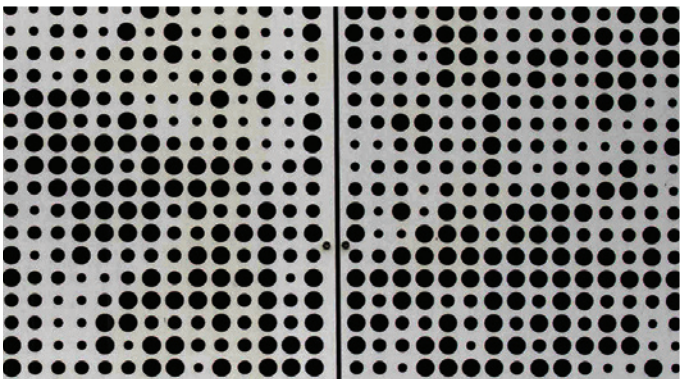
AMICO®
ARCHITECTURAL
METAL SYSTEMS

Expanded Mesh & Perforated Metal



Company Overview and Project Highlights

FACADES

PARKING GARAGE CLADDING

EQUIPMENT SCREENS

CEILINGS & INTERIOR WALLS

RAILINGS

RETAIL DESIGN

SUNSHADES

VERTICAL GARDENS

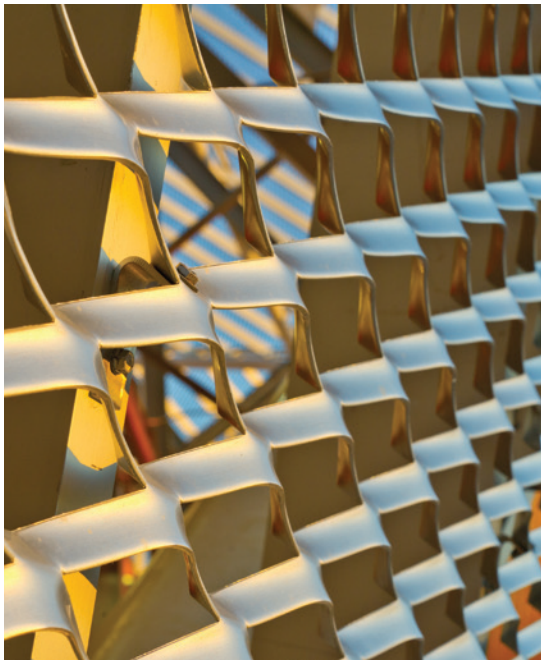
RESIDENTIAL

ACOUSTIC PANELS

SIGNAGE

LANDSCAPE DESIGN

Houston Dynamo Stadium - Expanded Mesh Facade



Architect:
Populous

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX01

City of Hope - Expanded Mesh Sunshade

Architect:
Gensler

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX03

Polygon Gallery - Plank Grating Facade

Architect:
Patkau Architects

AMICO Role:
Panel Supplier
Fabricator

Product:
Aluminum Plank Grating

Théâtre Gilles-Vigneault - Expanded Mesh Interior & Exterior Cladding

Architect:
Jodoin Lamarre
Pratte Architects

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX01

Analog Devices Headquarters - Expanded Mesh Facade & Sunshade

Architect:
Baker Design Group

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - Bilbao

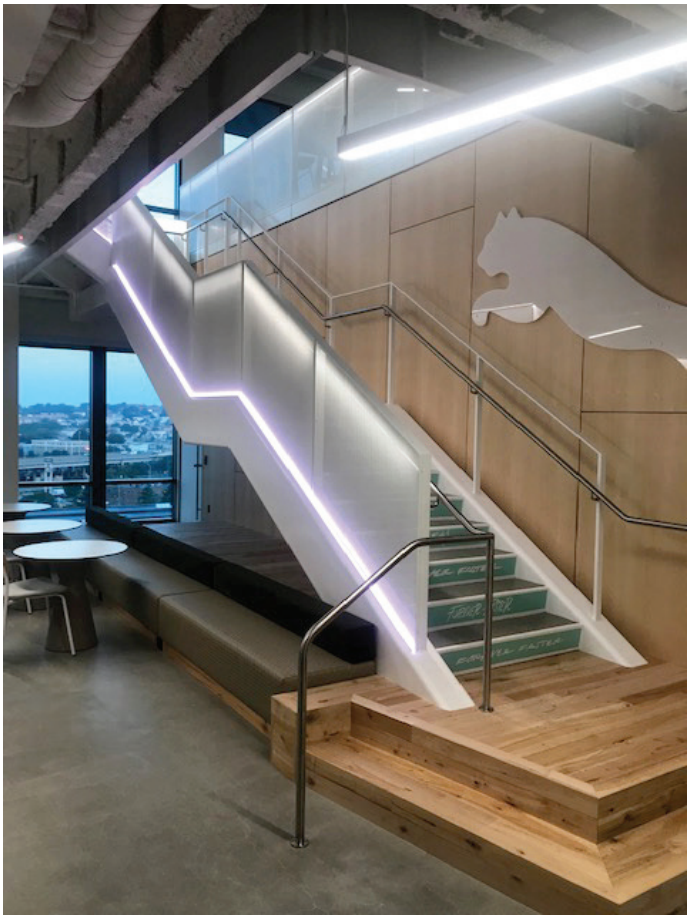
Cooksville Go Station - Expanded Mesh Parking Garage Screen

Architect:
NORR

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX01

PUMA Headquarters - Perforated Railing



Architect:
Gensler

AMICO Role:
Panel Supplier

Product:
Perforated Aluminum

West 57th - Expanded Mesh Ceiling

Architect:
Bjarke Ingels Group (BIG)

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX03

NIKE Campus - Corrugated Perforated Facade

Architect:
SRG Partnership

AMICO Role:
Panel Supplier

Product:
Corrugated Perforated Aluminum

UC Riverside Student Rec Center - Perforated Facade & Sunshade

Architect:
Cannon Design

AMICO Role:
Panel Supplier

Product:
Perforated Aluminum

Ottawa Art Gallery - Expanded Mesh Facade

Architect:
KPMB Architects

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX03

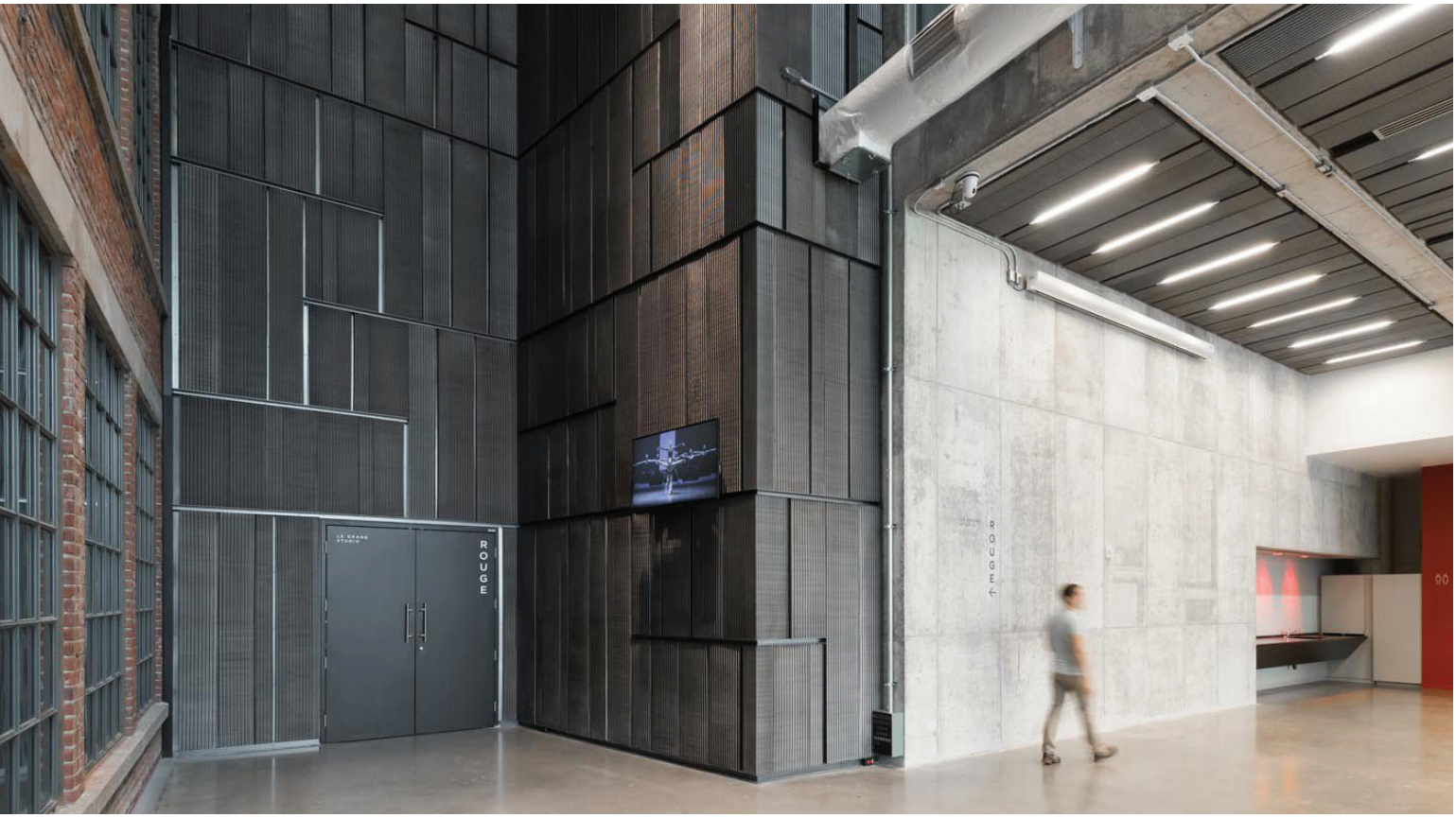
Pier 35 - Expanded Mesh Pedestrian Blind

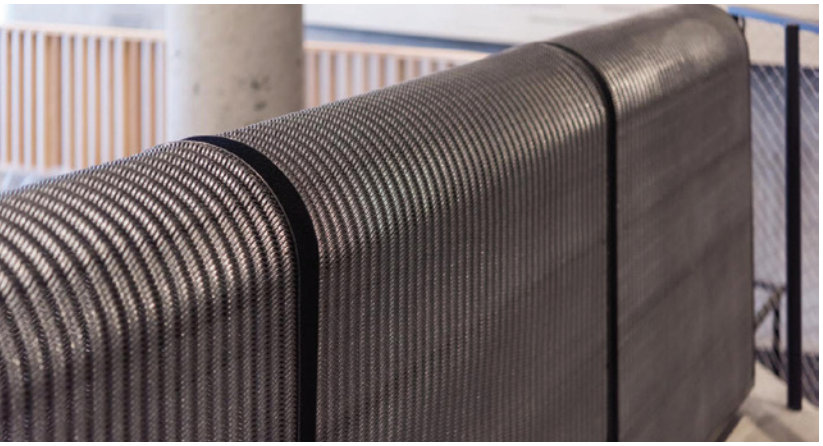
Architect:
SHoP Architects &
Ken Smith Workshop

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX03

Les Grands Ballets Canadien - Ripple Steel Wall Cladding and Railing



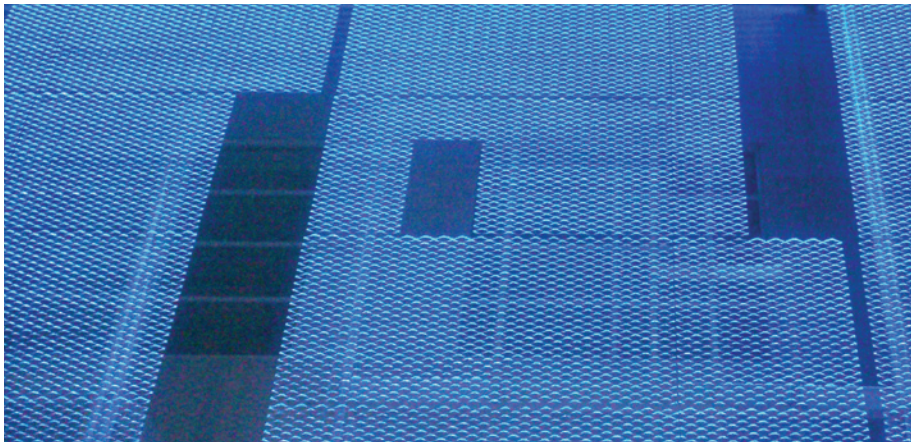


Architect:
Lapointe Magne & Ædifica

AMICO Role:
Panel Supplier
Fabricator

Product:
Ripple Steel

Southland Christian Church - Expanded Mesh Facade



Architect:
EOP Architects

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX03

Symmetry Partners Office - Adaptive Reuse Exterior Remodel

Structure Before Expanded Mesh Facade Remodel
(©2016 Google)

Architect:
Amenta Emma Architects

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX01

Santana Row - Parking Garage Screen

Architect:
Stantec

AMICO Role:
Panel Supplier
Fabricator

Product:
Expanded Mesh - APEX03

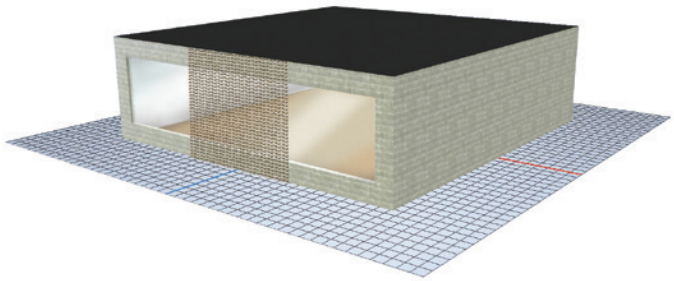
SUNSHADE CARBON AND ENERGY SAVING BENEFITS

A long-standing practice of architects is to utilize architectural metals as a sunshade element to reduce glare, improve the quality of experience inside a building, and of course, to reduce heat gain.

But how effective are these sunshade elements at reducing heat gain?

To answer this, AMICO Architectural Metal Systems retained RWDI an international climate engineering and environmental consulting firm specialized in understanding how the built and natural environments interact to perform an independent study using digital simulations to quantify heat gain change for a sunshade mounted parallel to a glass façade. The results shows AMICO's expanded mesh was effective at creating notable heat gain reduction leading to energy and carbon reduction.

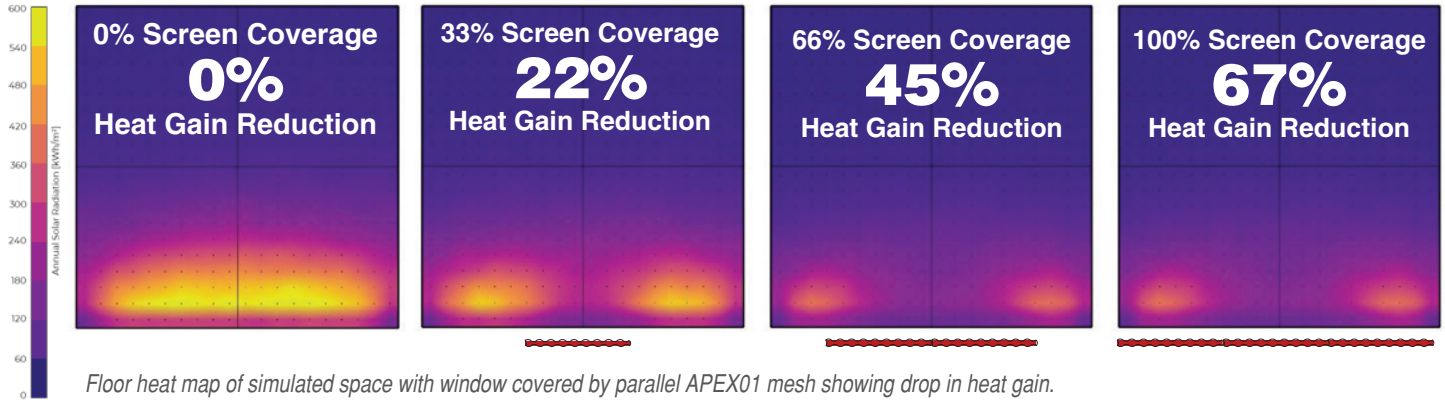
SJ Quinney Law Building designed by the Smith Group - Parallel sunshade using APEX03 mesh, interior and exterior view



Visualization of simulated digital structure with south-facing window and APEX01 Expanded mesh panels covering 1/3 of the window.

The simulation was run using ClimateStudio software using the industry standard Radiance rendering program and involved the calculation of a Bidirectional Scattering Distribution Function (BSDF) which allows the transmission and reflection characteristics of arbitrarily complex geometries to be defined mathematically. The simulation was then arranged to measure heat gains at each point in the room on an hourly basis over the entire course of a year.

Read the complete study using this QR Code:



Floor heat map of simulated space with window covered by parallel APEX01 mesh showing drop in heat gain.

Study Results

Assuming 9,000 sq ft south-facing glass facade with 66% APEX03 sunshade coverage in Southern California

Eliminate 23.82 kWh

in HVAC use per year per square foot of glass covered with APEX03 expanded mesh

CO_2 AVOIDED

1.5M Pounds

COAL SAVED

2.3M Pounds

$$$

$767,255

saved in electrical costs

Other Benefits to Utilizing Sunshades on Your Next Project

Increased Access to Windows

For plans where municipalities or project specs are capping energy usage and driving design decisions, expanded mesh sunshades can be a solution for deploying more windows in your design and creating a more open and pleasing environment for users to inhabit while minimizing heat gain that would otherwise drive down the window count.

Improved Occupant Satisfaction

Maximizing equitable access to daylight for all users of a facility is important. Expanded mesh can be a daylight control tool that still allows natural light deep into a space. Studies suggest that daylight has a direct impact on the well-being, productivity, and overall sense of satisfaction of users of a given space.

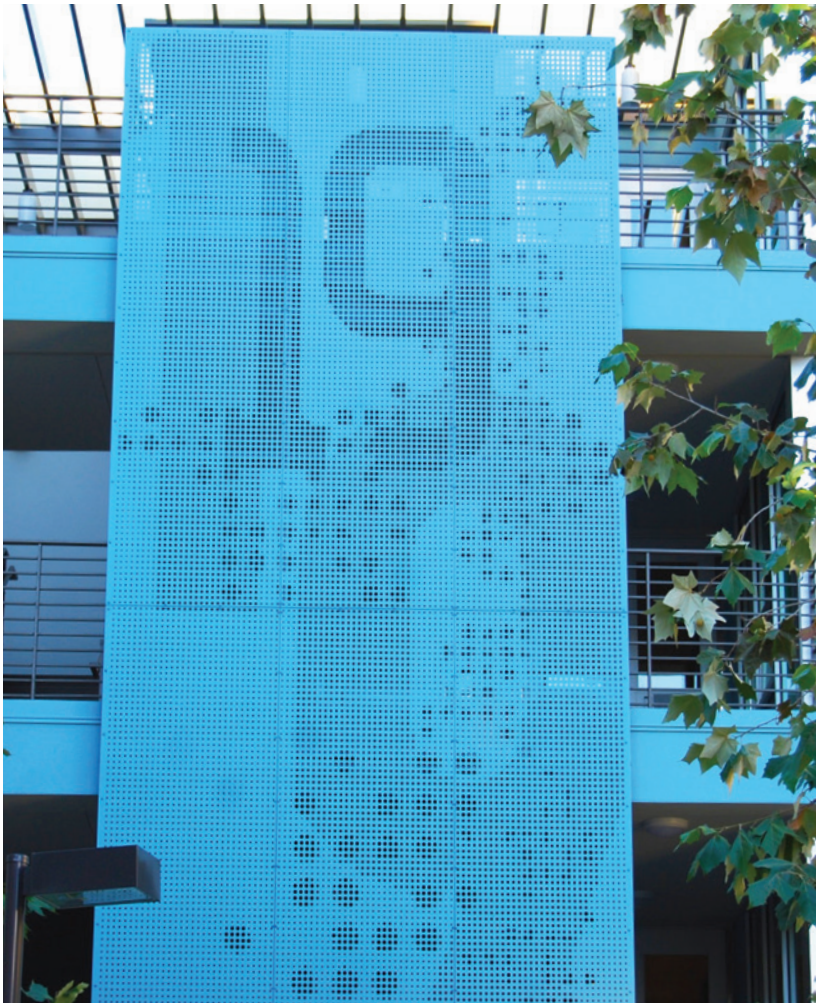
Lighting Design

Expanded mesh sunscreens can open the design possibilities of including large expansive south-facing windows that deliver consistent, ample natural light into the facility, further driving down electrical lighting loads while still balancing and controlling heat gain and energy consumption.

PICTURE PERFECT

Are you looking for a unique means of introducing a texture into your design, or a new way to tell a story with an image or graphic?

AMICO's Picture PERFect process can take your raster image and convert the graphic, photograph, or texture image into a perforated metal pattern.



Getting Started with Picture PERFect:

1

DECIDE ON THE IMAGE AND WALL DESIGN

Create or acquire rights to the image, make design decisions on your wall, and decide if the image will be back-lit or front lit.

2

PREP AND CROP

Crop your image to match the proportions of your design space and remove any backgrounds or extraneous details from the image.

3

SHARE WITH AMICO

Send the image file and project drawings to:

AMICOARCH@amicoglobal.com

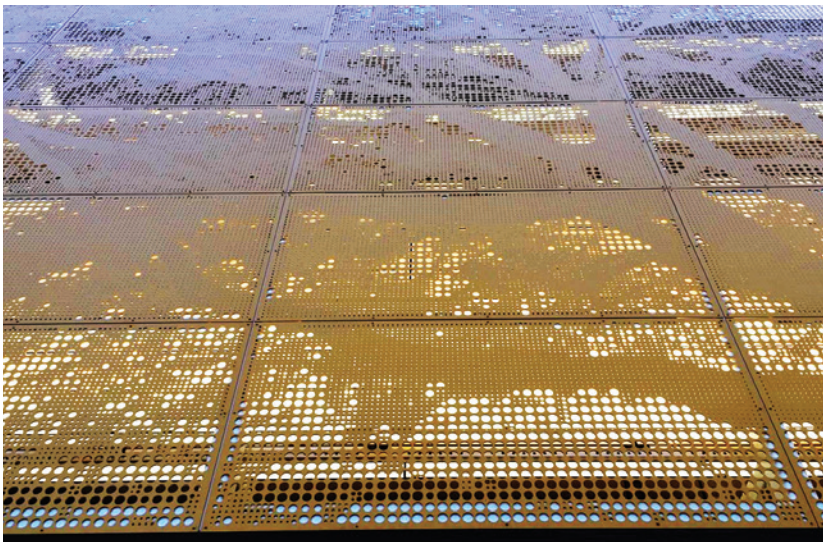


Image and File Prep Recommendations:

File Types:
A raster (pixel based) image is required; .tif, .psd, .bmp, .gif, .jpg, and .png are all acceptable file formats.

Image Cropping:
To ensure your image is translated to your exact design needs, crop and provide an image in the identical aspect ratio of your design.

Including Text:
Text should always be as big and bold as possible to ensure proper visual translation into perforation. Text that is too small may not be legible.

Image Resolution:
The resolution of your image will ultimately dictate the amount of detail that can be captured with our Picture PERFect process, so having the highest Possible resolution is helpful in the process.

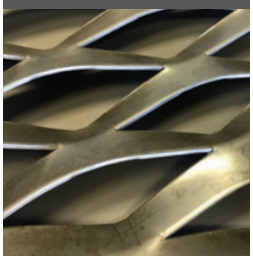
Background:
If possible, background noise and imagery should be removed, this will help the subject imagery to stand out.

Image Rights:
AMICO expects and assumes that the designer owns all necessary rights to use of an image.

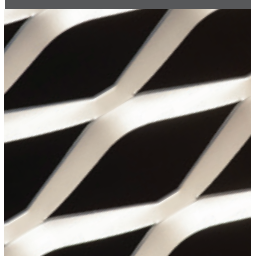
Materials

A large majority of AMICO's projects are completed using aluminum because it is light weight, corrosion resistant, and has a wide range of finish options. However, we are able to manufacture perforated metal and expanded mesh in other metals as well including zinc, brass, copper, bronze and more.

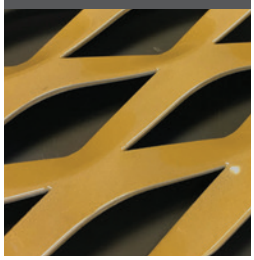
Mild Steel



Aluminum

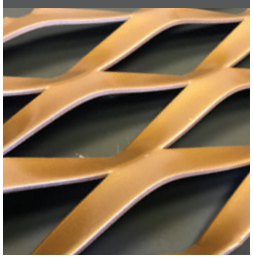


Brass



Weathering Steel

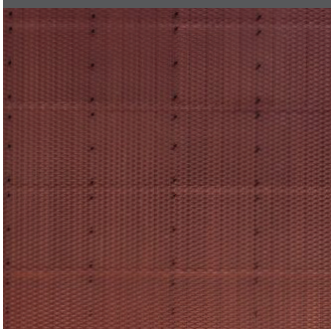
Copper



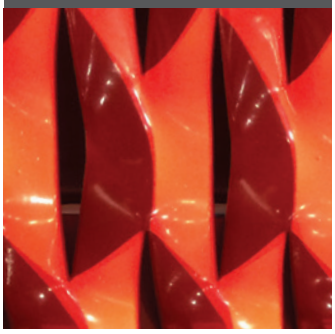
Finishes

When it comes to finishes, AMICO remains finish agnostic in order to deliver the exact finish you need for your design. Below are the pros and cons of the most common finish solution to help guide you through the selection process.

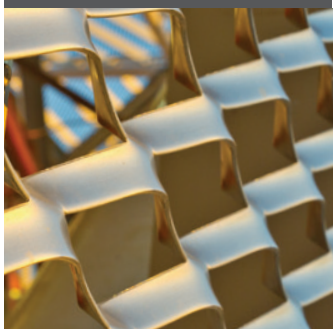
Fluoropolymer Paints



Powder Coating



Anodizing



Natural Finishes

PROS

- Broad color pallet
- Mica and metallic options
- Easy color matching

- Durable, thick covering
- No VOC
- Hides imperfections in metal

- Excellent for coastal projects
- Cannot flake
- Little fading due to UV

- No added finish
- No fading or damage problems
- Rich natural finishes

CONS

- Thin application
- Longer warranty will require 3-4 coat products and thus cost more

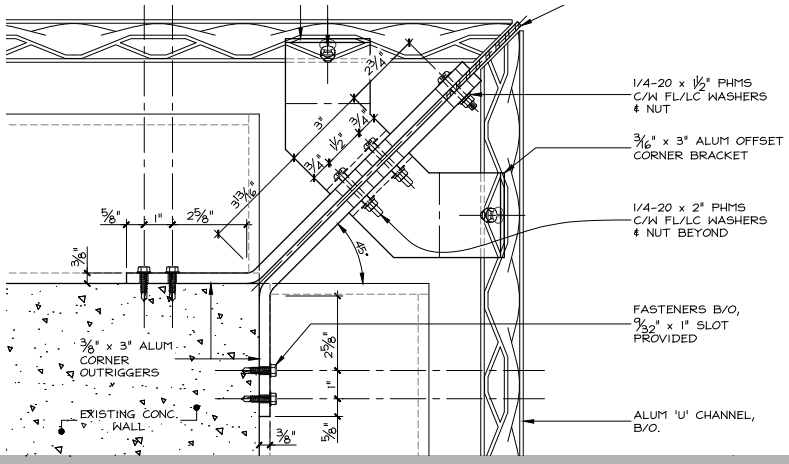
- Bright colors tend to be less color stable
- Limited color pallet

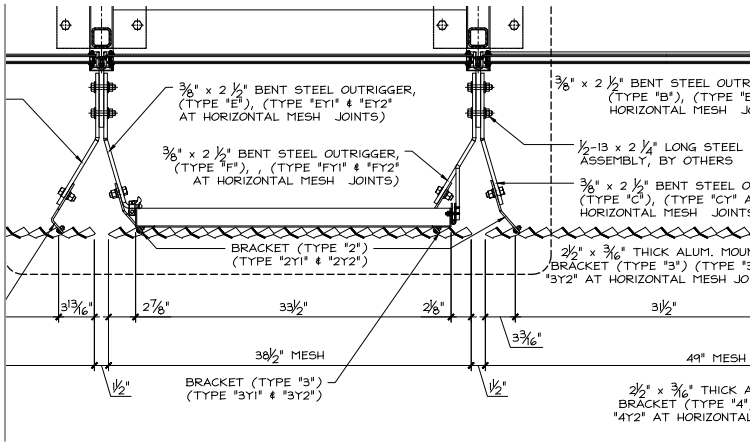
- Limited warranties above 10 years
- Prior imperfections visibly evident

- Higher initial material cost
- Less control of aesthetic details
- Changes over time

Services

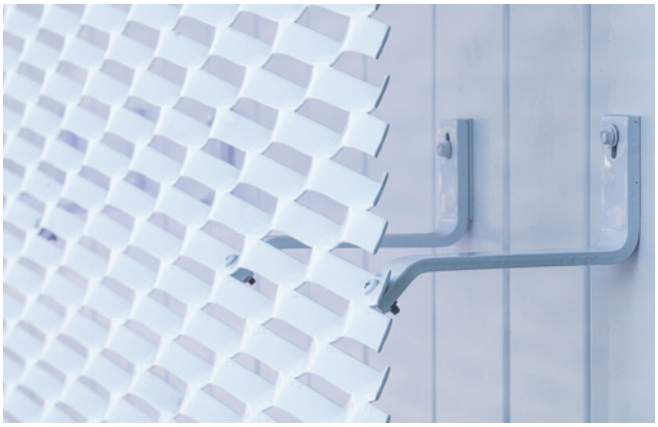
AMICO Architectural Metal Systems will provide panels that are finished, fabricated, cut to size, and ready to install with attachment clips. Along the way during our design process, we are available for assistance with detailing, including trim detail recommendations and job site coordination.

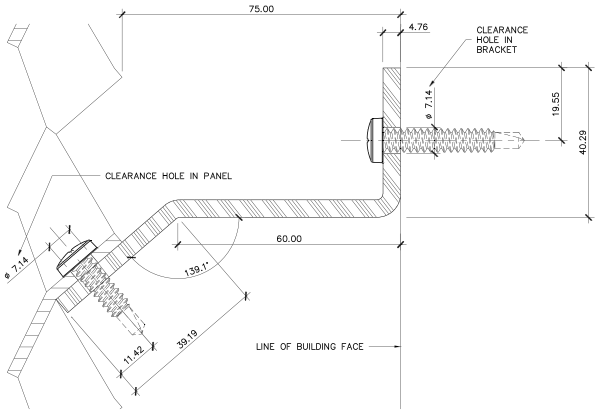


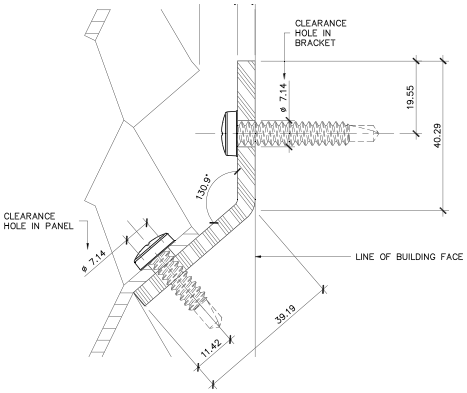


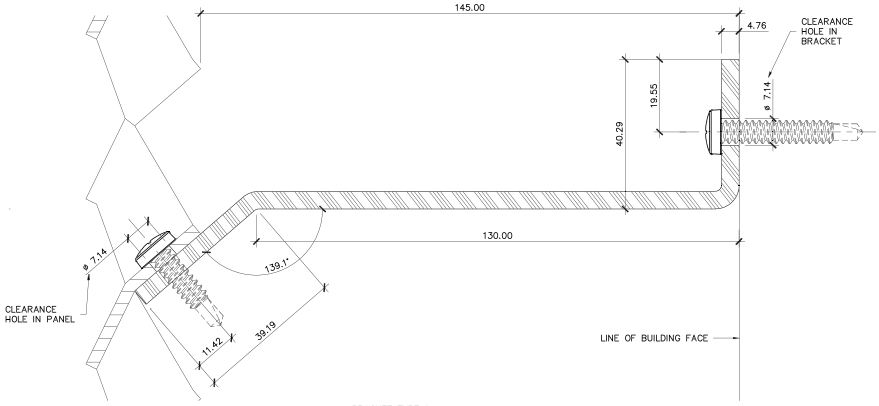
Attachment

Every design comes with a unique set of criteria that demand different attachment solutions. One of our standard methods of attachment is with the clip shown below. Custom attachment methods based on specific design needs not out of the ordinary and AMICO can lead the design and manufacturing of that solutions.







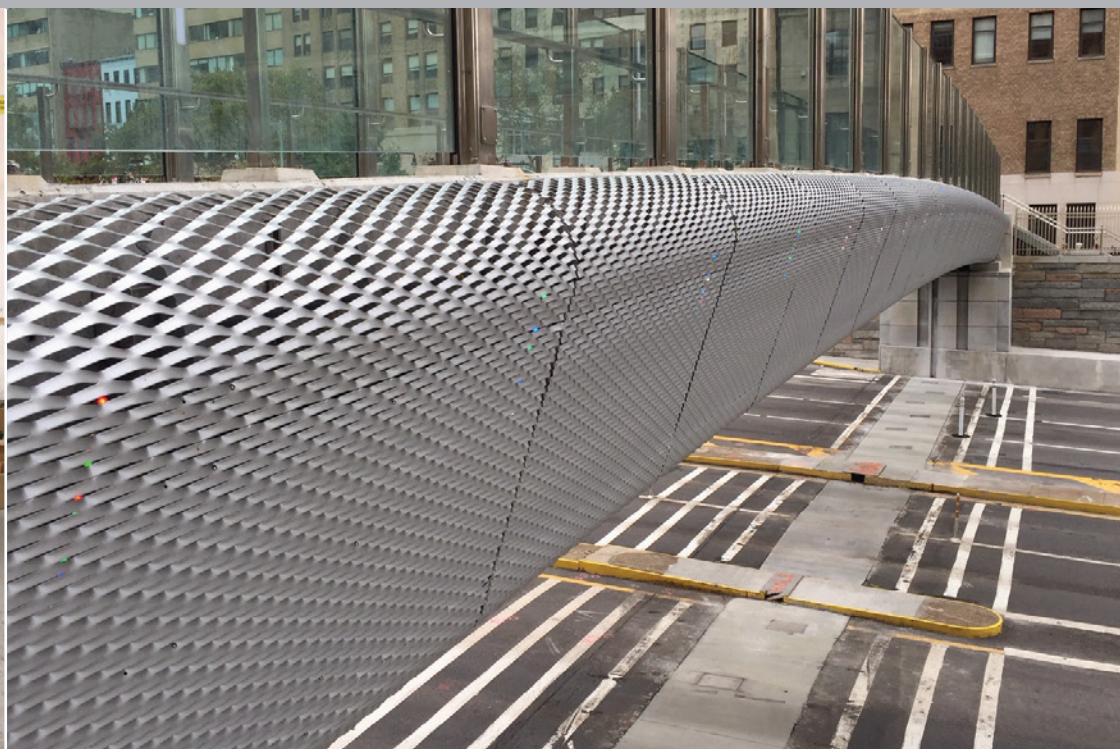


Expanded Mesh Orientation

Expanded mesh has directionality and is more transparent from certain viewing angles. This can be used to make certain areas less or more visibly acceptable such as limiting site-lines into a parking deck. Shown below, CCM2 used this material property to create an interesting texture simply by rotating the expanded mesh panel in different directions.

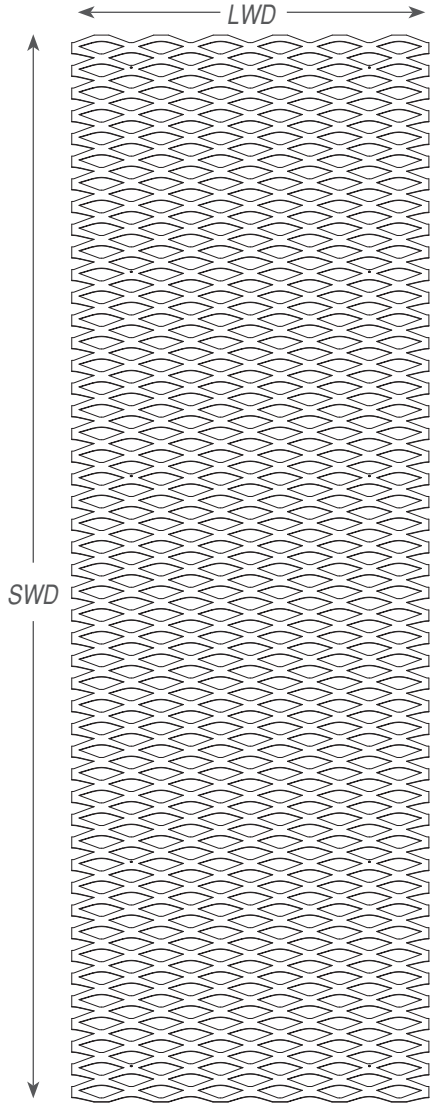
Expanded Mesh Forming

Expanded mesh can be formed just like typical sheet metal material. If you are considering a design that calls for curves or bends, the support structure simply needs to be designed to support along the form to prevent sag. The shop mock-up below shows a support solution developed for the NYC Morris St. Bridge



Expanded Mesh Panel Sizes

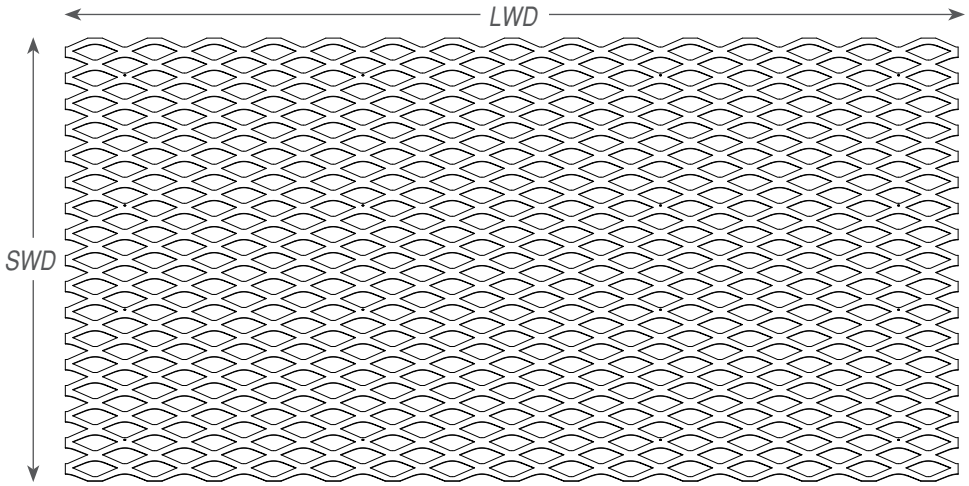
AMICO has two types of expanded sheets that we refer to as landscape or portrait. The key thing to keep in mind for your design is your desired direction of the mesh diamond opening (vertical vs. horizontal) as well as how you plan to position your panel support structure in your design.



Portrait Panel

Maximum Panel Dimensions		
	Portrait	Landscape
APEX01	143.375" SWD x 48" LWD	59-1/2" SWD x 120" LWD
APEX02	143.375" SWD x 48" LWD	59-1/2" SWD x 120" LWD
APEX03	145" SWD x 48" LWD	60" SWD x 132" LWD
APEX04	96.625" SWD x 48" LWD	
BILBAO	120" SWD x 60" LWD	60" SWD x 120" LWD
SUNSHADE	120" SWD x 48" LWD	60" SWD x 120" LWD
PISA	120" SWD x 48" LWD	59.625" SWD x 120" LWD
CRESCENT	120" SWD x 48" LWD	
VENETIAN	120" SWD x 48" LWD	

SWD = Short Way Diamond *LWD = Long Way Diamond*



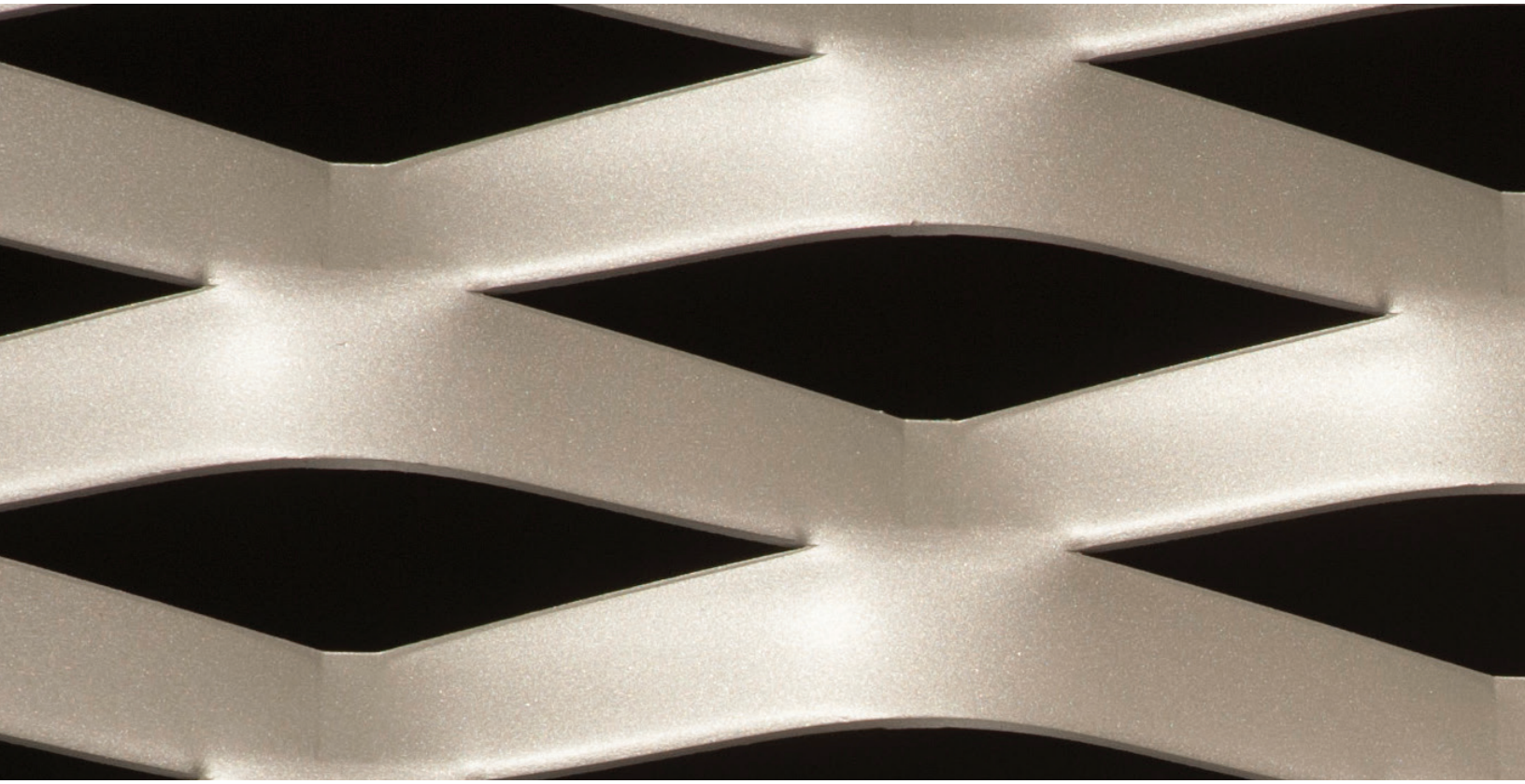
Landscape Panel

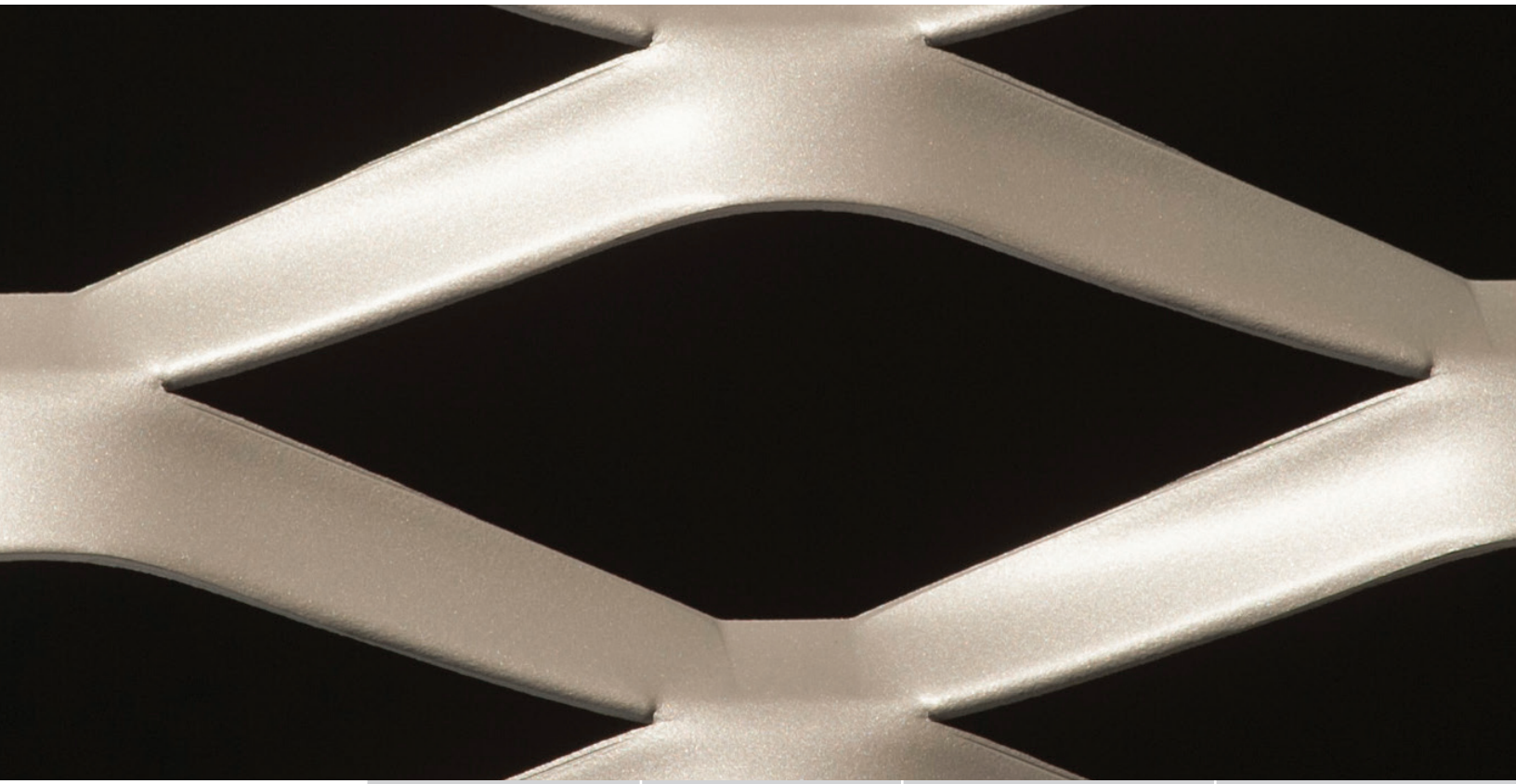
APEX01

Scale 1:1

APEX03

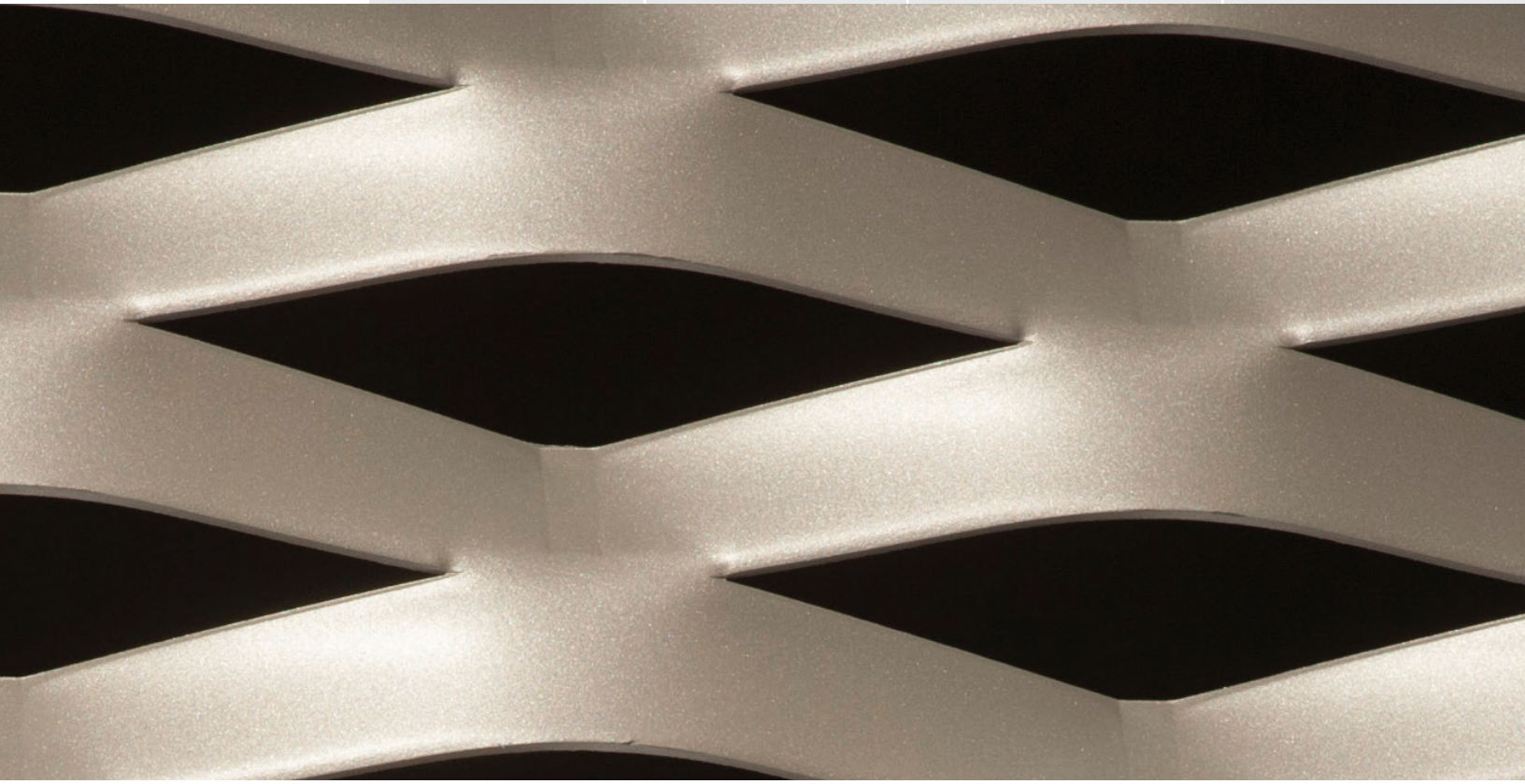
Scale 1:1

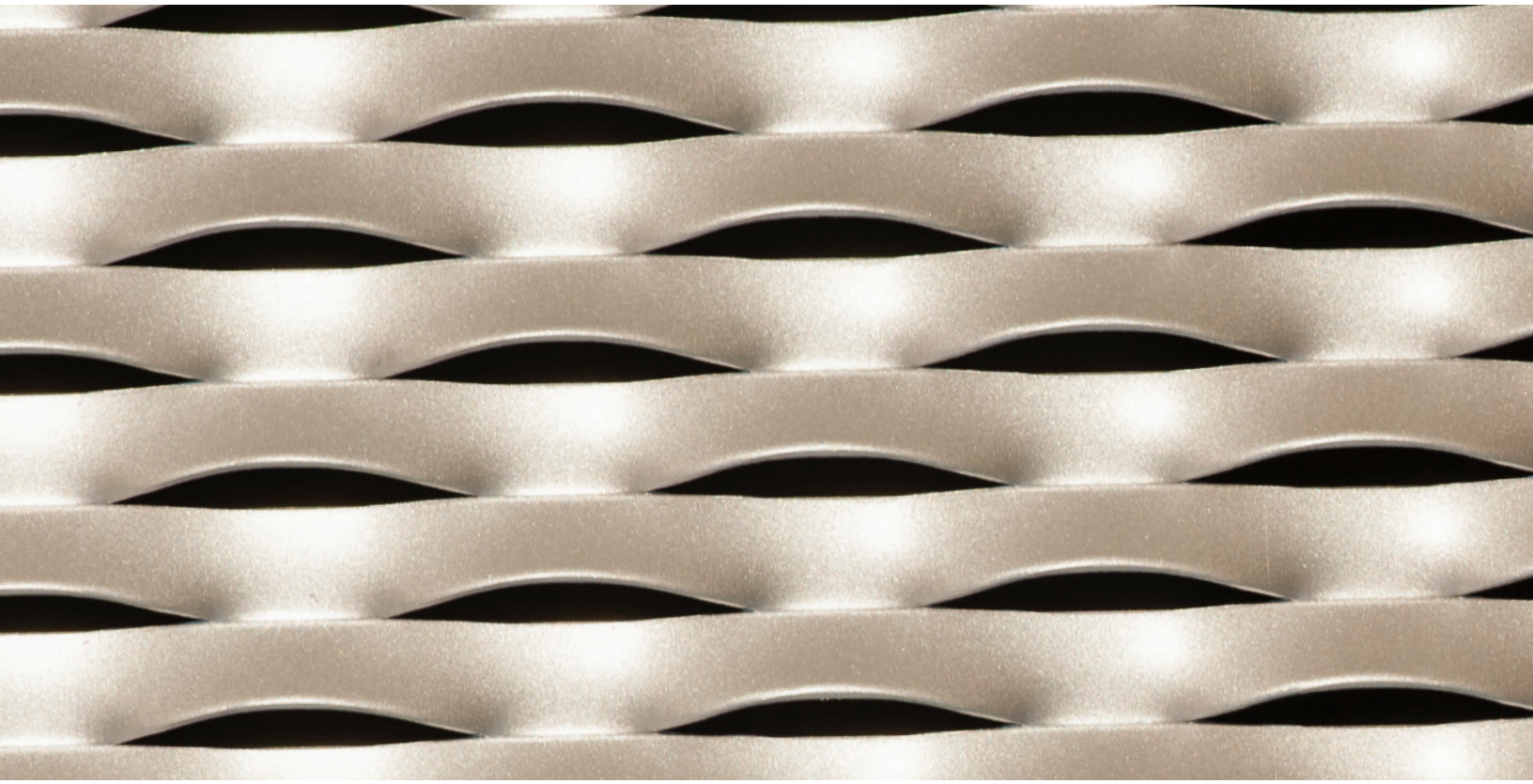




Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
3.5”	8.0”	46%	0.98 lbs/sq ft

Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
2.5”	6.0”	26%	1.34 lbs/sq ft



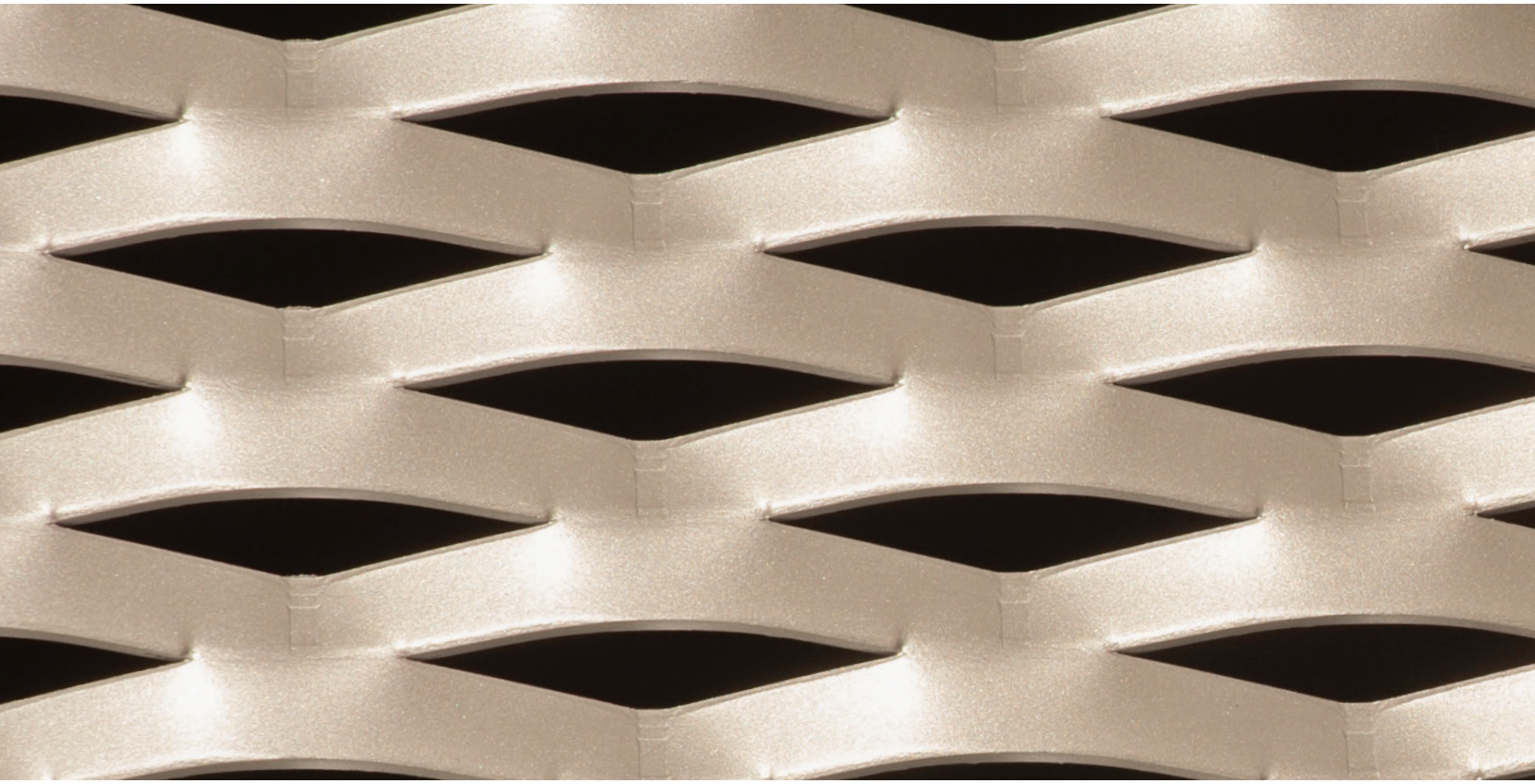


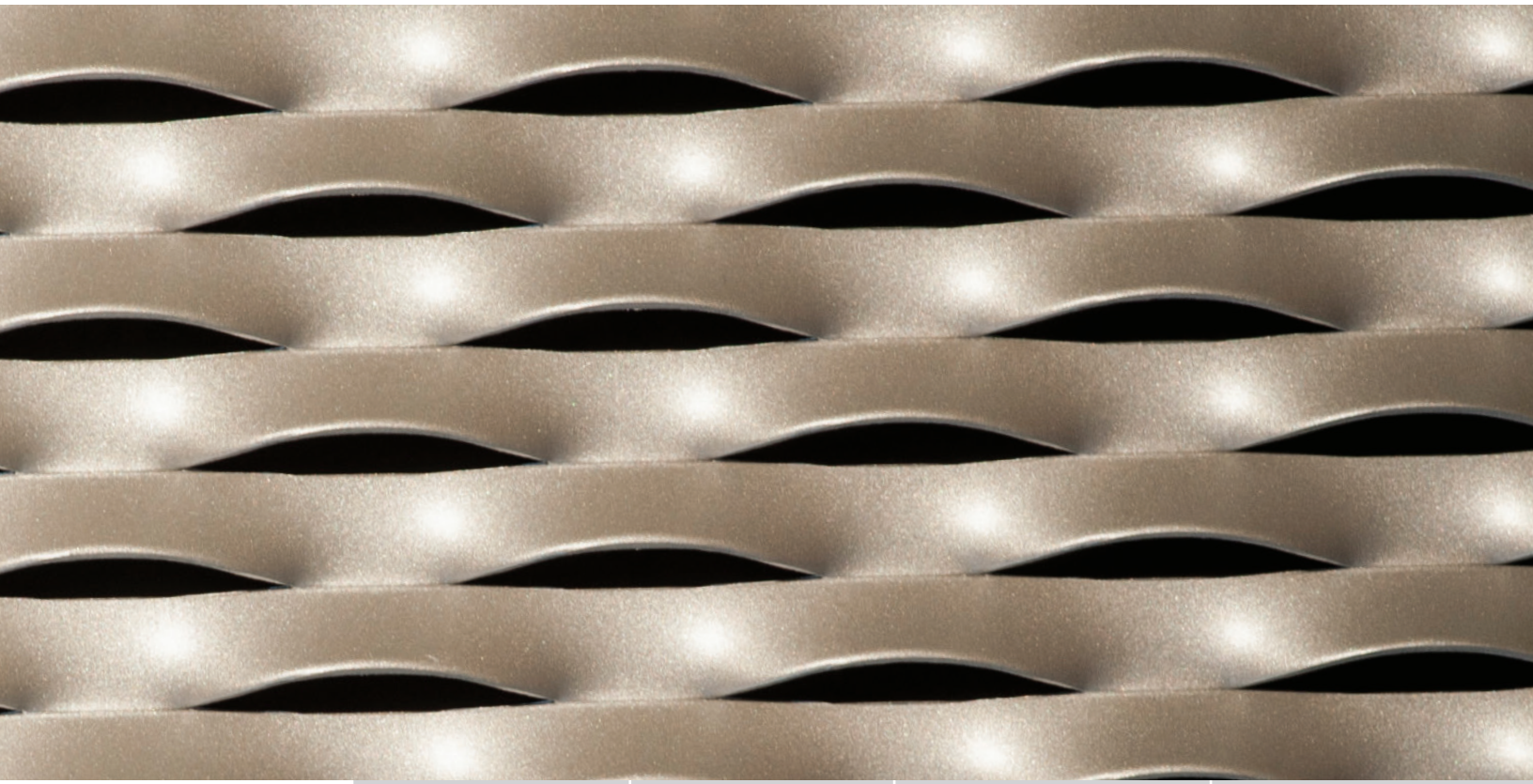
APEX04

Scale 1:1

BILBAO

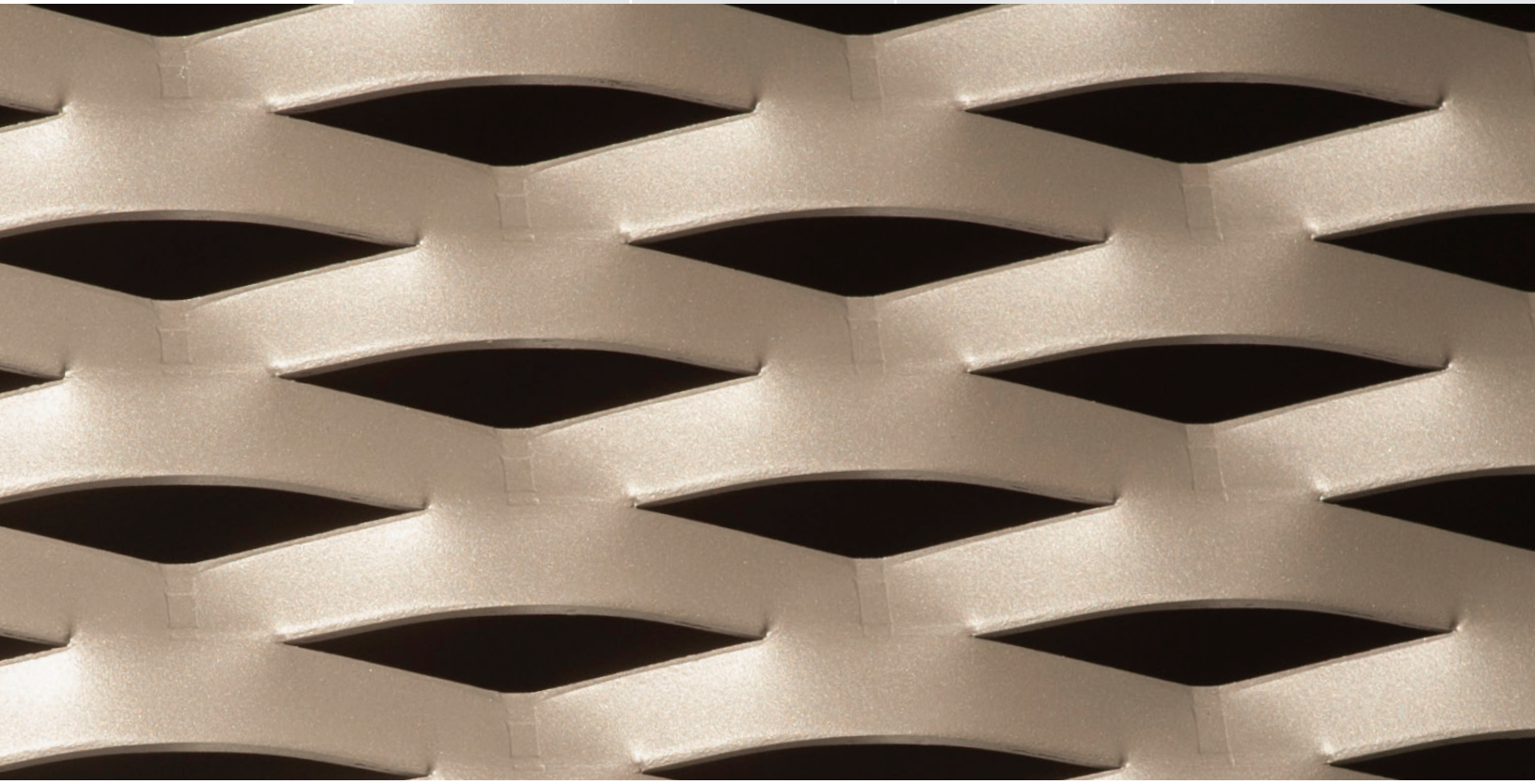
Scale 1:1

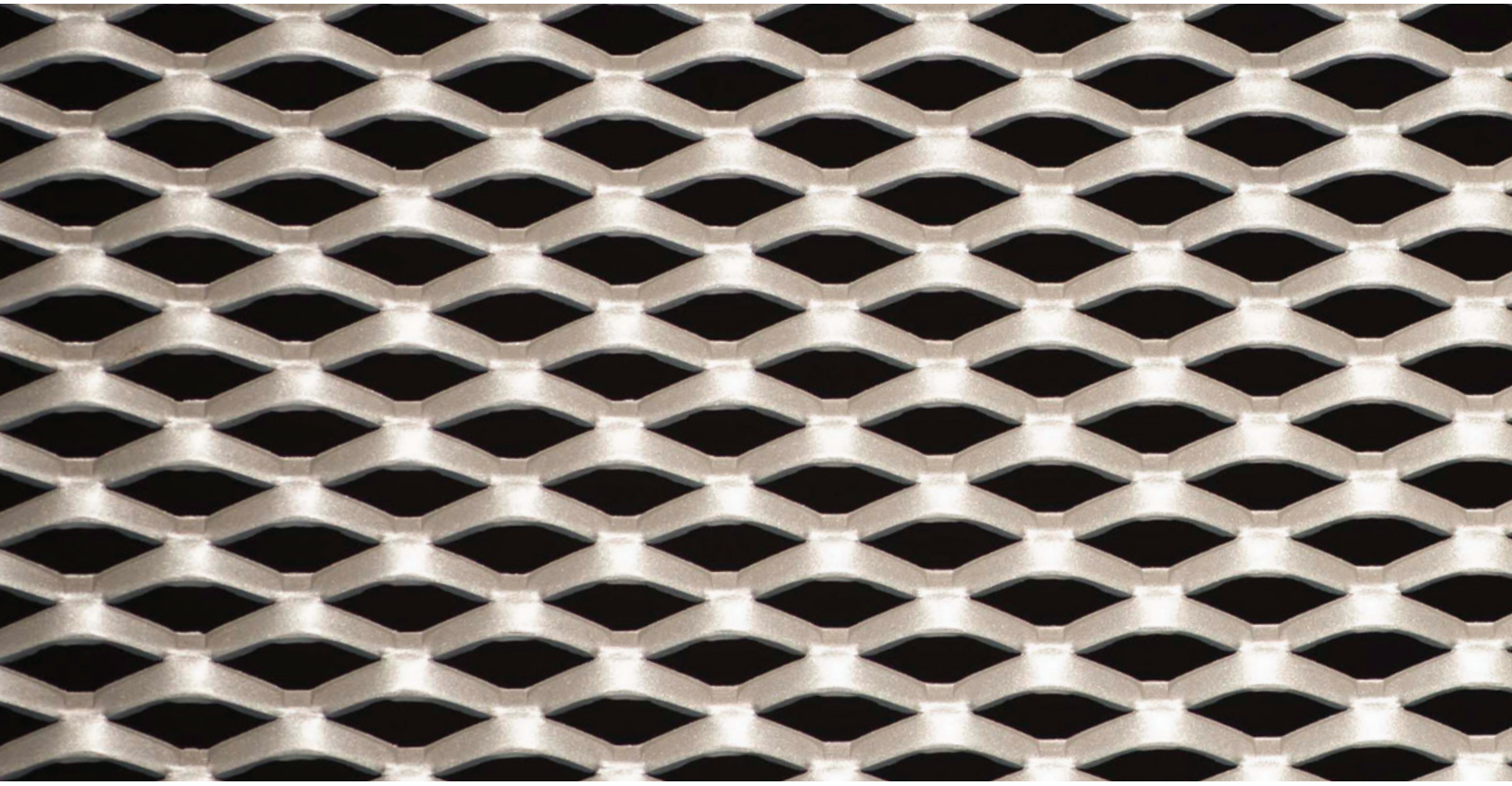




Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
1.3”	3.0”	6.25%	1.69 lbs/sq ft

Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
1.5”	4.0”	18%	1.48 lbs/sq ft



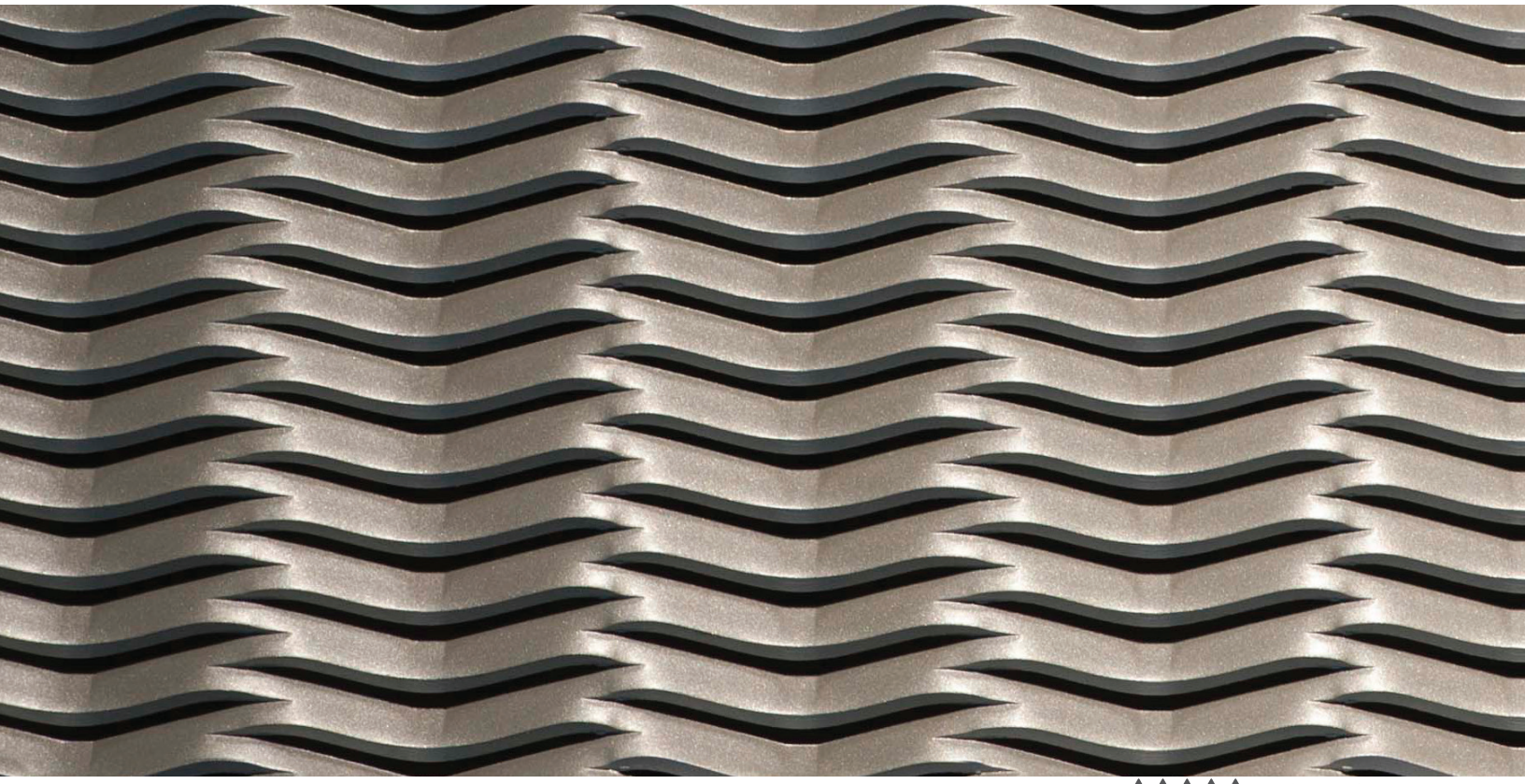


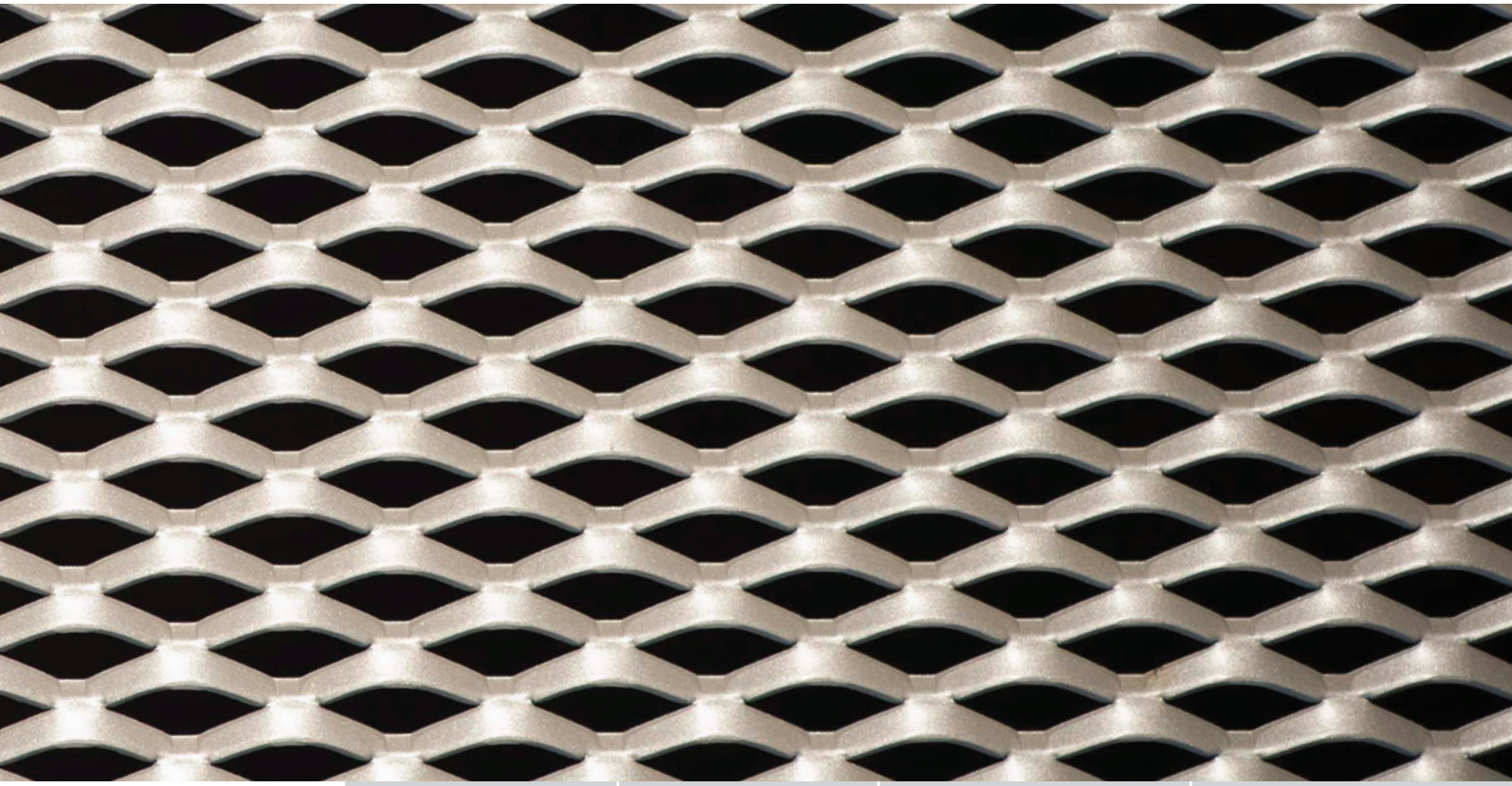
SUNSHADE

Scale 1:1

CRESCENT

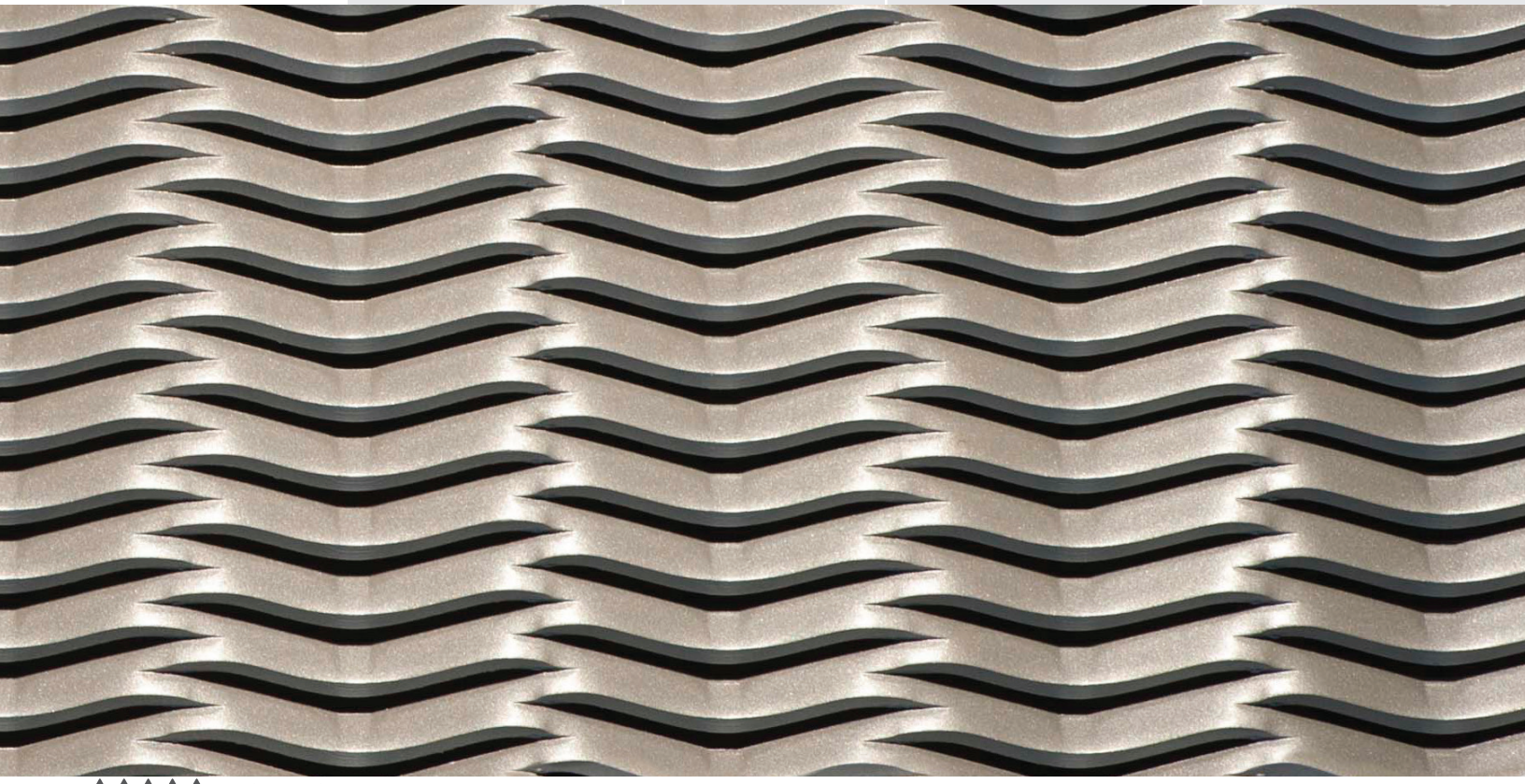
Scale 1:1





Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
0.625”	1.2”	36%	0.74 lbs/sq ft

Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
0.375”	4.0”	25%	1.34 lbs/sq ft

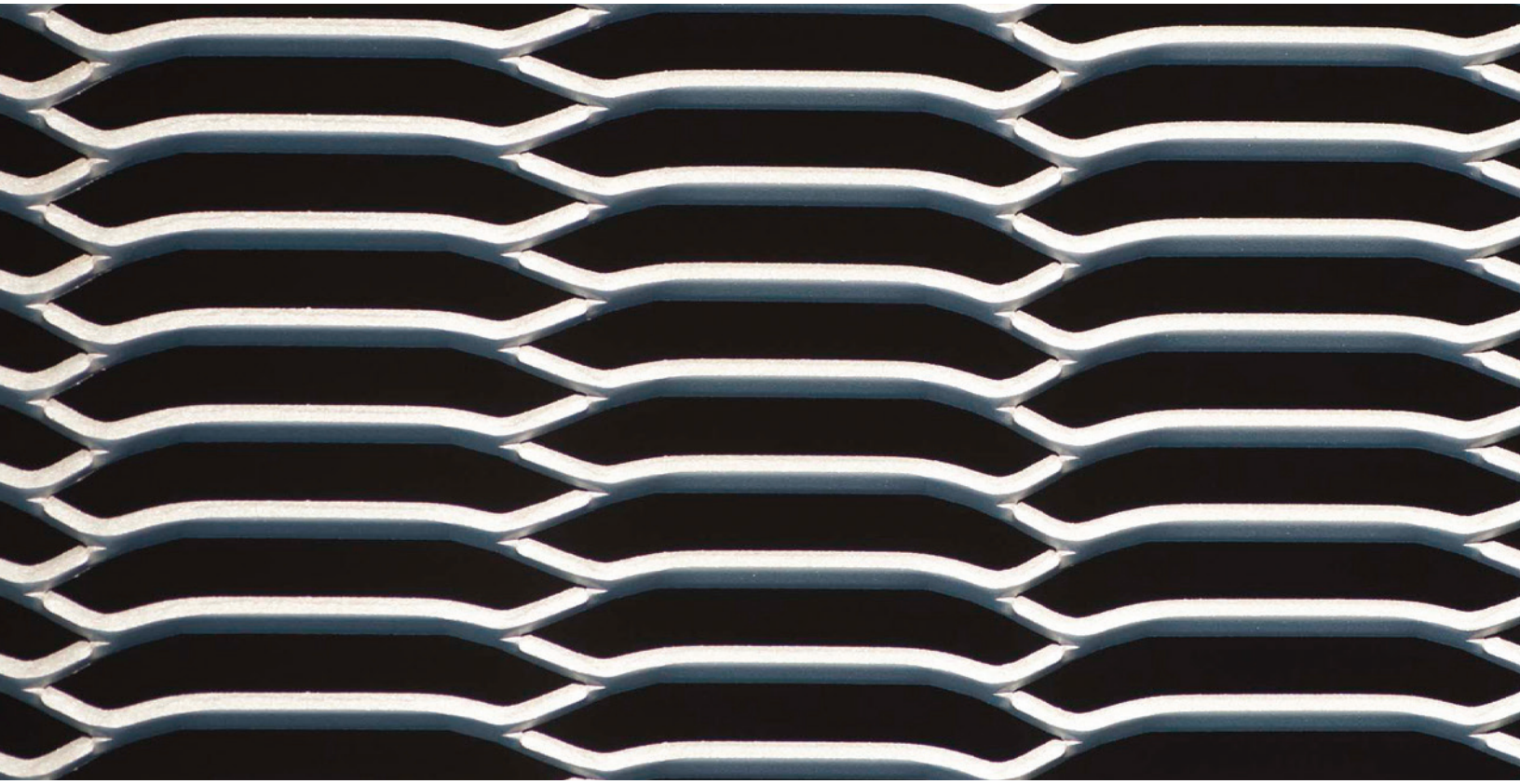


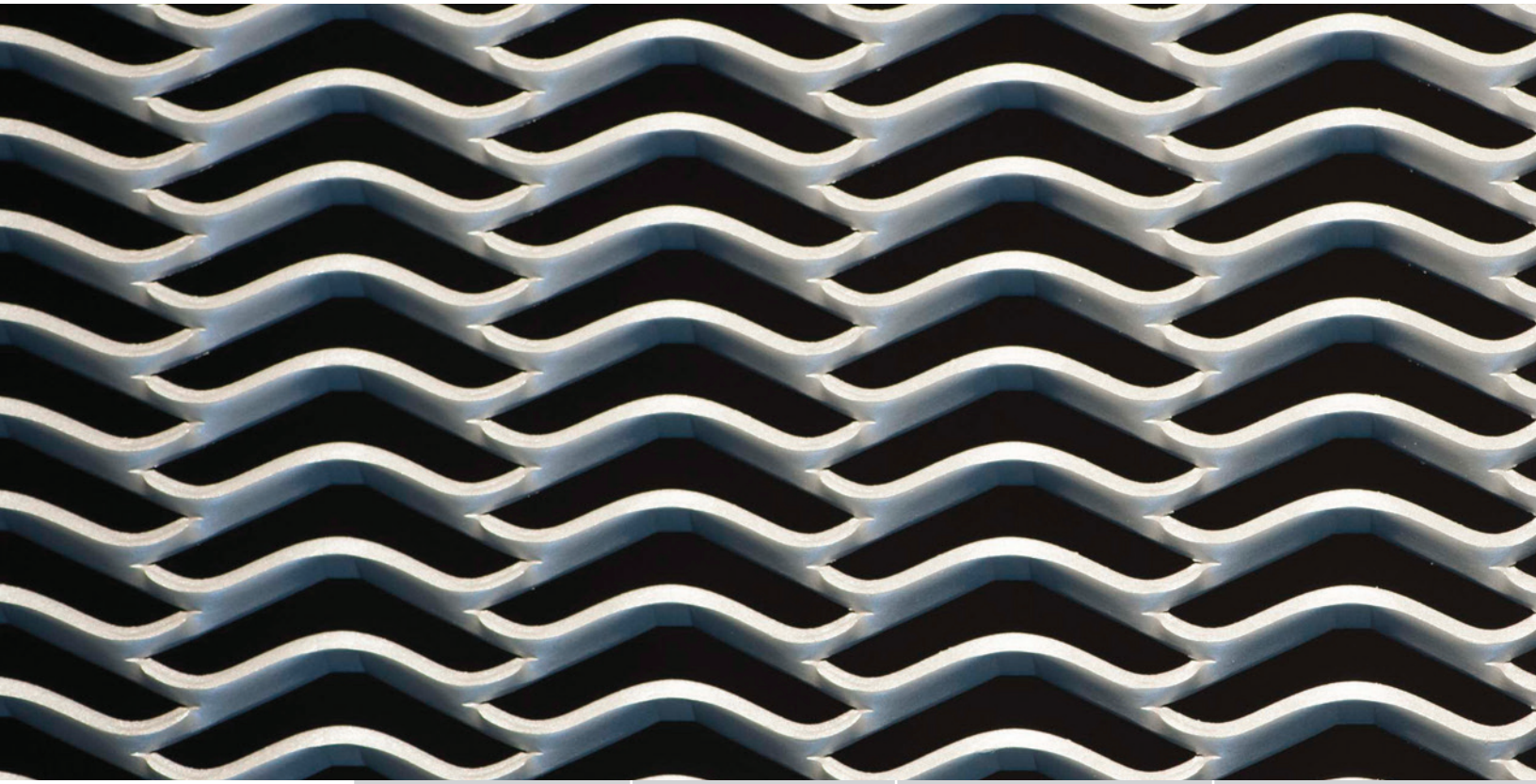
PISA

Scale 1:1

VENETIAN

Scale 1:1





Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
0.59”	4.0”	52%	0.85 lbs/sq ft

Short Way Pitch	Long Way Pitch	Visual % Open Area	Weight
0.52”	5.3”	55%	0.81 lbs/sq ft

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