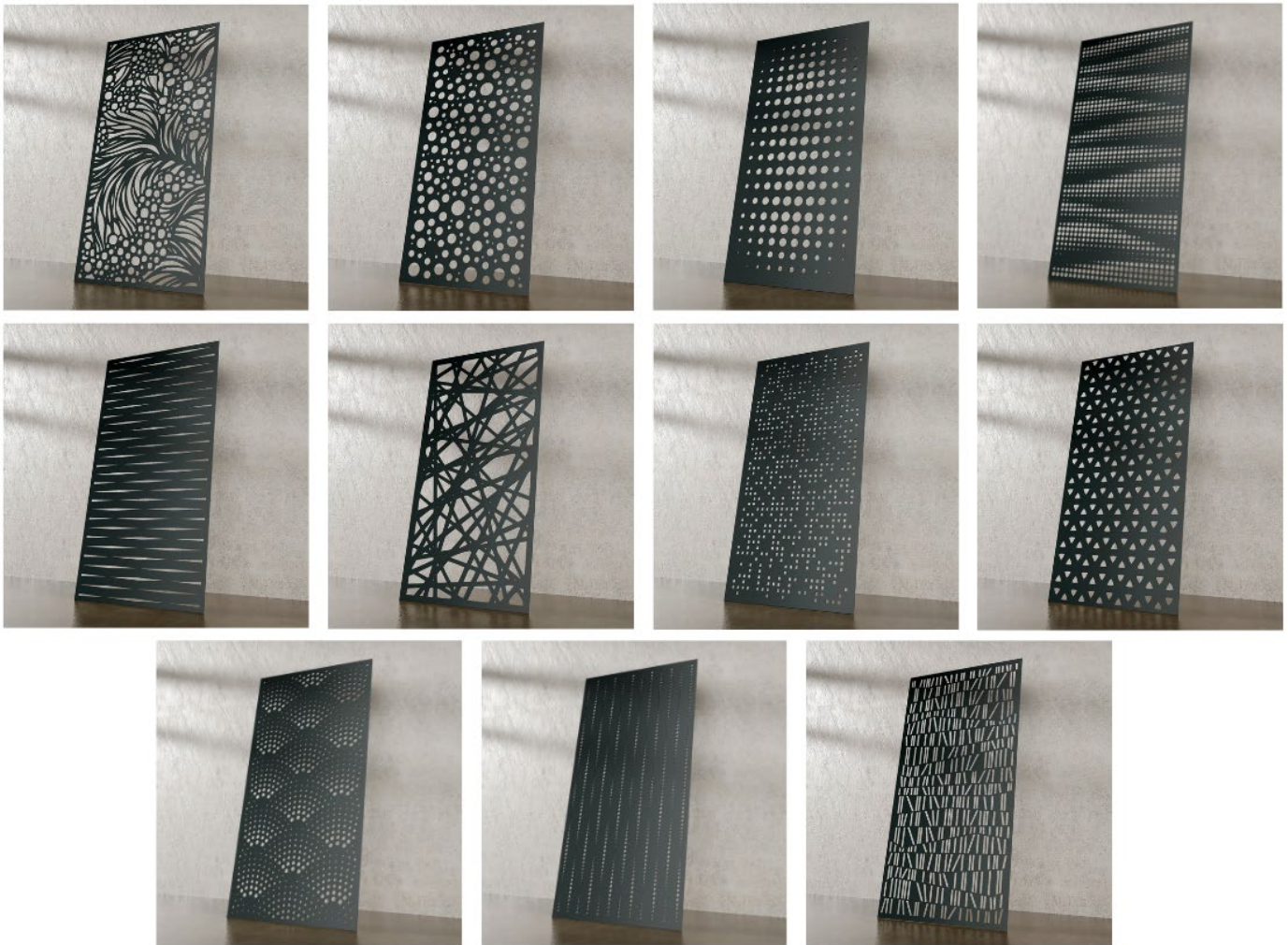
### AAMA 2605 powder coat:

- 20-year warranty. 3-year coastal warranty
- Finished on both sides for consistent, versatile coverage
- Color and gloss retention meeting AAMA 2605

## STANDARD AND CUSTOM PATTERNS

GeoMetal™ features a selection of Standard pattern offerings. Standard patterns range from high-density 7% open area for maximum visual screening, to 40% open area for applications where dynamic visual passthrough can enhance aesthetics.

Have a custom design or idea? Let's team up. We can design a pattern from the ground up or take existing CAD and apply it to any panel.



## STANDARD SIZES AND MATERIAL EFFICIENCY

Different materials are available in varying coil and sheet sizes. The chart below contains all our pre-engineered nominal panel sizes. Material-efficient Standard size offerings are indicated with an “o” and are our most cost-efficient offerings.

Material and size combinations that cannot be cut without waste, or “drop”, are indicated with an “x”, making them a less cost-efficient choice.

Custom sizes not included in this chart can also be designed and fabricated, but will incur additional lead times as sizes excluded on this chart are not pre-engineered.

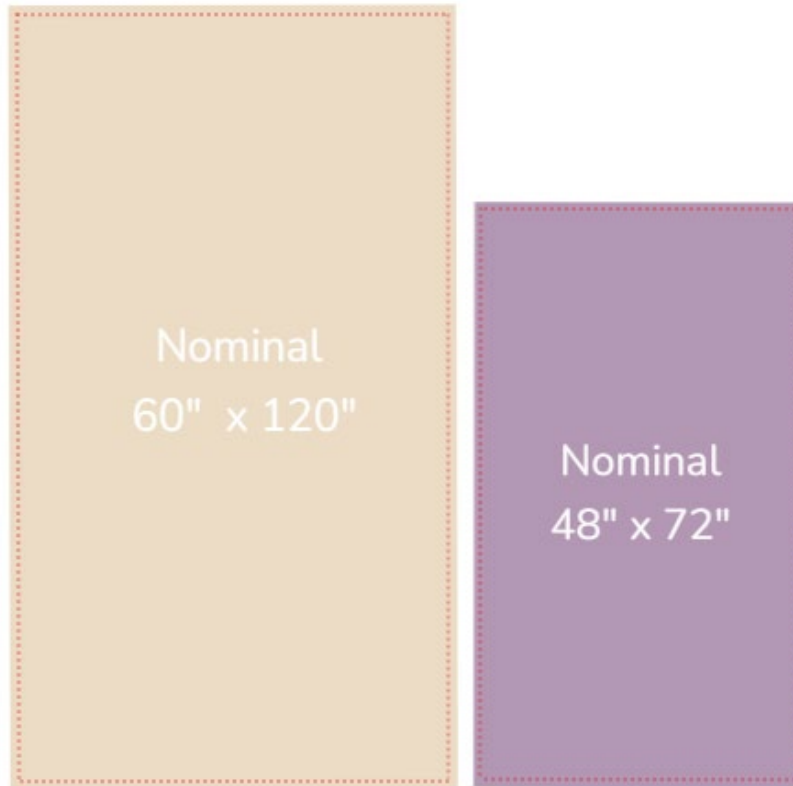
	Aluminum			Stainless Steel			Weathering Steel		
	1/8"	3/16"	1/4"	1/8"	3/16"	1/4"	1/8"	3/16"	1/4"
30 x 48	o	o	o	o	o	o	o	o	o
30 x 60	o	o	o	o	o	o	x	x	x
30 x 72	o	o	o	x	x	x	x	x	x
30 x 84	o	o	o	x	x	x	x	x	x
30 x 96	o	o	o	o	o	o	x	x	x
30 x 108	o	o	o	x	x	x	x	x	x
30 x 120	o	o	o	o	o	o	x	x	x
48 x 48	o	o	o	o	o	o	o	o	o
48 x 60	o	o	o	o	o	o	o	o	o
48 x 72	o	o	o	o	o	x	x	x	x
48 x 84	o	o	o	o	o	x	x	x	x
48 x 96	o	o	o	o	o	o	o	o	o
48 x 108	o	o	o	o	o	x	x	x	x
48 x 120	o	o	o	o	o	o	o	o	o
60 x 60	o	o	o	o	o	o	x	x	x
60 x 72	o	o	o	x	x	x	x	x	x
60 x 84	o	o	o	x	x	x	x	x	x
60 x 96	o	o	o	o	o	o	x	x	x
60 x 108	o	o	o	x	x	x	x	x	x
60 x 120	o	o	o	o	o	o	x	x	x

o = Standard Size x = Custom Order

## NOMINAL SIZING

Standard GeoMetal™ sizing is nominal. Prior to manufacturing, a small amount of material is removed around the boarder of each panel to ensure perfect alignment for production-ready manufacturability. True sizing is ¼" less per side.

The graphic below shows two example panels - a 48" x 72" and 60" x 120" panel, which will be cut down to 47.5" x 71.5" and 59.5" x 119.5" respectively for production, as indicated by the dotted line.



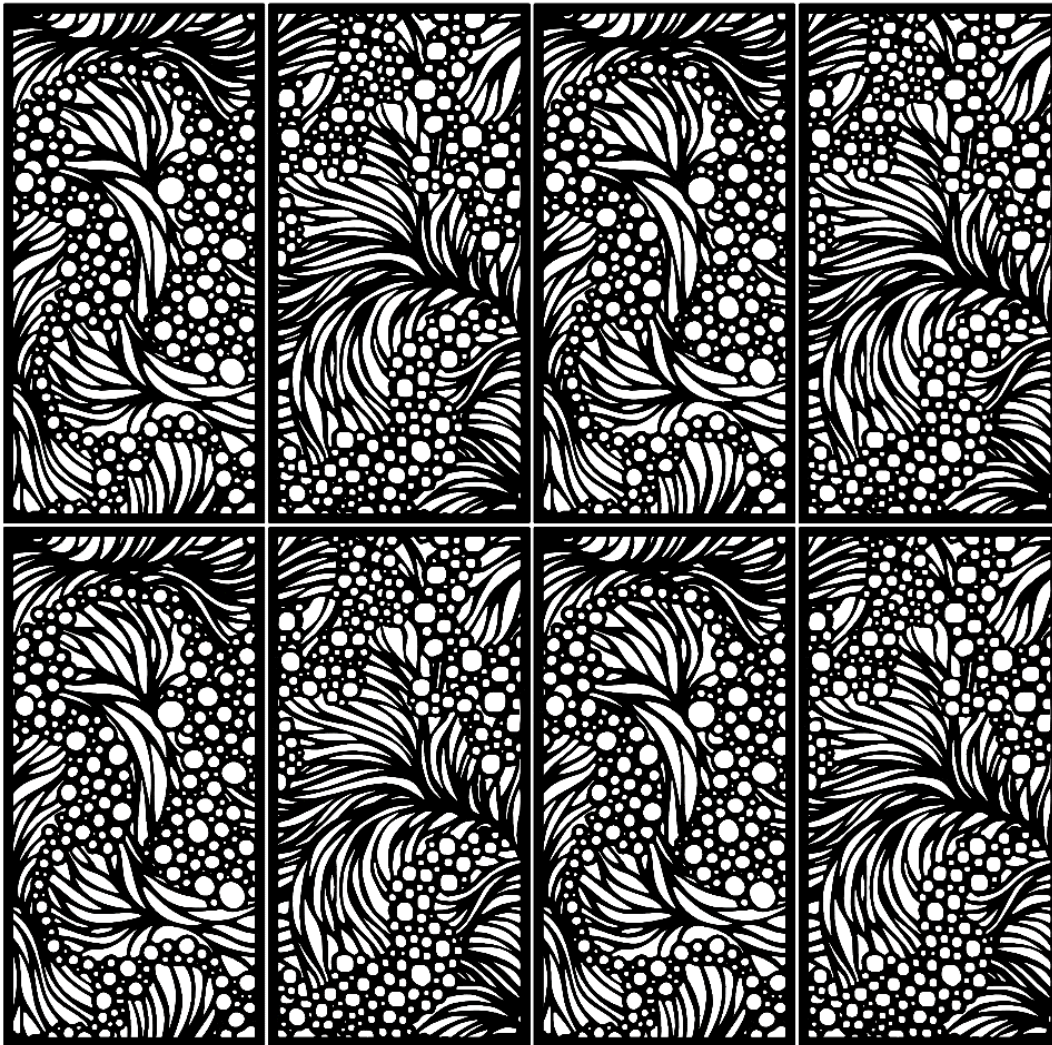
## PANEL ORIENTATION

GeoMetal™ panels can be oriented horizontally or vertically. Depending on the layout of your design, one orientation may be more material efficient than another. Please feel free to contact our design team for more information or assistance in determining the best option for your project.



## CONTINUOUS PATTERNS

A selection of our pattern offerings can be designed in a “continuous” arrangement. This occurs when a design is broken up over a series of panels to create a larger pattern. “Ebb” is a prime example of this design method and is showcased below. This implementation can require extra design time as patterns are custom-scaled based on panel sizing.



## BORDERS AND PANEL SPACING

GeoMetal™ panels are designed to have a 1” border margin of solid material where no pattern exists. This serves as a medium for fastening and provides increased structural rigidity. When installing or designing a GeoMetal™ array, we recommend maintaining ¼” spacing between panels when fastening to allow for thermal expansion. Exact panel spacing requirements will be finalized in the engineering process.

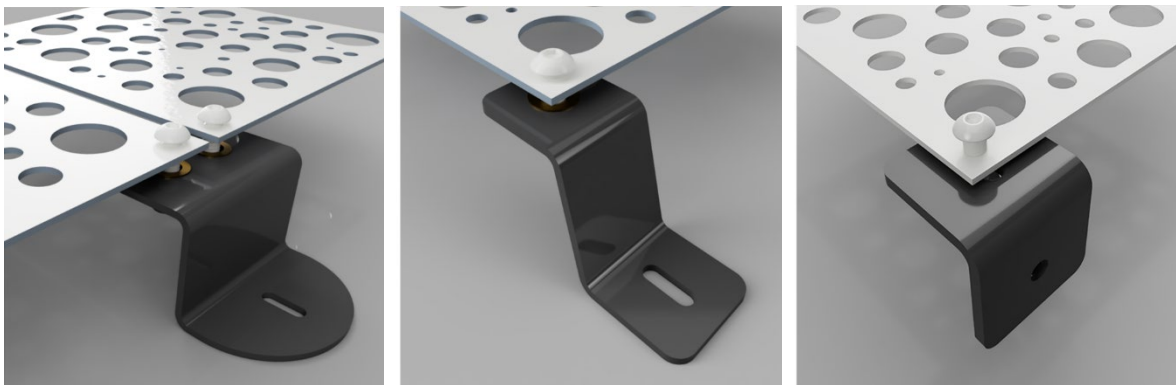
## STANDARD ATTACHMENT

GeoMetal™ panels are designed to attach directly to Square Girts via predrilled holes in the panel. Predrilled fastener locations are typically every 8" on the edge of each panel. Fastening options include either Standard TEK or Premium Tamperproof screws, both with included rubber washers for maximum panel protection. The type of fastener to best suit your project will depend on several variables. See the "Fastener Options" section below for additional details.



## CUSTOM ATTACHMENT

For projects that are not able to utilize GeoMetal's standard Square Girt attachment system, or that require special panel configurations, we have designed a series of Custom Attachment options for mounting GeoMetal™ on a wide range of substrates. Custom brackets can also be fabricated on a per-project basis as needed.





## FASTENER OPTIONS

The GeoMetal™ system features two fastener options: Standard Tek screw and Premium Tamperproof fastener. Both fastener options come color-matched to the selected GeoMetal™ panel finish for a clean, continuous look. Premium fasteners are recommended for ground-level applications in high-traffic areas, while the Standard Tek screws are recommended for rooftop applications or low-traffic areas.



**Standard**



**Premium**

<b>Material</b>	410 Stainless Steel	300 Stainless Steel
<b>Spec</b>	Tek3 #12-14 x 1"	Tek3 #12-14 x 1.5"
<b>EPDM Washer</b>	Yes	Yes
<b>Pull-out Value*</b>	769 lbs.	1032 lbs.
<b>Color-Matched</b>	Yes	Yes
<b>Tamper-proof</b>	No	Yes
<b>Low Profile</b>	No	Yes

\*Pull-out values listed are ultimate and assume a 14 ga steel substrate. Appropriate safety factors should be applied to these values for design purposes.

## SPAN/THICKNESS

The spanning capability of GeoMetal™ is determined by factors such as panel pattern, material, fastening method and panel size & thickness. There are several project-specific factors to consider when selecting panel thickness including design pressure and application type.

Each standard GeoMetal™ pattern has its own unique span table, available for download at [www.roofscreen.com](http://www.roofscreen.com).

## SUMMARY

GeoMetal™ is a versatile product that can enhance the look of any project via multiple applications. While there are many factors that can determine the best materials, sizing and finishes on a project-specific basis, our goal is to make understanding, specifying and installing the system as easy as possible. We sincerely appreciate that you took the time to review this document and we hope that it proves to be helpful.

As always, we are happy to assist you in any way that we can to properly design and specify GeoMetal™. Please do not hesitate to call us at 831-421-9230 or check out additional resources on our website [www.roofscreen.com](http://www.roofscreen.com).