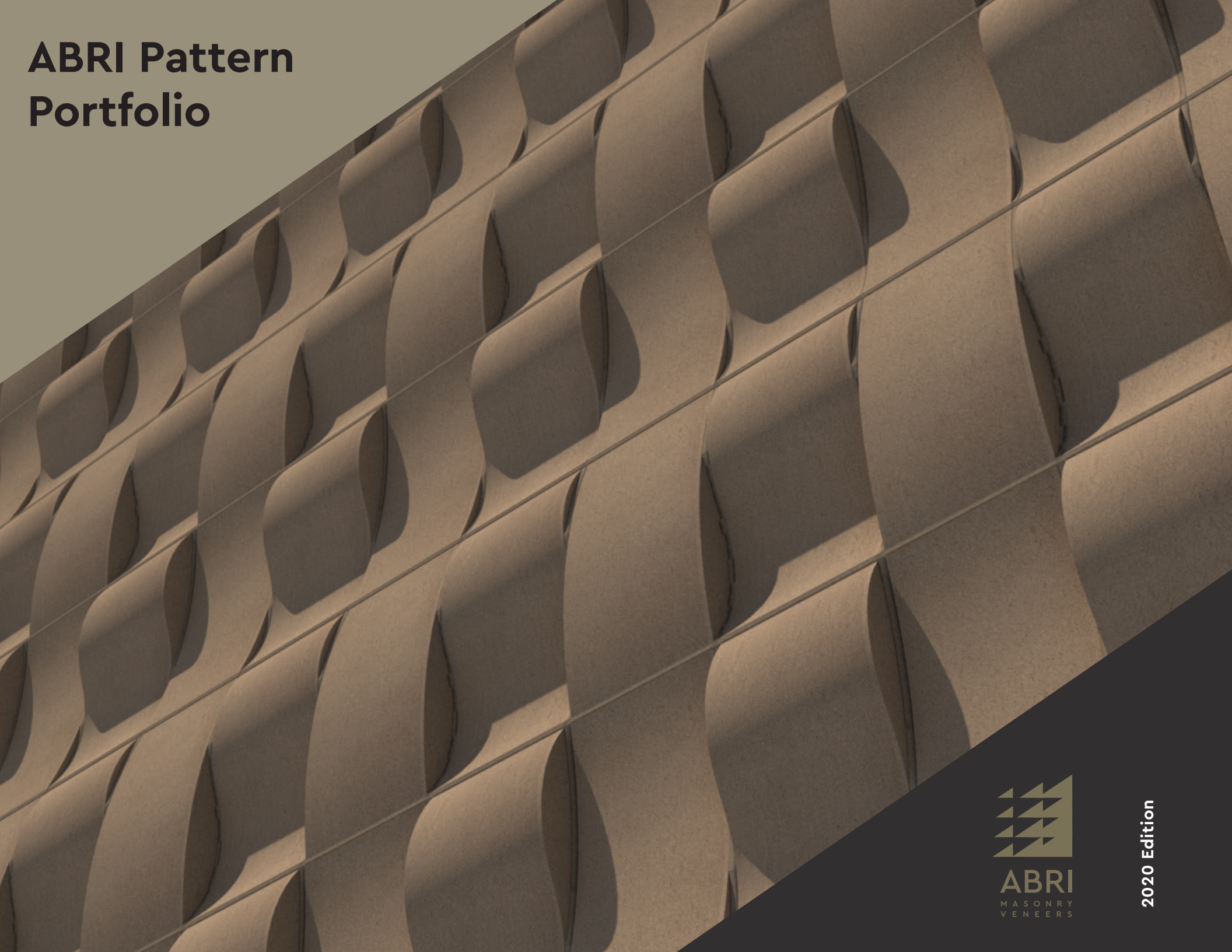
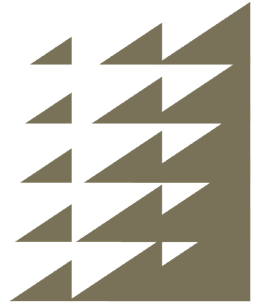


ABRI Pattern Portfolio



ABRI
MASONRY
VENEERS

2020 Edition



ABRI
MASONRY
VENEERS

ABRI redefines the look of masonry

ABRI masonry veneers allow designers to create infinitely diverse designs using a simple five piece kit of parts.

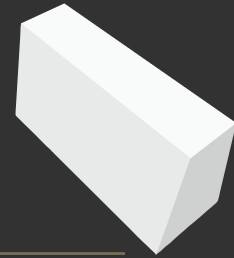
The ABRI units are designed to be used singly or as a kit of parts in combination to create a multitude of fresh designs.

This pattern portfolio is meant to provide inspiration for further ideas and designs – please explore and have fun!

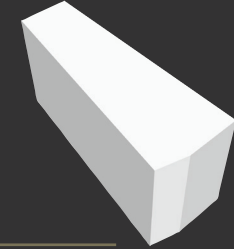
Kit of Parts

ABRI has five shapes for 2020

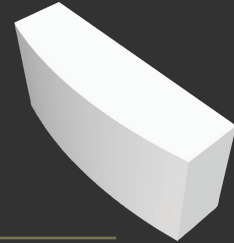
Shingle



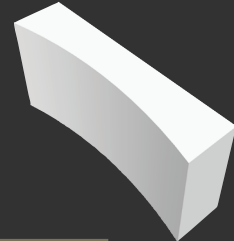
Wedge



Convex



Concave



Serpentine



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Unexpected Shapes and Combinations

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Themes

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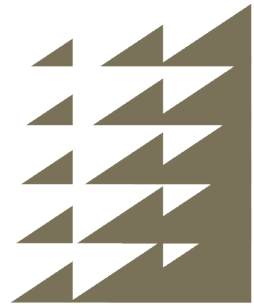
Wall Panels – Curves

Wall Panels – Angles

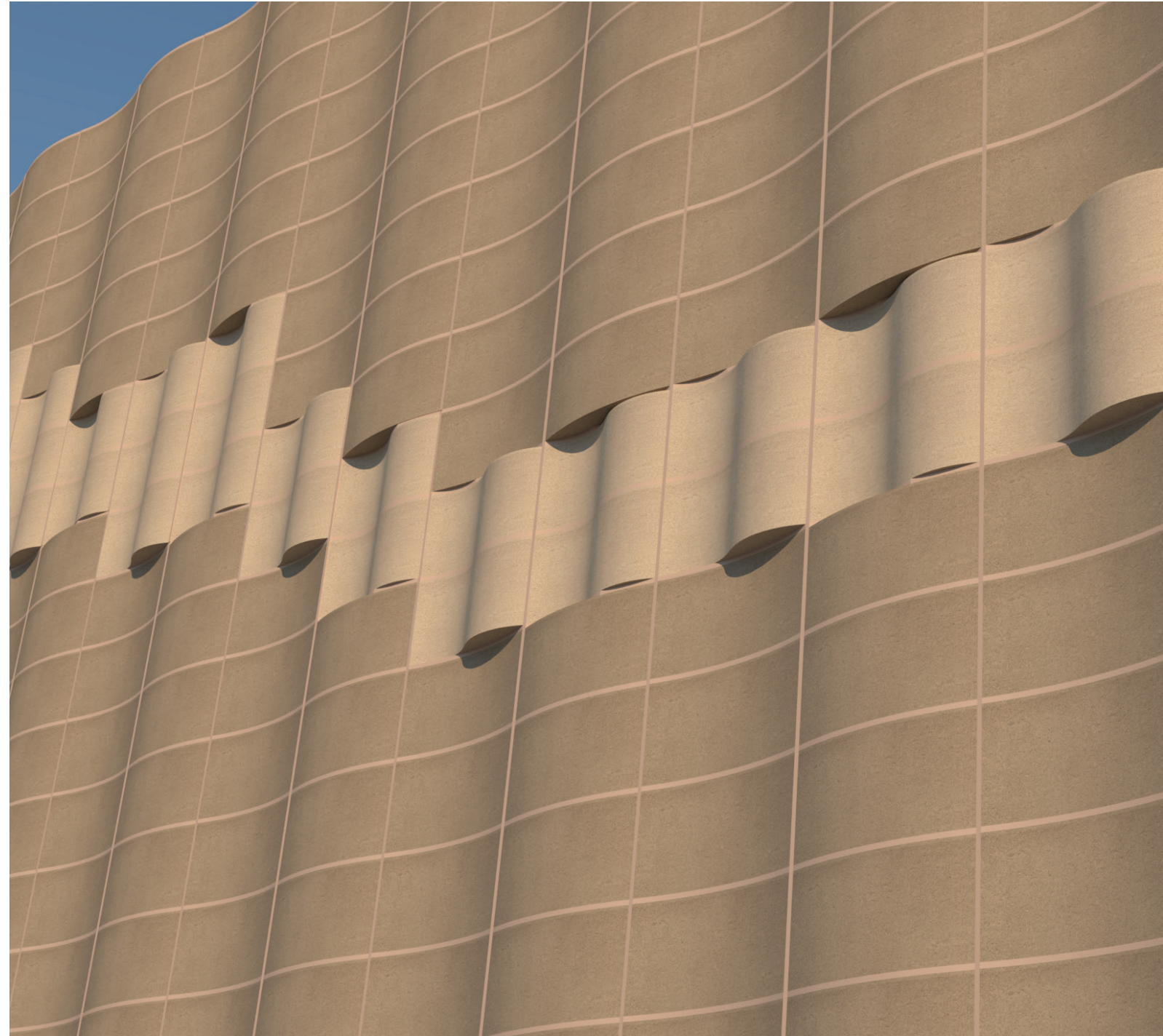
Columns

Bands

Applications



ABRI
MASONRY
VENEERS

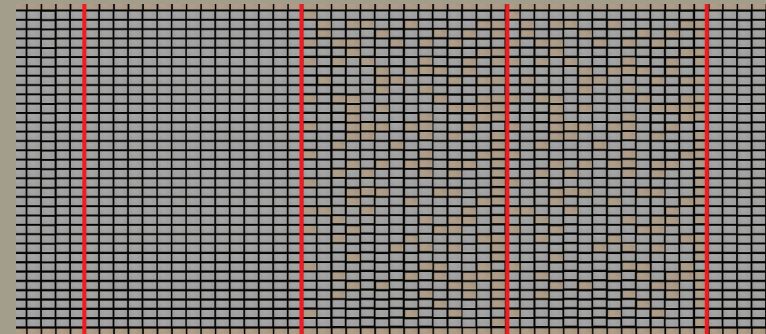


Unexpected Shapes and Combinations

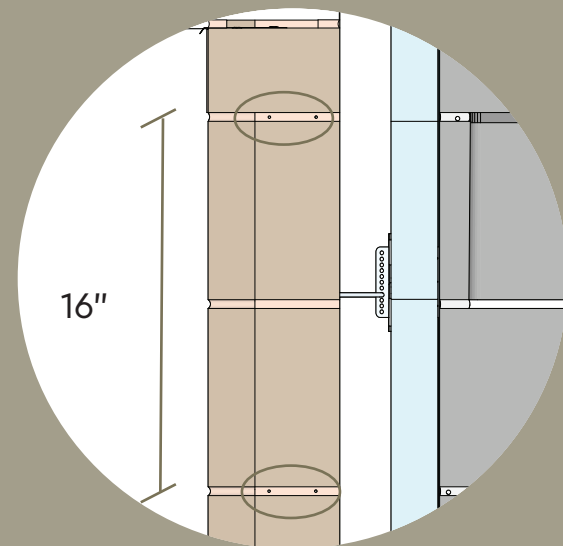
There is a long tradition of using masonry to create beauty in the built environment. ABRI builds on that tradition while offering a platform for unlimited creativity by jumping out of the "box" of traditional form factors by providing new angular and curved surfaces.



Design Choices Practical Considerations



Veneer Panel Movement Joints



Horizontal Joint Reinforcement Placement

Movement Joints and Reinforcement

Masonry movement joints, along with horizontal joint reinforcement, are means to control cracking in the wall panel due to shrinkage or other causes.

Movement joints should be included in the concrete masonry veneer design. The registered design professional should address the appropriate spacing for the movement joints along the wall, and at corners or other special conditions. Typically, maximum spacing should not exceed 20 feet in the field of the wall and half of the maximum spacing near corners.

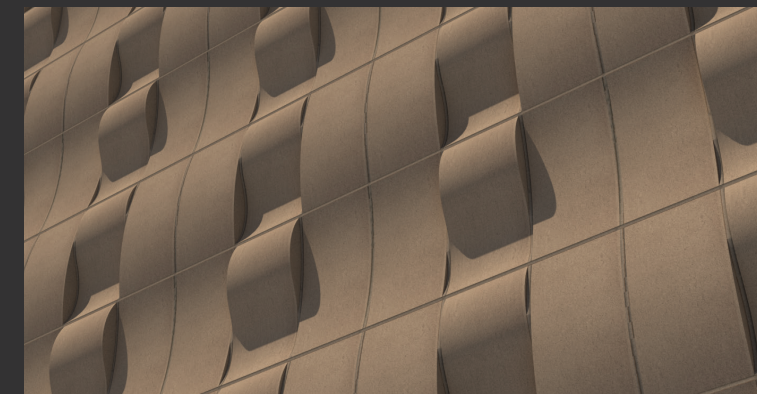
The movement joints should be sealed with an appropriate bead sealant and backer rod for weather protection.

Horizontal joint reinforcement should also be included in the veneer panel design. Again, the registered design professional should address appropriate spacing requirements. Typically, maximum spacing of layers of joint reinforcement should be no greater than 16" O.C. for ABRI 8" high units. Segments of horizontal joint reinforcement should be lapped 6" minimum at intersections with other segments, and terminated at movement joints.

For more information, refer to the ABRI Construction Guide and NCMA TEK 10-2D (Crack Control in Concrete Masonry Walls)



Running bond patterns may result in frequent ledges



Gallitan Pattern with soldier course bond – no ledges.

Weather and Climb Hazard Considerations

Assembly patterns that produce horizontal ledges may be vulnerable to water infiltration and efflorescence in exterior applications that are exposed to rain or snow.

In addition, ledges in the wall in accessible areas may pose a risk due to the hazard of children or others climbing the wall.

There are several approaches that may be used to reduce these risks.

Select patterns that either eliminate or protect ledges from water accumulation – these types of patterns are highlighted in this portfolio.

Avoid ledges in accessible portions of the wall, or only have them to a limited height so that climb hazard is eliminated.

ABRI units for exterior applications should include compatible integral water repellent in the ABRI units and mortar. Use a breathable post-applied sealant/stain to provide additional protection.

For some patterns with limited ledging, it may be practical to install flashing above ledges.

The mortar may be installed with a slight wash. Though a wash helps, it may not be a long-term solution since mortar is itself vulnerable to water penetration.

Design Choices Practical Considerations

Design Resources

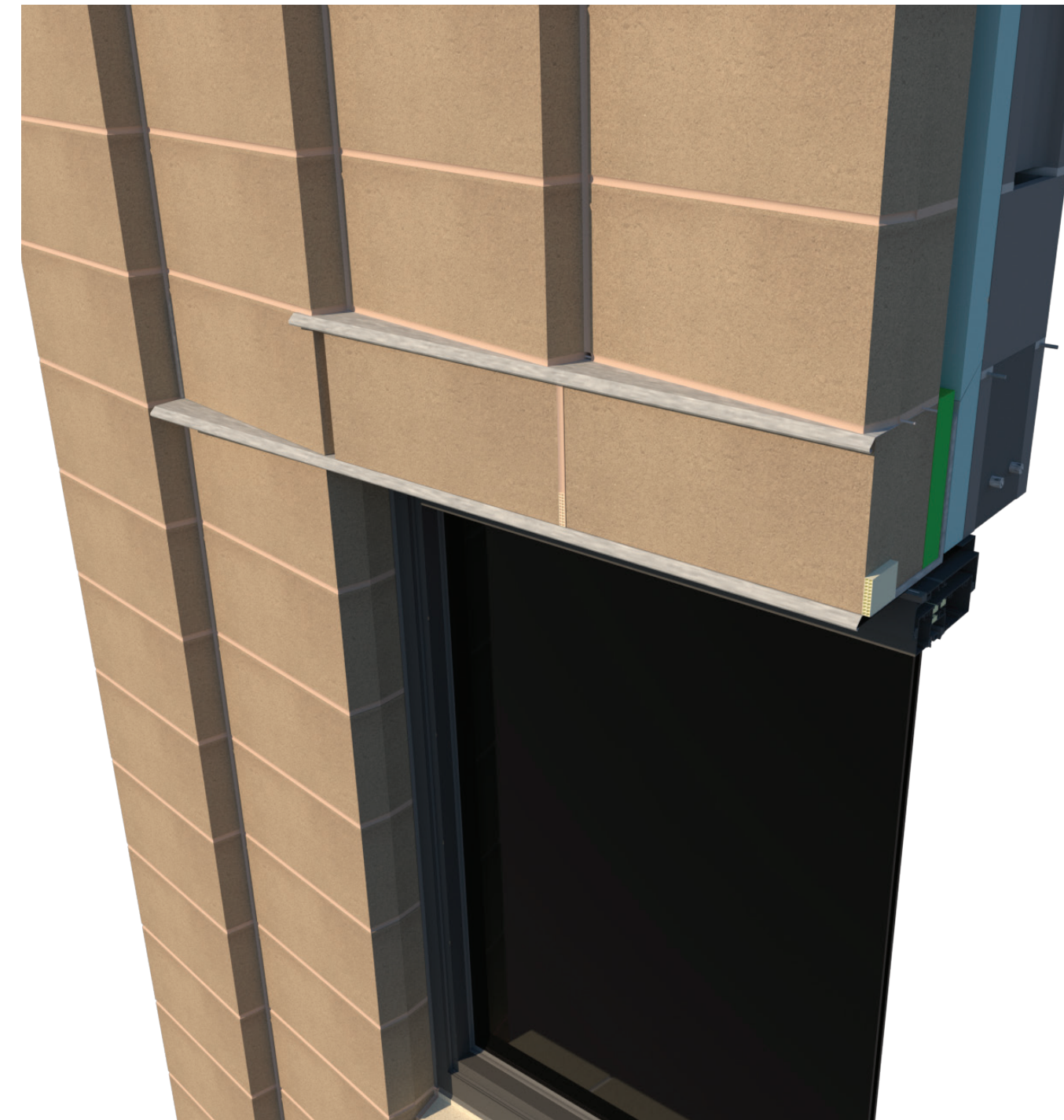
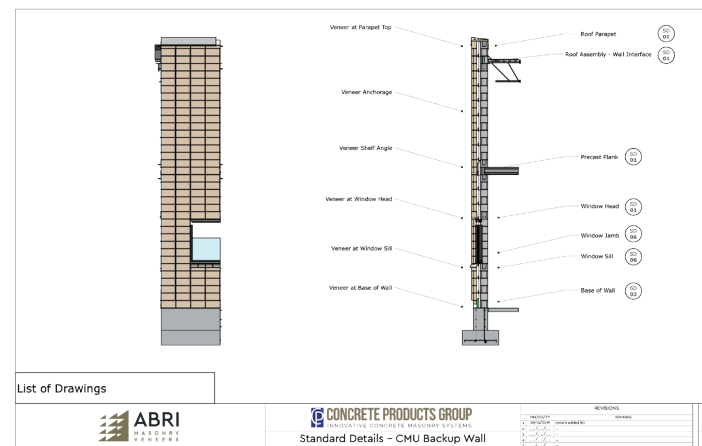
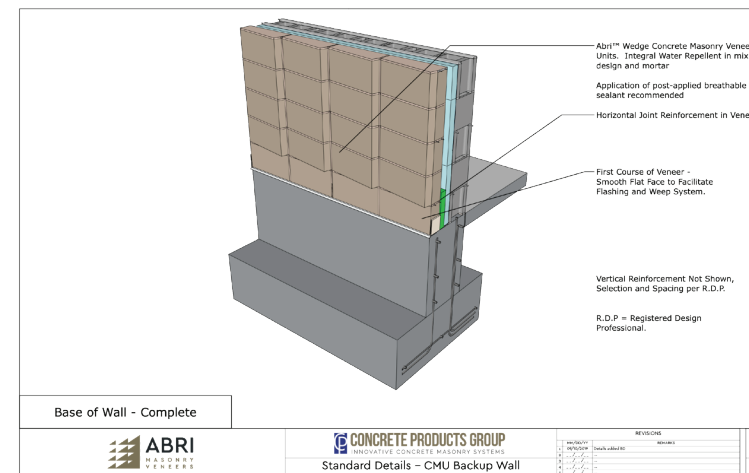
ABRI Veneers may be used for the full range of exterior and interior applications for masonry veneers. We have developed a set of standard construction details for the ABRI product line with instructions on how to lay the patterns shown here, and with recommendations for how to successfully detail walls built with the ABRI products for commonly encountered situations in the field.

Please refer to the following resources for more information:

- ABRI Design Guide
- ABRI Standard Details
- Anchored Veneer Design Manual
- Construction Detail and Pattern 3D Models in Sketchup and AutoCAD (all patterns shown in this manual are included).

All of these resources are available on the Concrete Products Group's Online Design Resource Center:

www.resources.concreteproductsgroup.com



ABRI Standard Details

Weather Protection: Drainage, Flashing and Weep Systems

Base of Wall

Horizontal Joint Reinforcement

Movement Joints

Veneer Anchorage options

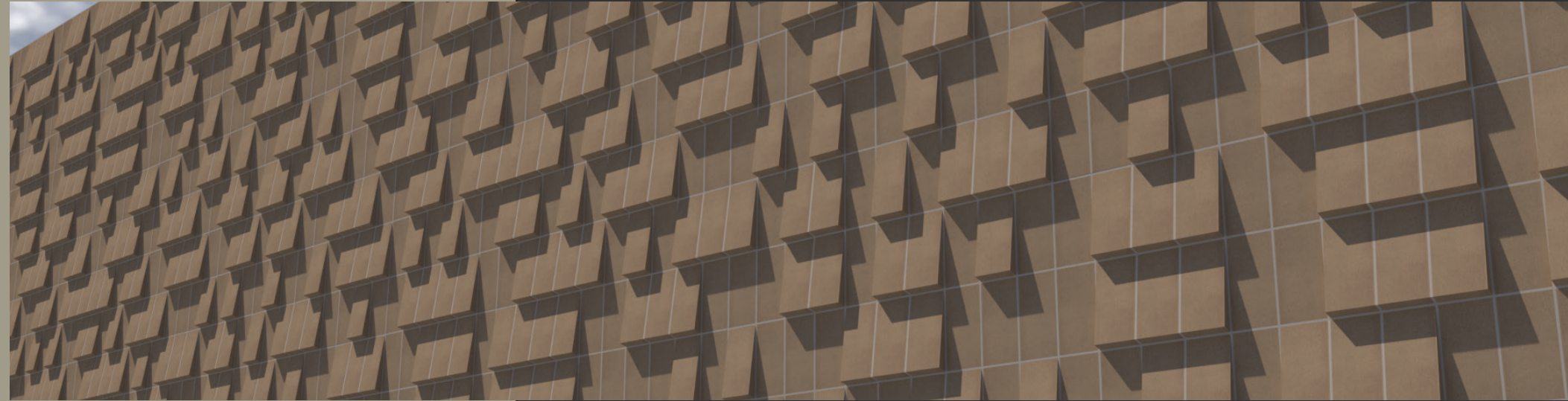
Window Sills, Jamb, and Heads

Door Openings

Parapet and Roof Assembly

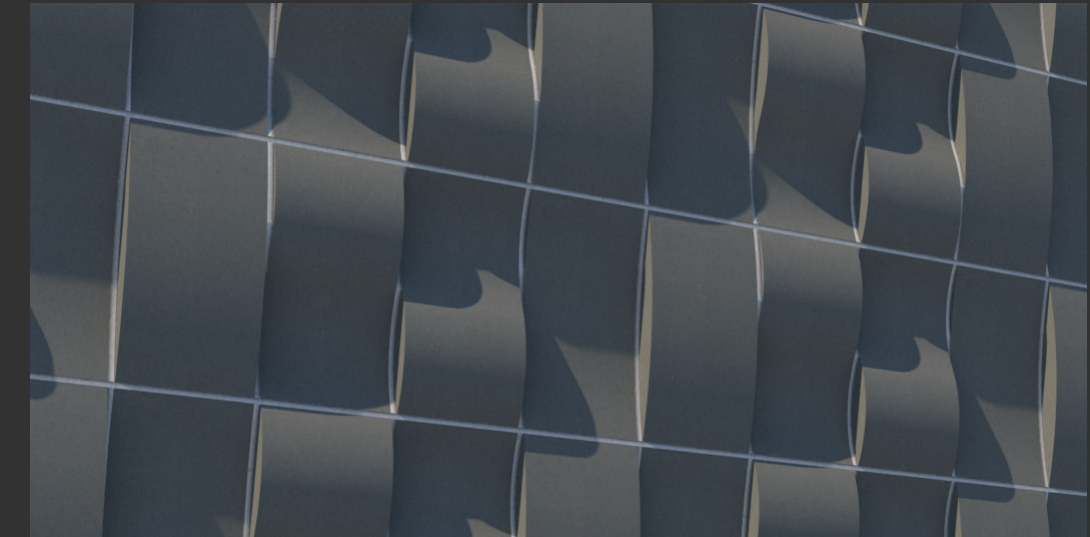
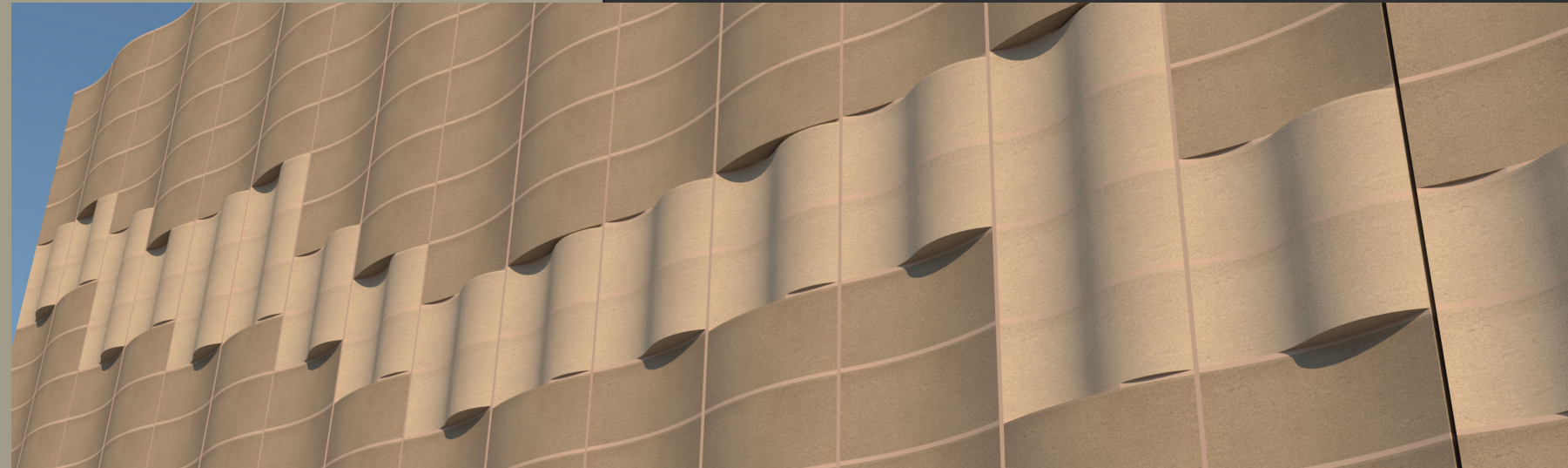
Corners

Design Choices Profile

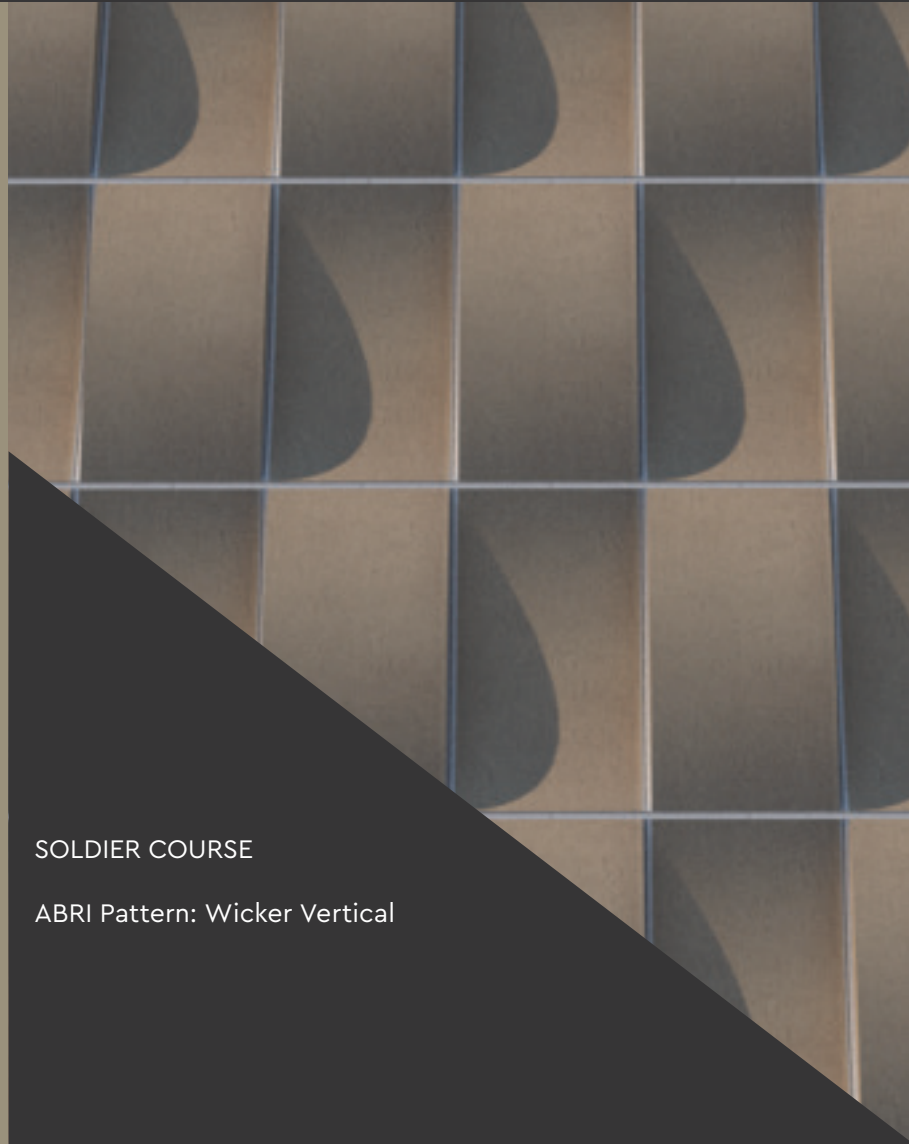


Angles and Curves

The ABRI kit of angular
and curved surfaces
provides a new tool box
for design possibilities



Design Choices Bond Pattern



SOLDIER COURSE

ABRI Pattern: Wicker Vertical



RUNNING BOND

ABRI Pattern: Stepped Shingles

This pattern creates shadows and contrast.

The pattern creates many ledges, which should be considered prior to specifying it for outdoor use or in areas where climb risk may be present.

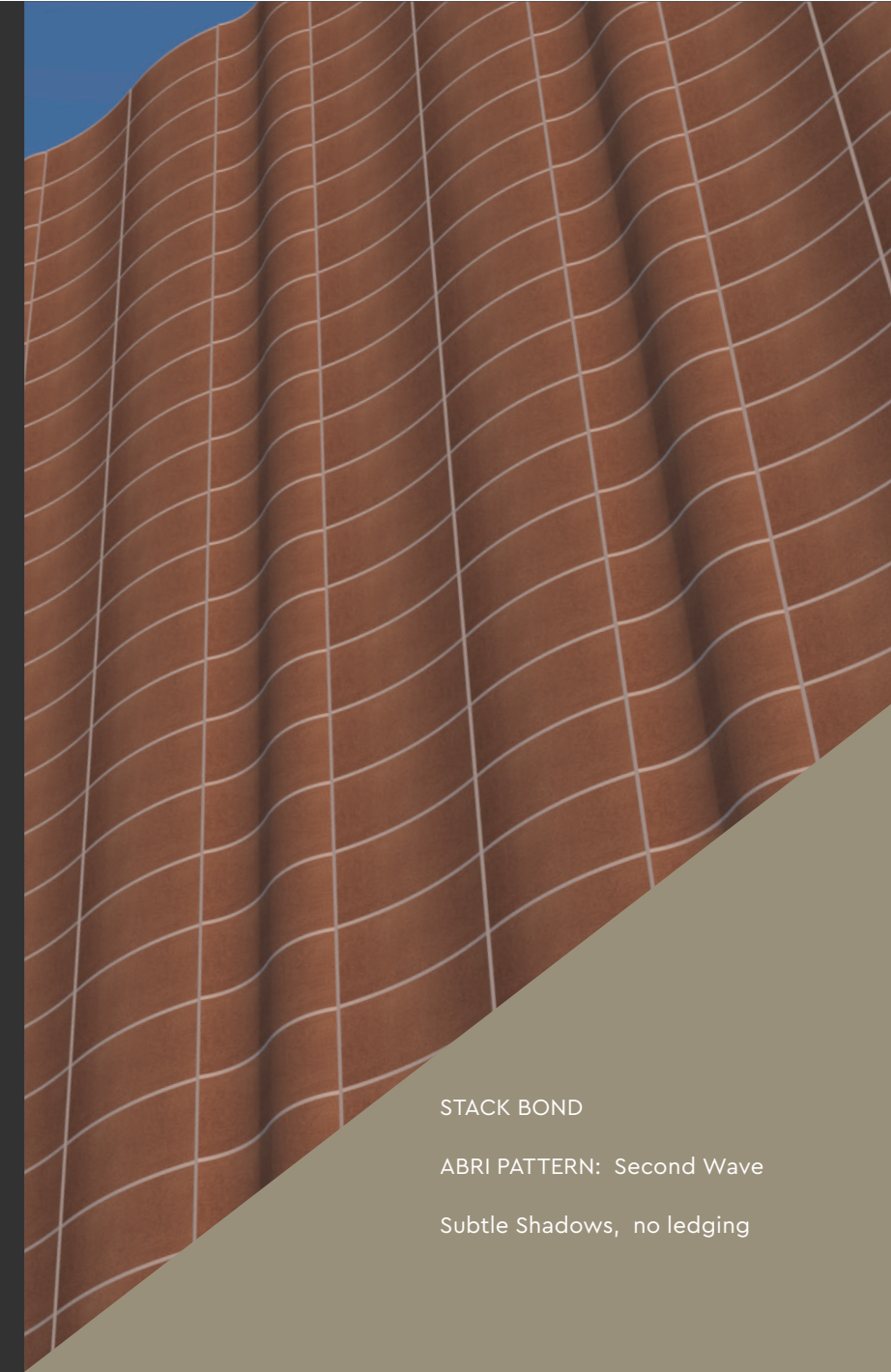


RUNNING BOND

ABRI Pattern: Shingle Running

Strong Bands of Horizontal Shadowing

No Ledges.



STACK BOND

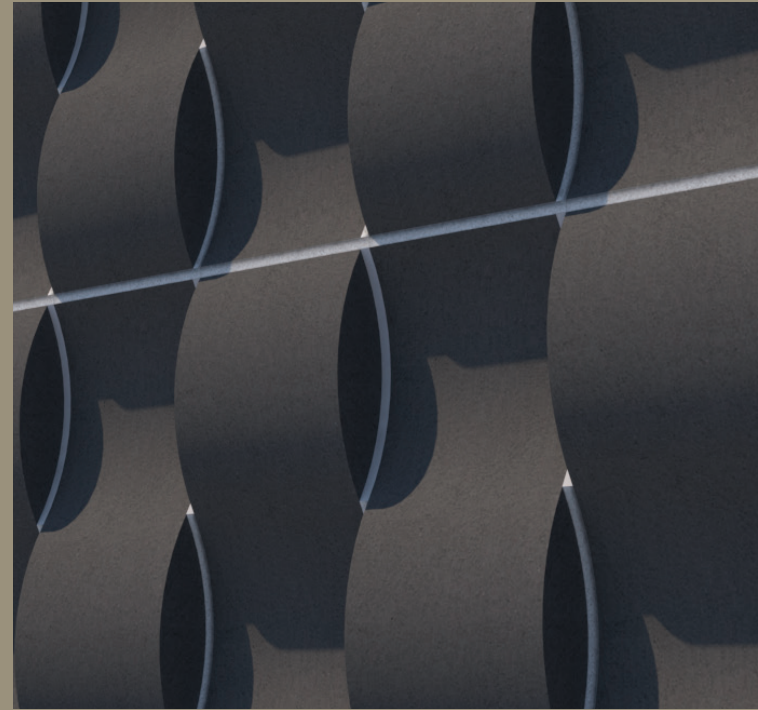
ABRI PATTERN: Second Wave

Subtle Shadows, no ledging

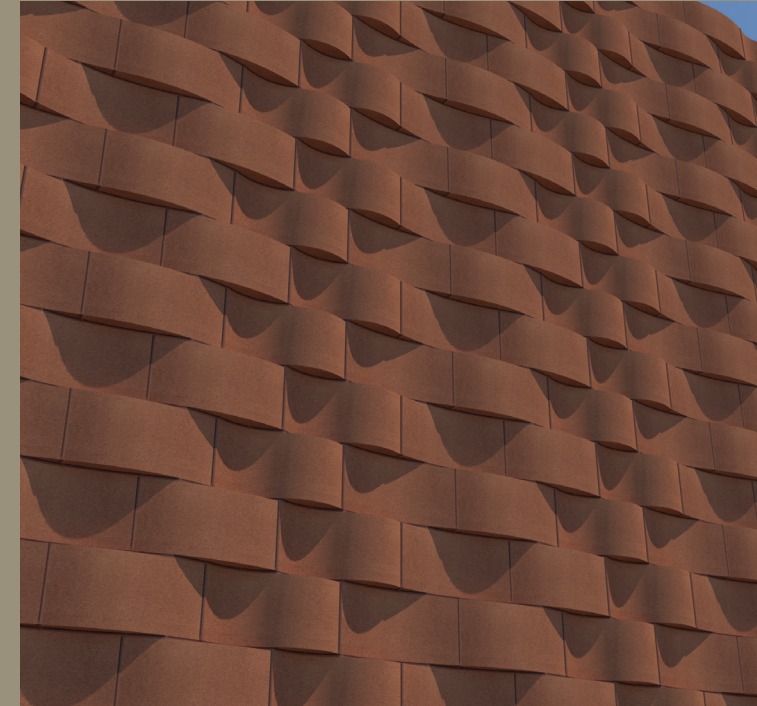
Design Choices Unit Orientation



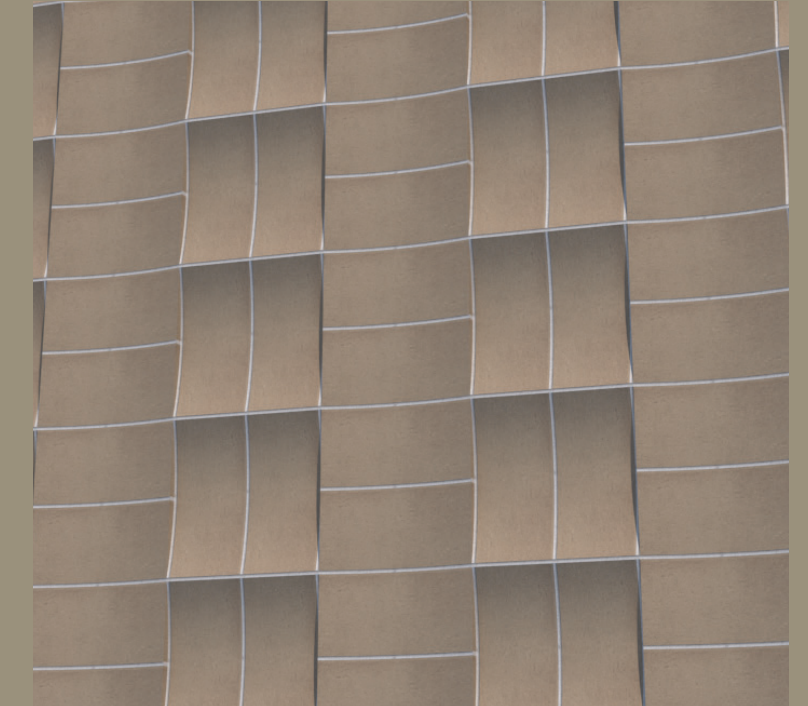
ABRI Pattern: Opposed Wedges
Stack Bond – horizontal



ABRI Pattern: Serpentine
Alternating Soldier
Soldier Course Bond – vertical

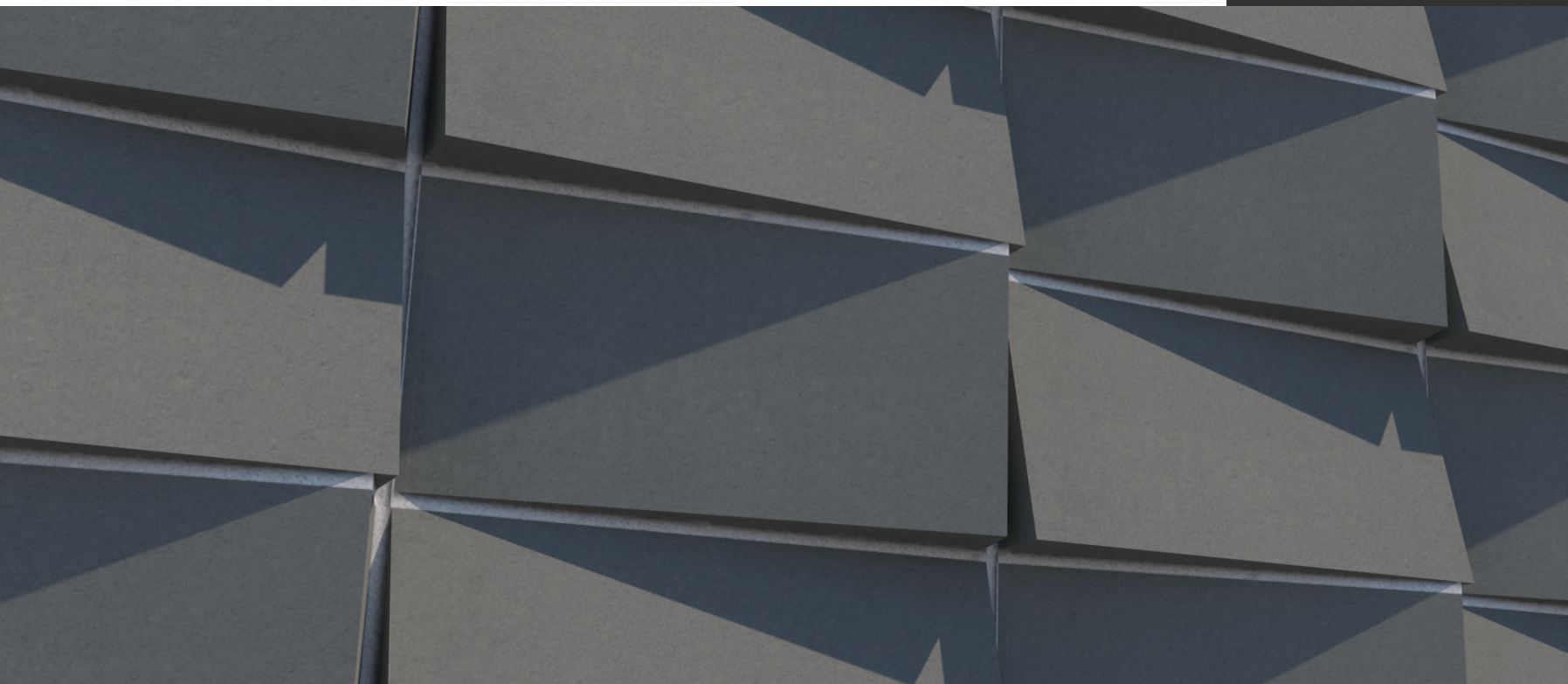


ABRI Pattern: Ripple
Horizontal Running – horizontal



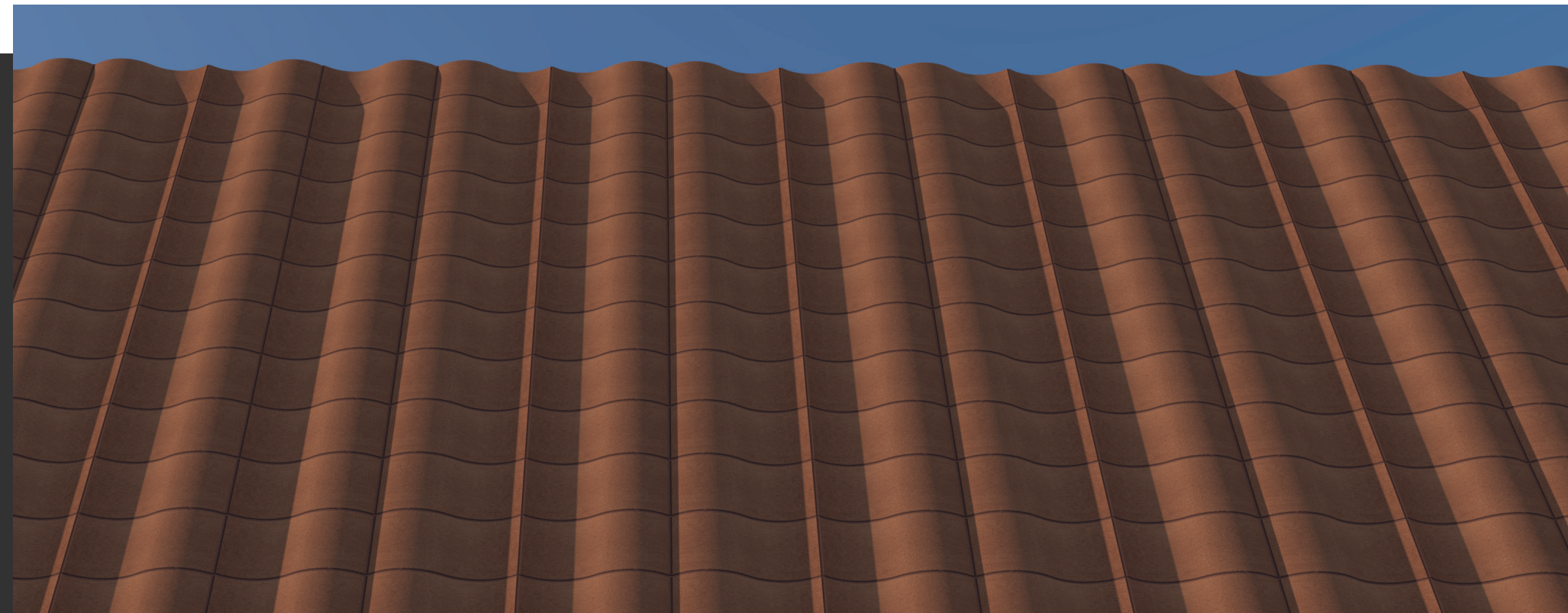
ABRI Pattern: Waffle
Mixed Vertical and Horizontal Stack

Design Choices Shadows



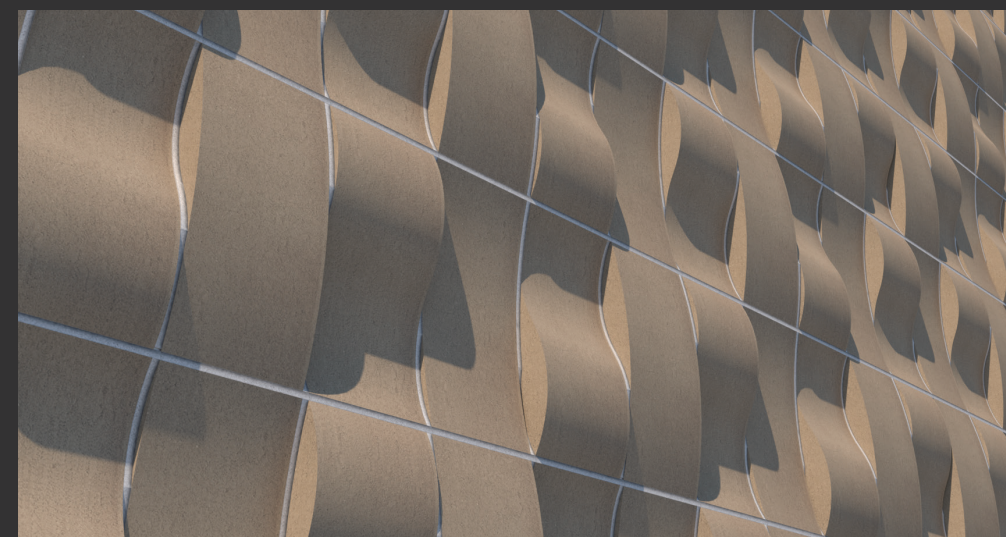
Complex Shadow Patterns ABRI Pattern: Komodo

The Shingle and Wedge Units produce dramatic shadowing when in combined as part of a wall pattern. Note that while this pattern has a great deal of surface depth, the units are placed so that ledges that might collect moisture are not present.



Subtle Shadows ABRI Pattern: Fourth Wave (above)

Placing curved ABRI units in stack bond will produce shadow patterns that have greater gradation and subtlety

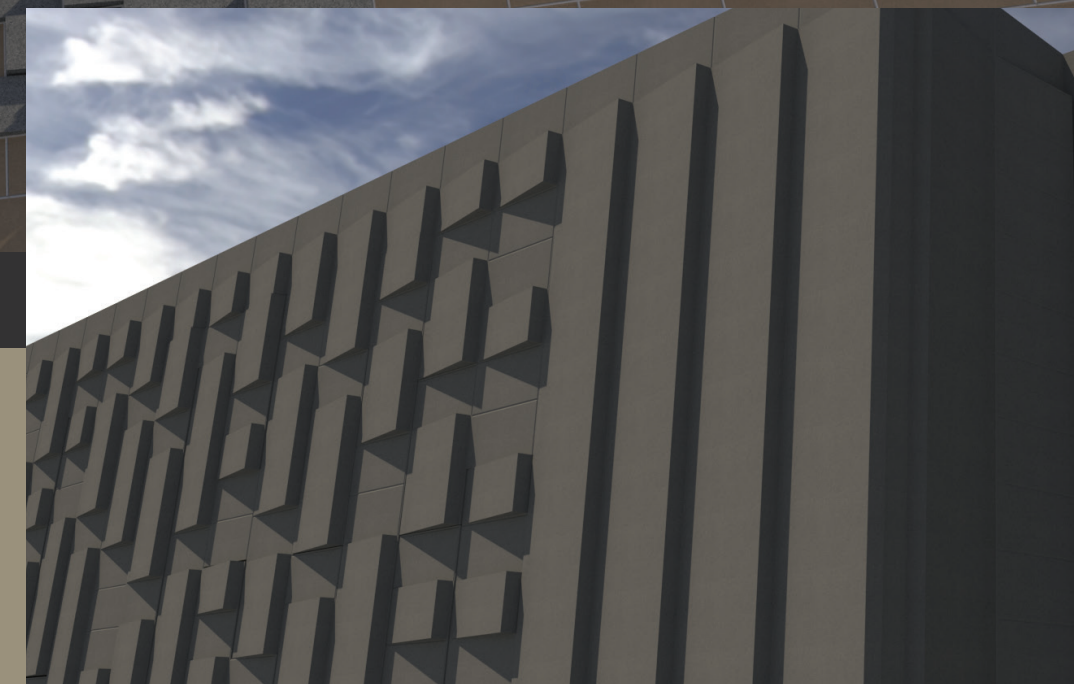
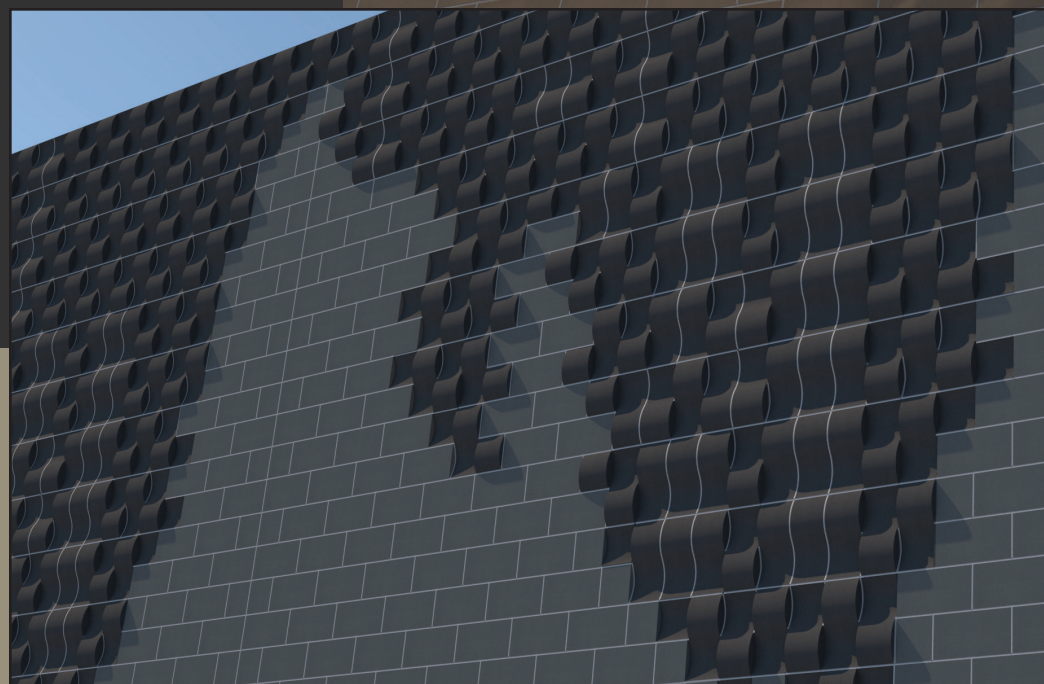
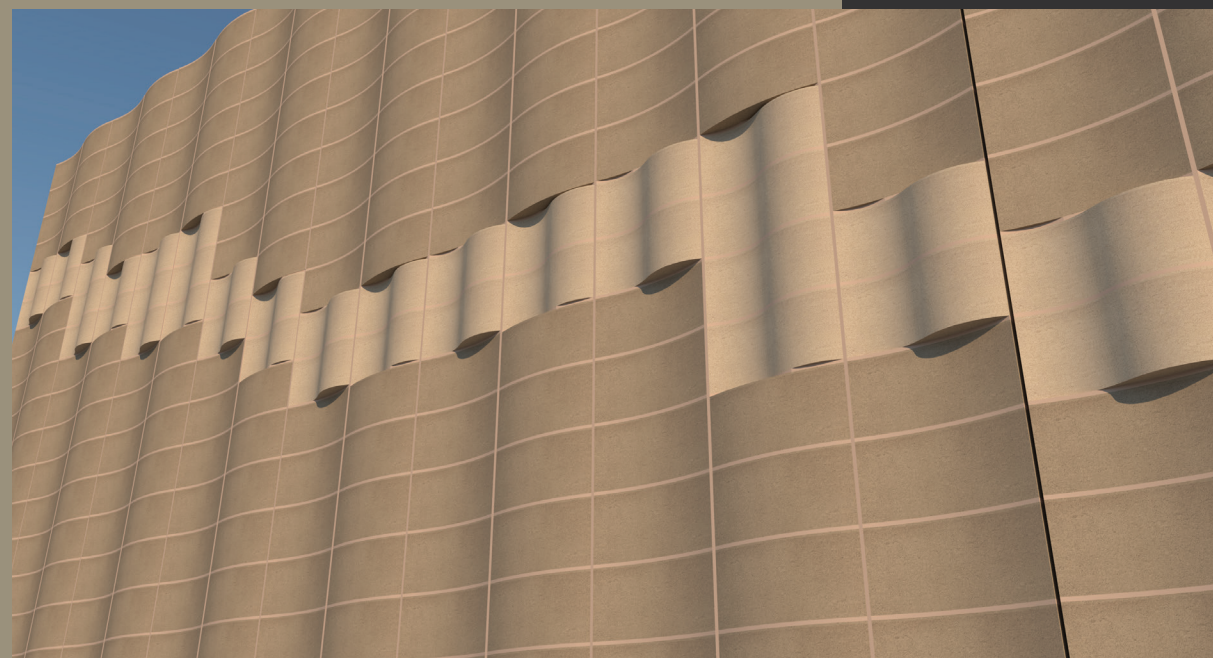
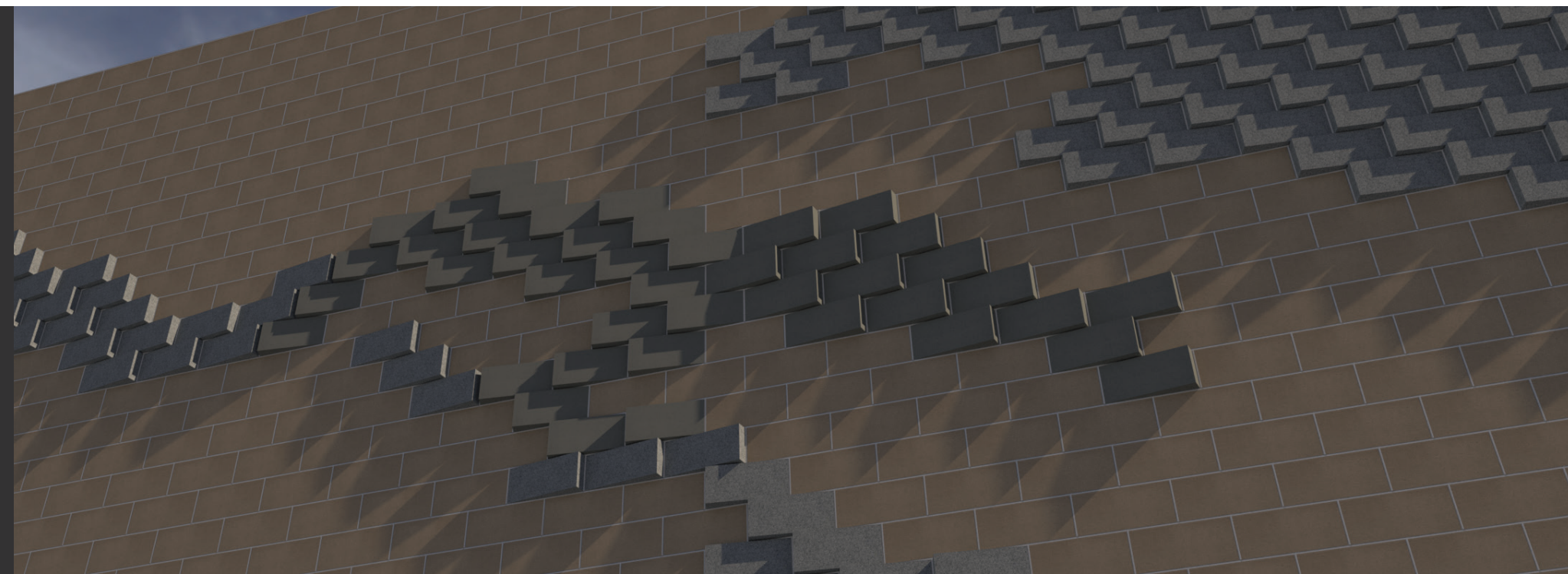


Drama ABRI Pattern: Au Sable (at left)

Placing curved ABRI units in soldier course bonding will produce more dramatic shadowing due to the contour changes.

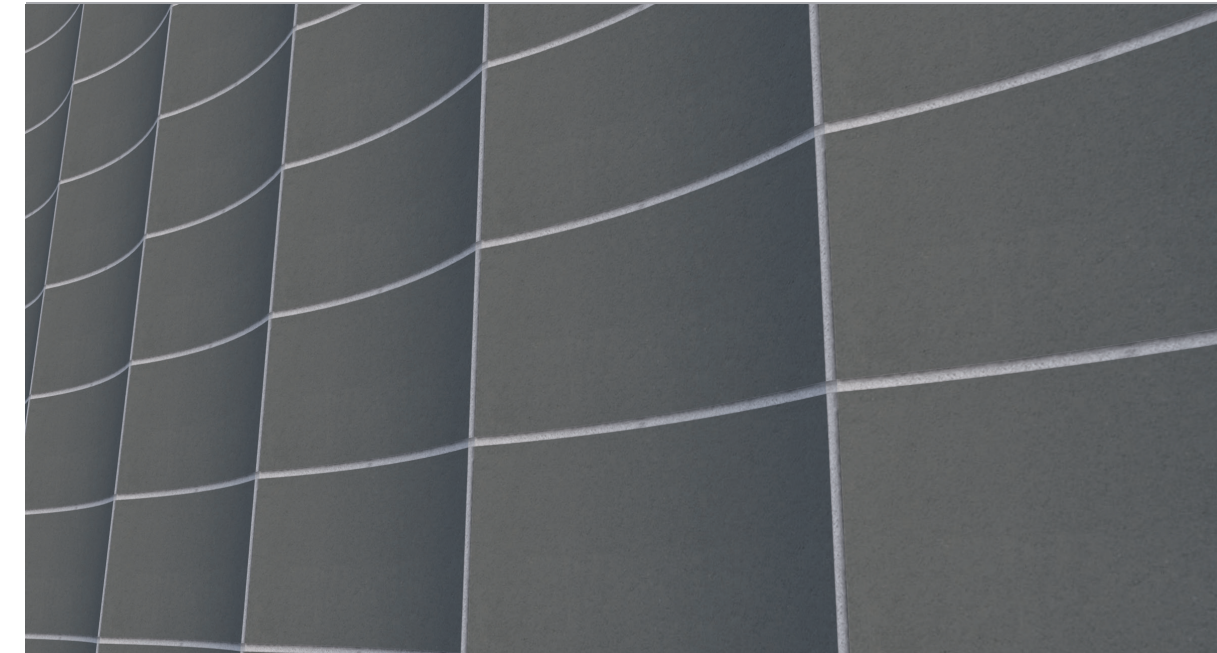
Design Choices Pattern Transitions

Shifting Colors and
Patterns



Wall Panels Curved Profiles

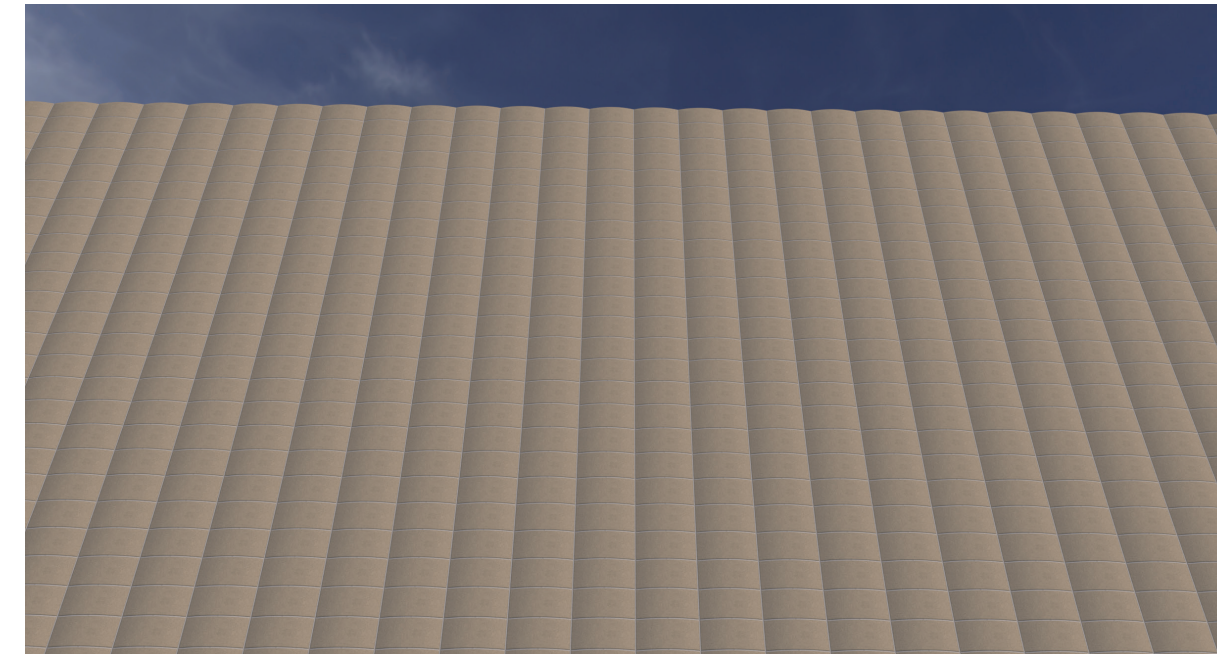
ABRI's curved shapes are a natural for evoking the look of flowing water.



Concave Stack ABRI Concave Stack Bond

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Convex Stack ABRI Convex Stack Bond

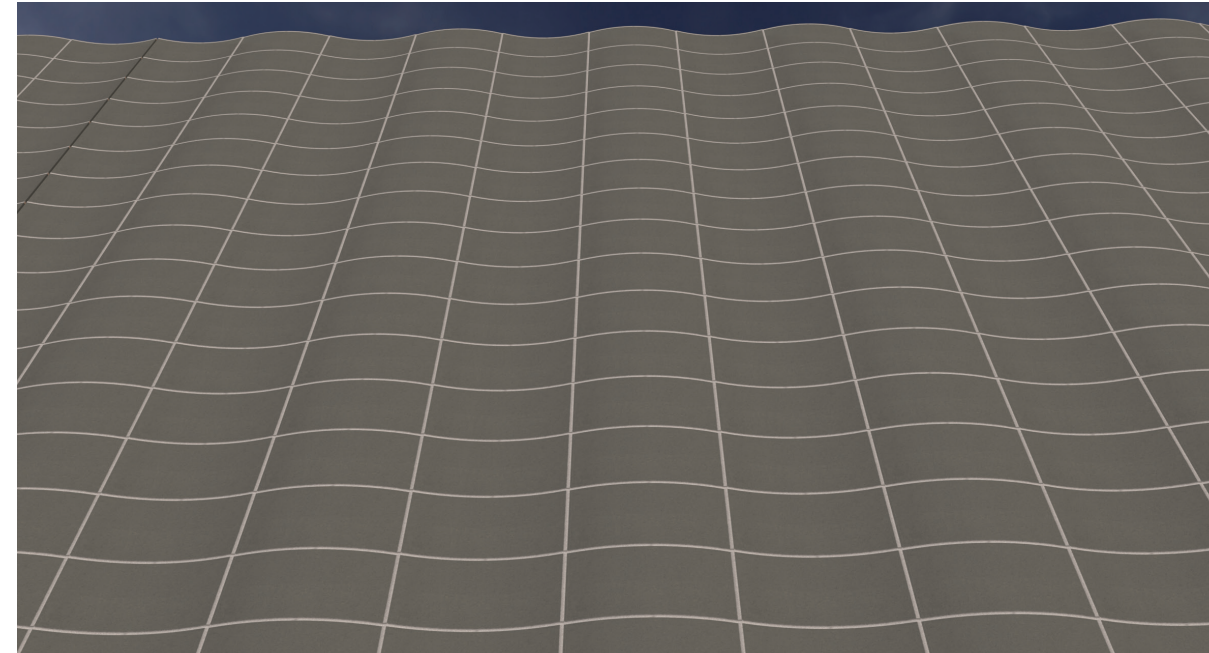
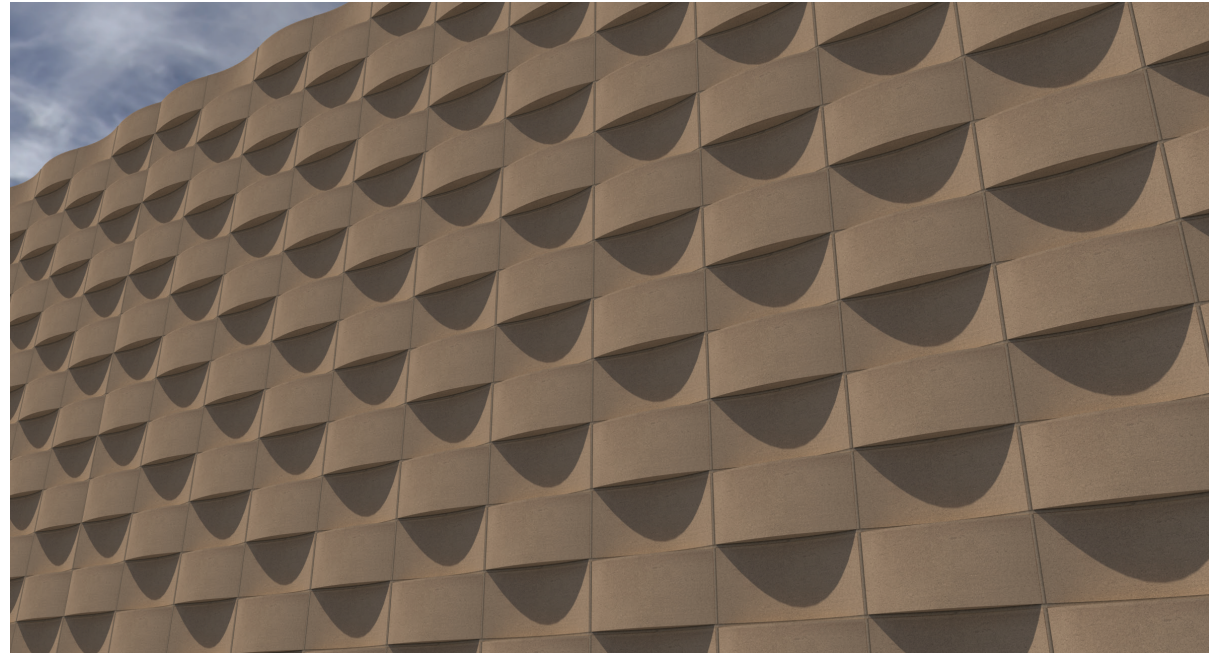
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

Wicker Stack ABRI Concave Convex Stack Bond

Primarily suitable for Indoor applications
Ledges are present – consider weather and climb risk

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



First Wave Concave Convex Stack Bond

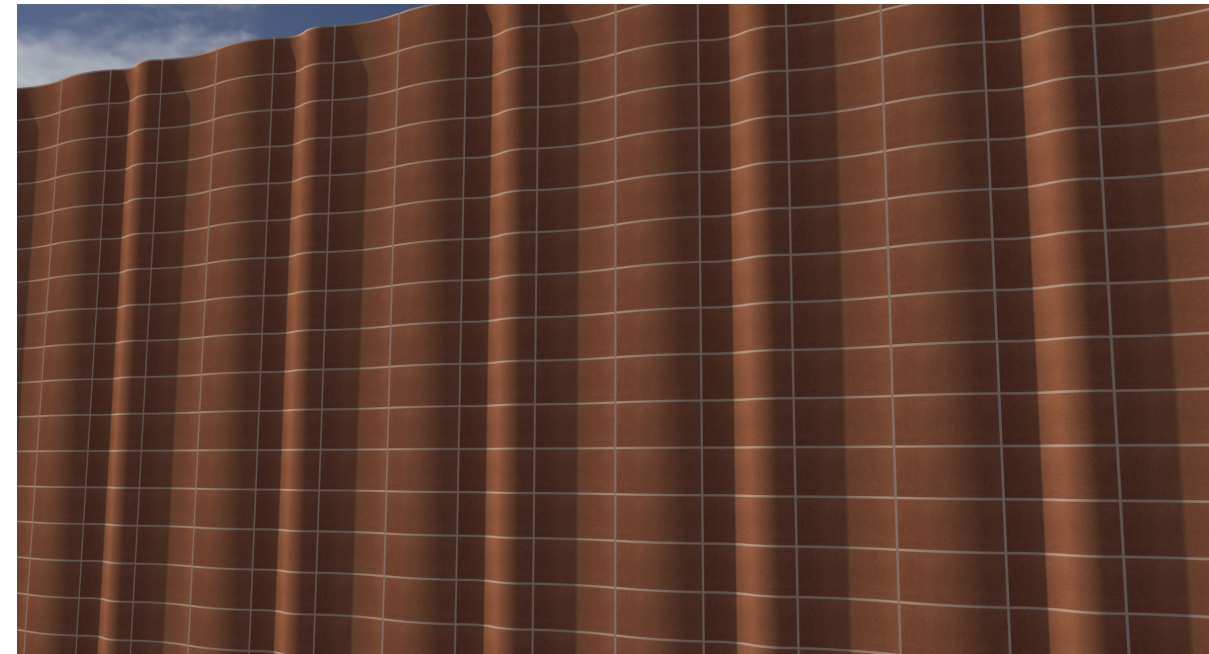
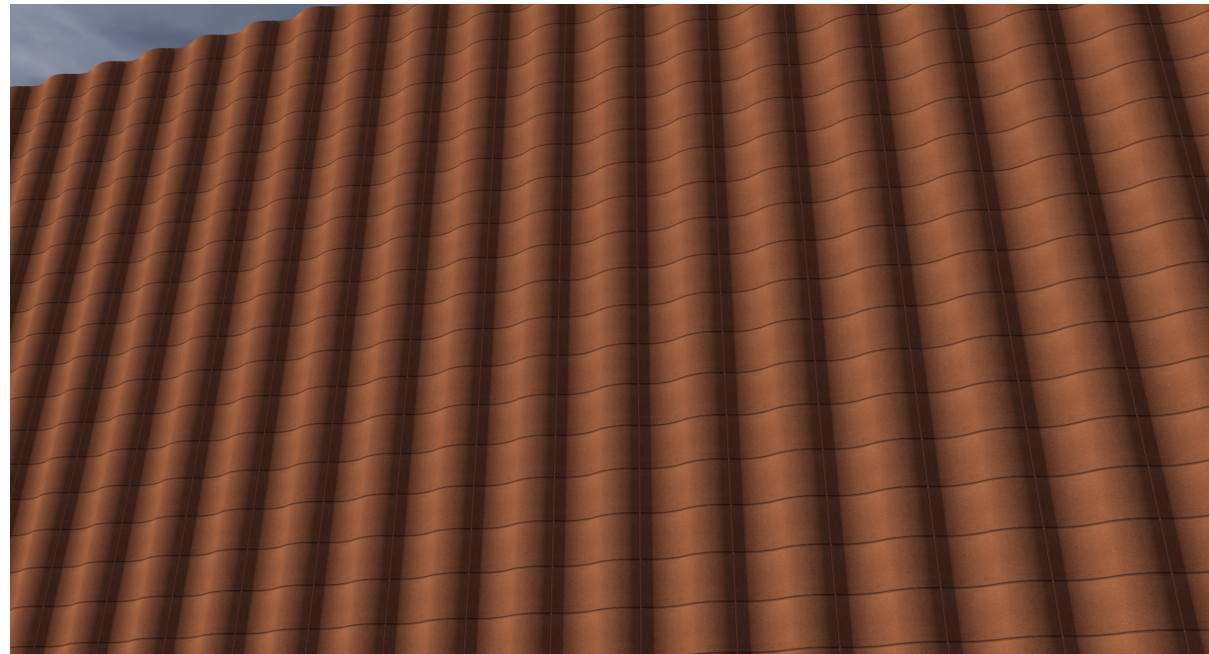
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

Serpentine Stack ABRI Serpentine Stack Bond

Suitable for indoor or outdoor use

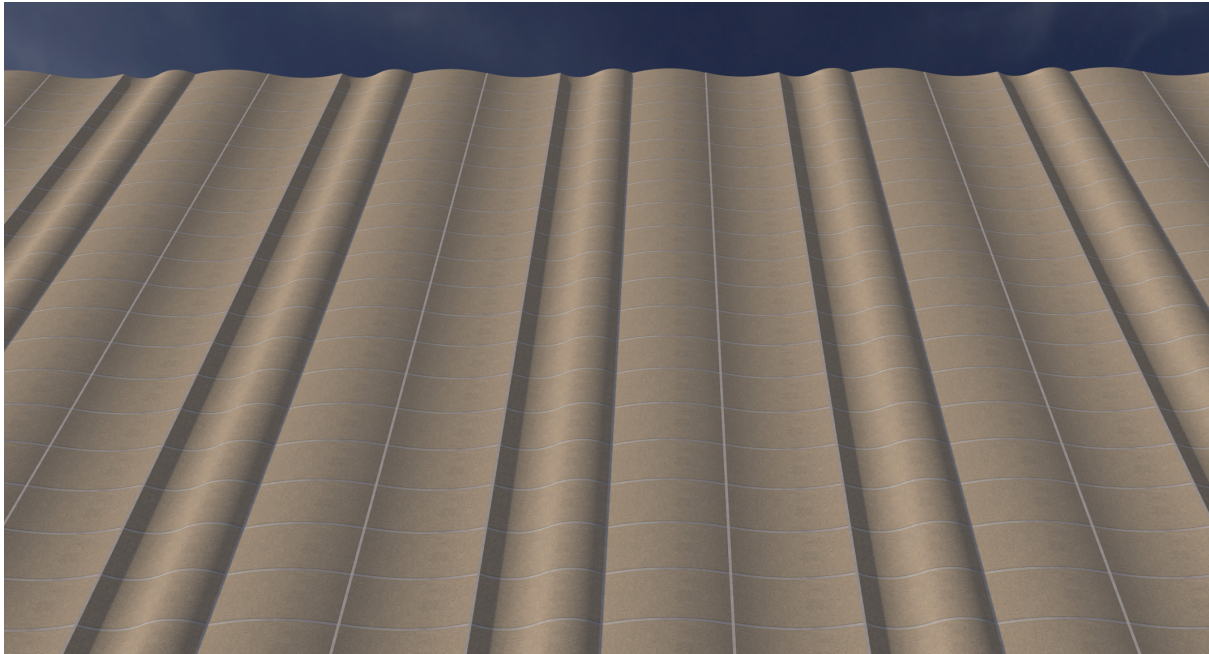
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Second Wave Concave Convex Serpentine

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Third Wave Concave Convex Serpentine

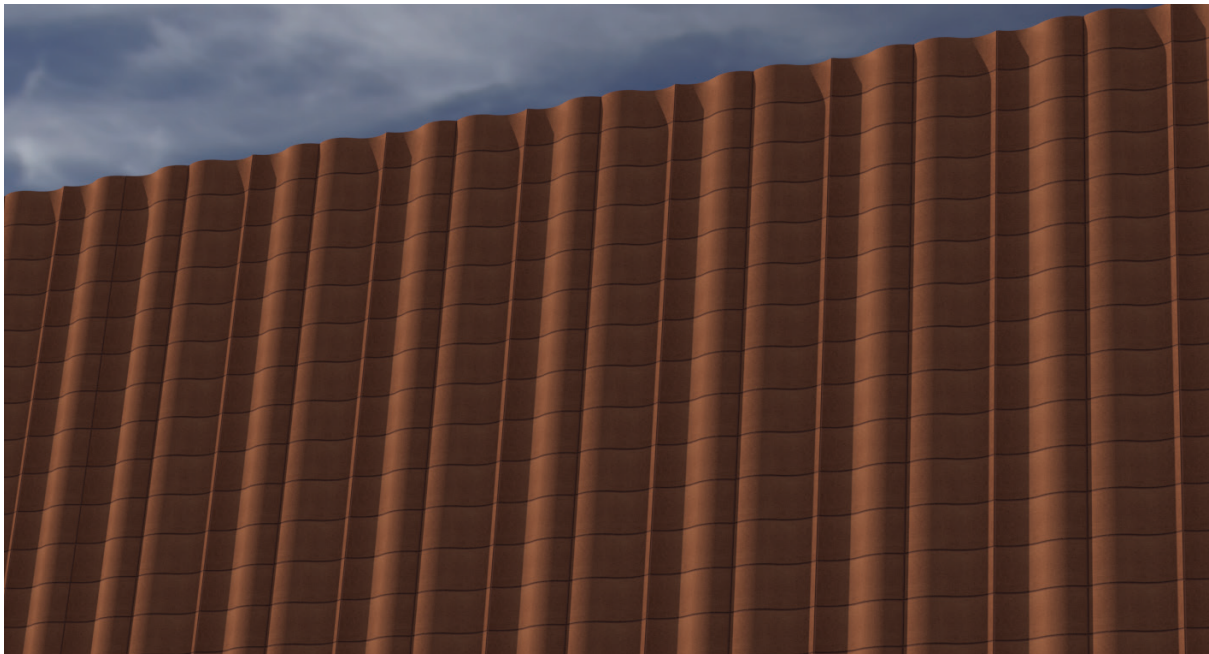
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

Open Book Concave Convex Stack Bond

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Fourth Wave Serpentine Units

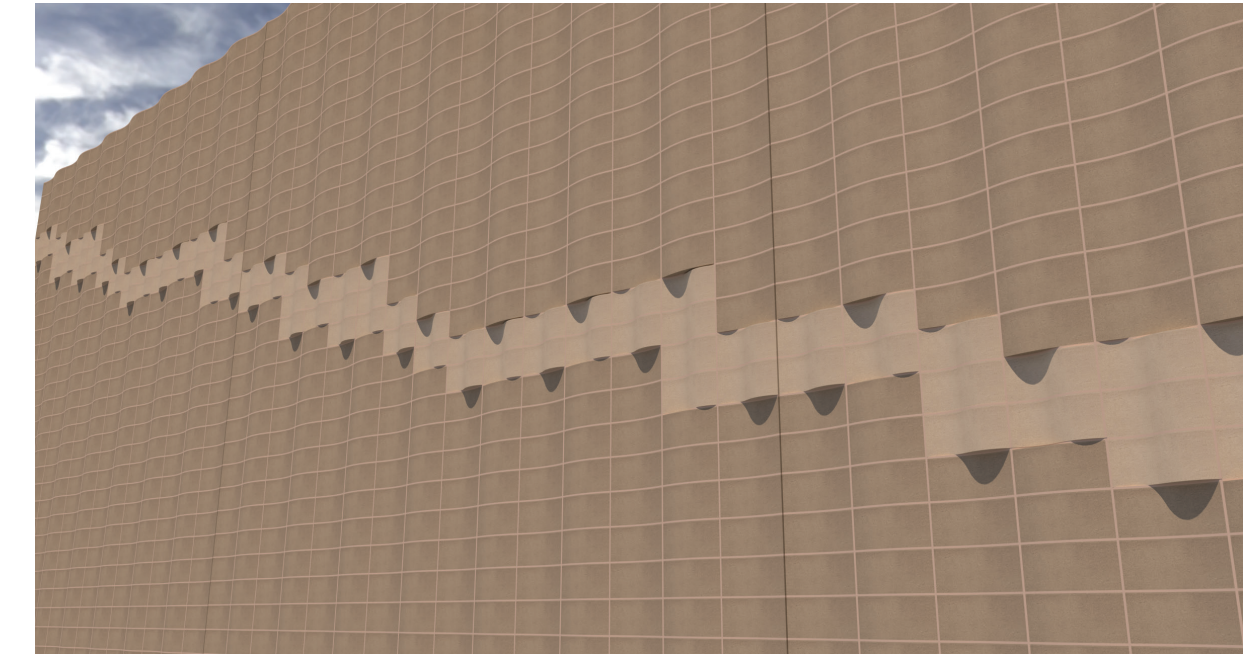
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

First Wave with Serpentine Accent Concave Convex Serpentine Stack Bond

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

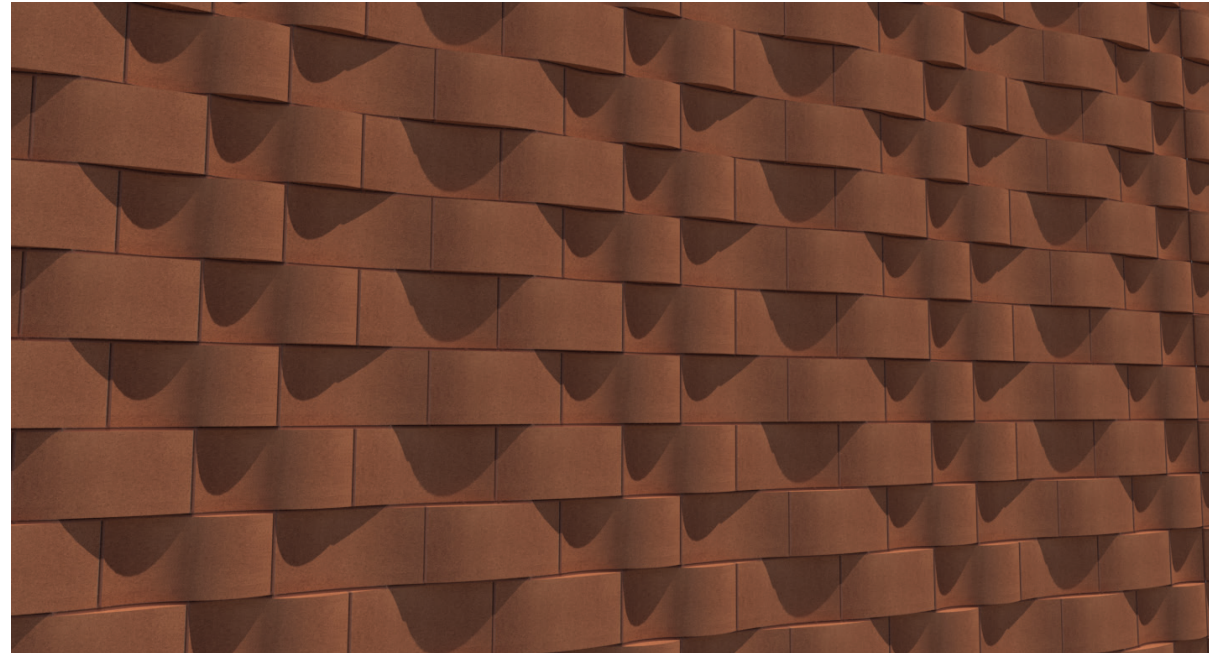


Riffle Concave Convex Serpentine Running Bond

This pattern is built by repeating a sequence of Concave, Convex and Serpentine Units in a running bond pattern with two alternating courses. Shown with red mortar.

Ledging should be considered before using for exterior applications

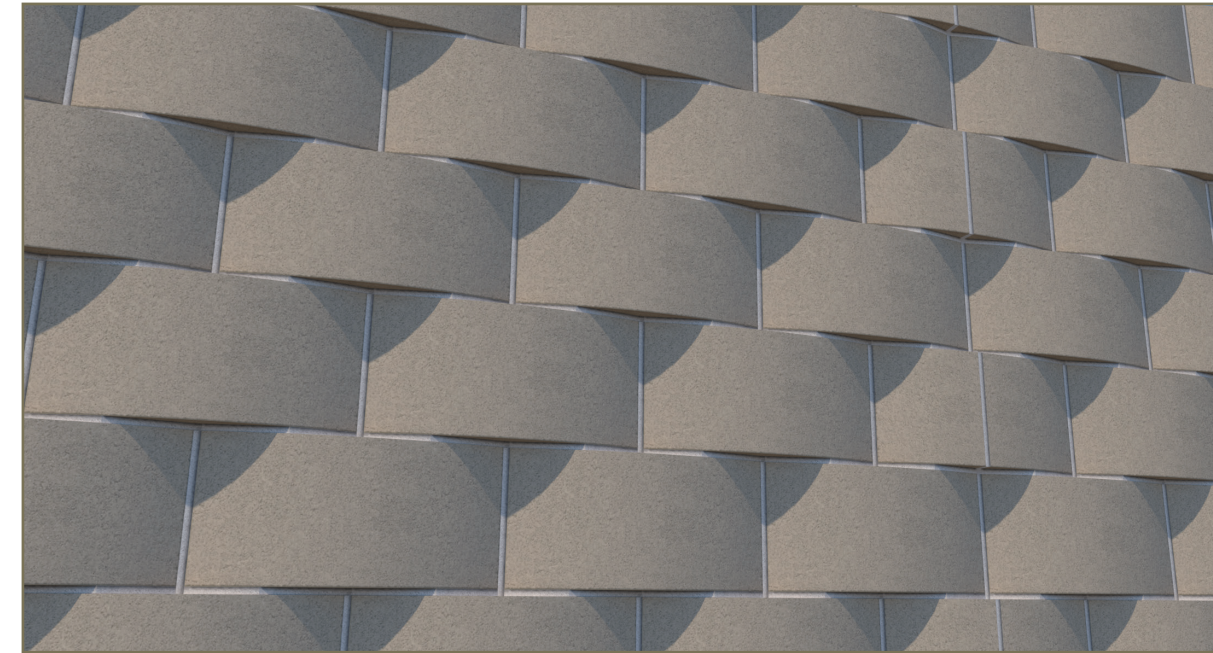
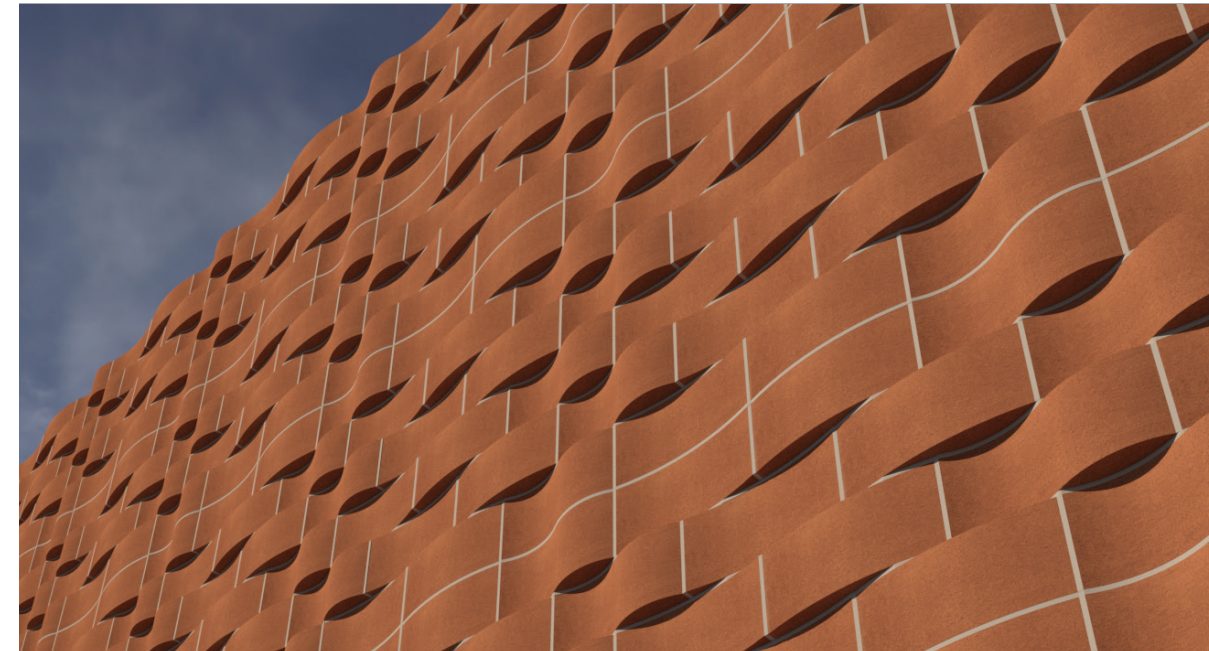
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Riffle and Second Wave ABRI Concave Convex Serpentine

Ledging should be considered before using for exterior applications

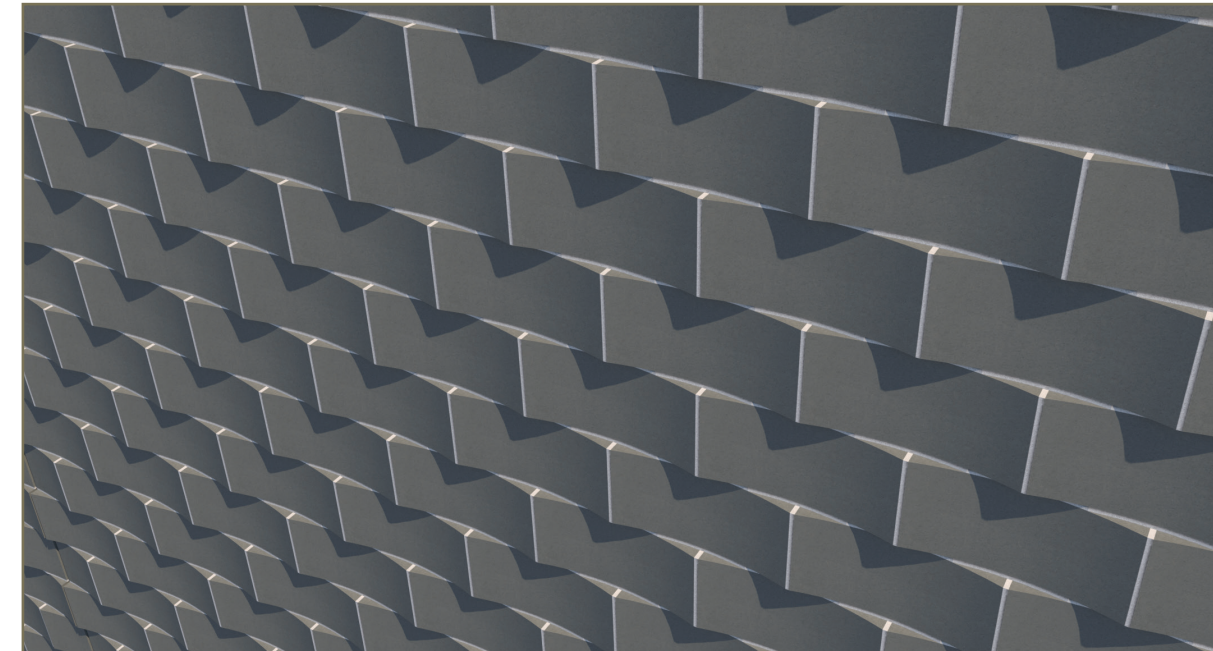
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Convex Running Convex Running Bond

Ledging should be considered before using for exterior applications

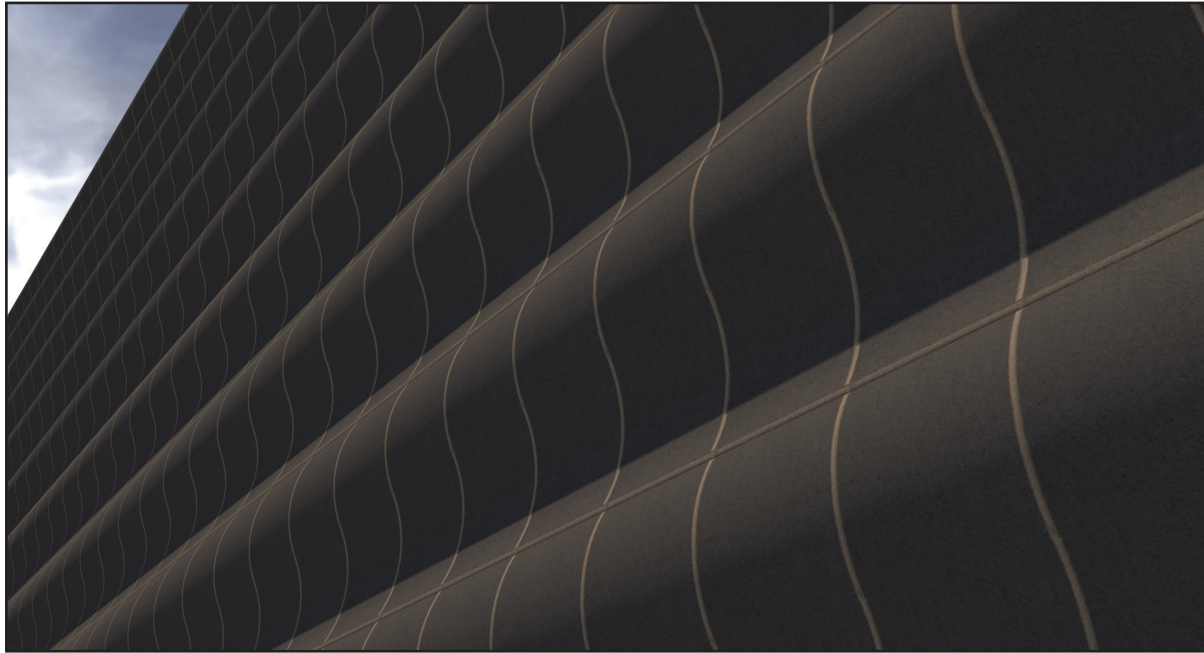
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Concave Running Concave Running Bond

Ledging should be considered before using for exterior applications

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



**Serpentine Soldier
Serpentine
Soldier Course**

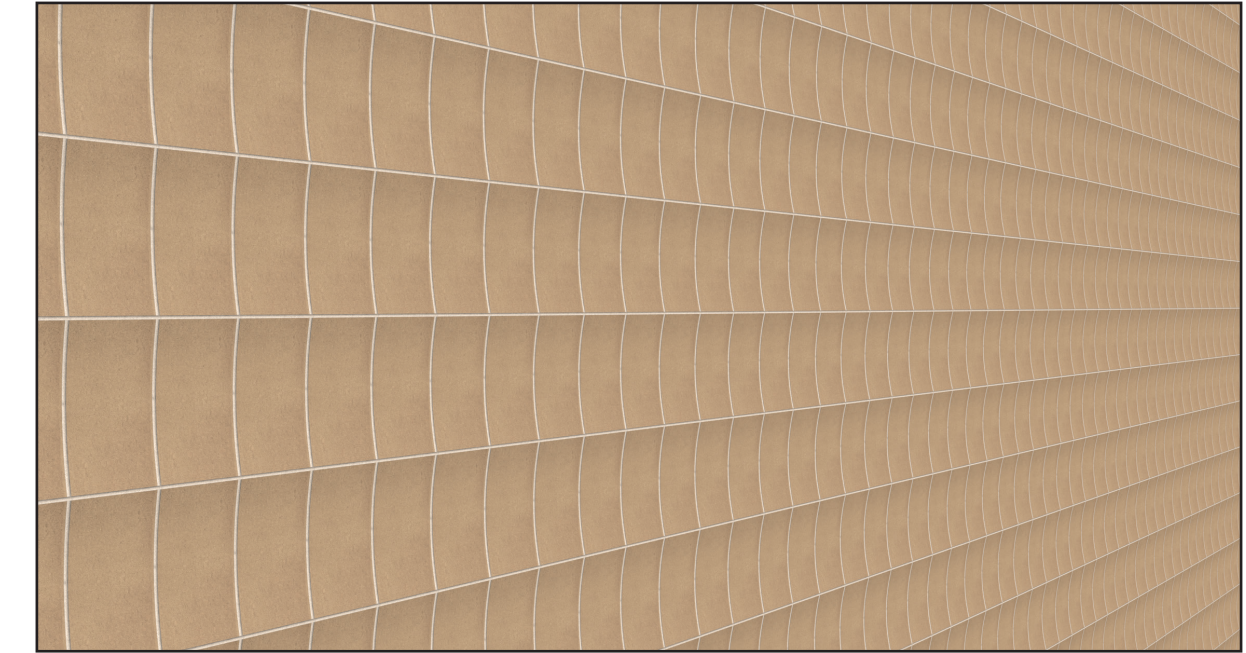
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

**Concave Soldier
Concave
Soldier Course**

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



**Convex Soldier
Concave Convex
Soldier Course**

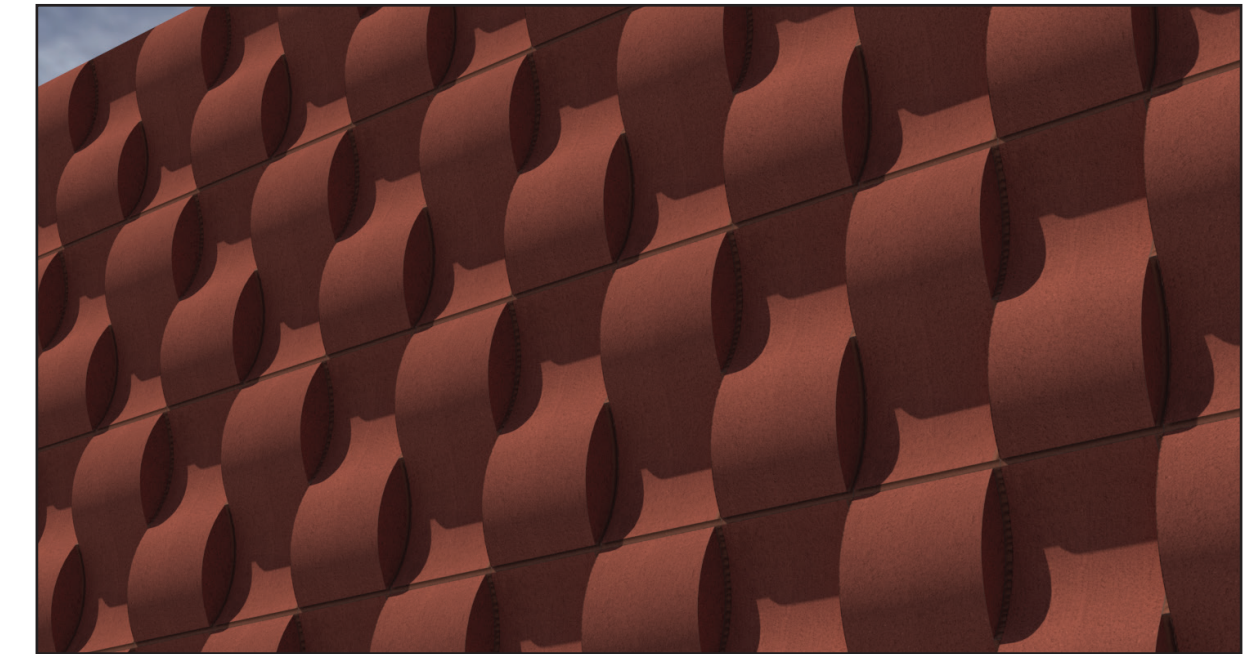
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

**Serpentine Alternating
Soldier
Serpentine
Soldier Course**

Suitable for indoor or outdoor use

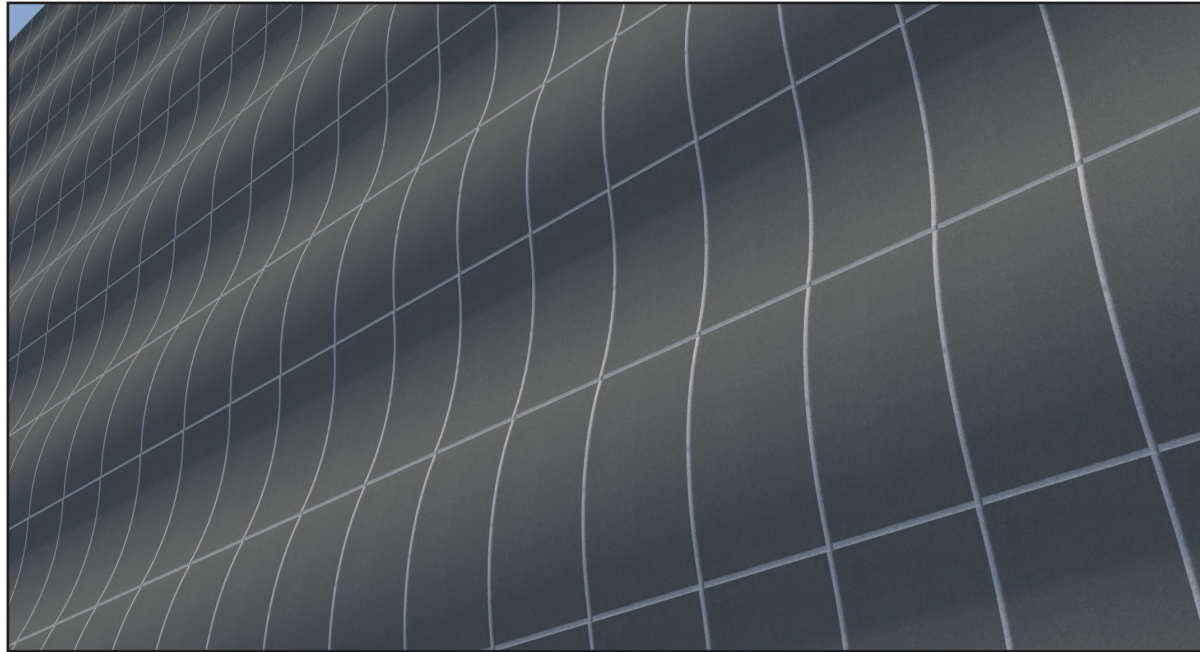
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



First Wave Soldier Serpentine Soldier Course

Suitable for indoor or outdoor use

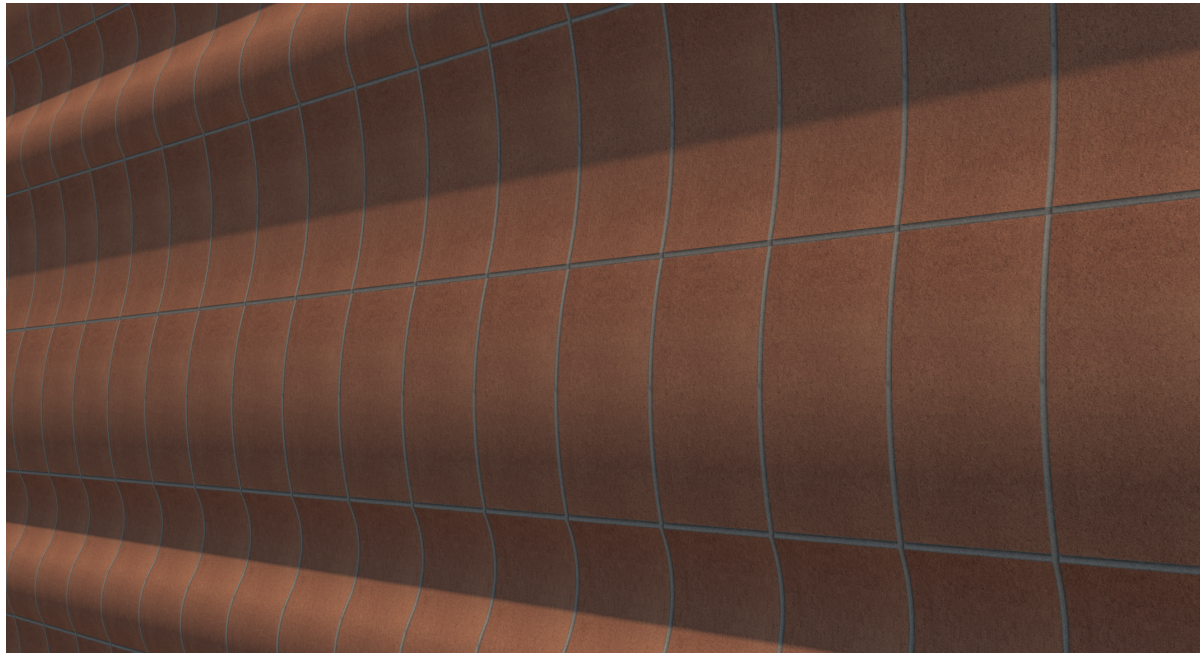
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Second Wave Soldier Concave Convex Serpentine Soldier Course

Suitable for indoor or outdoor use

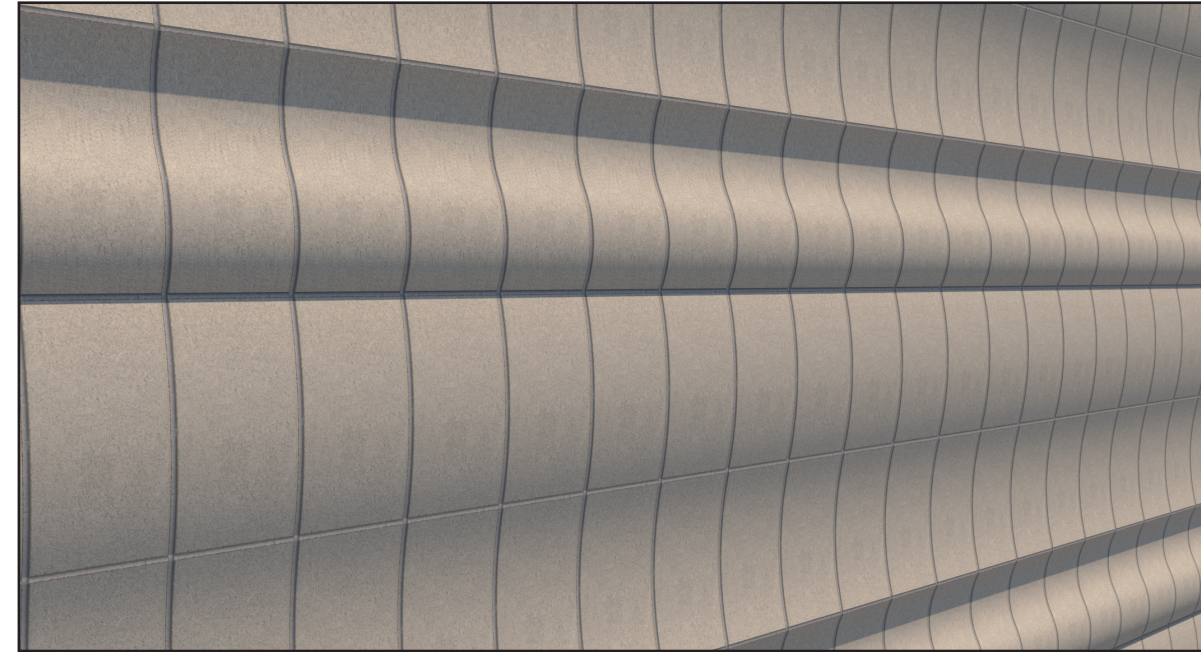
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Third Wave Soldier Concave Convex Serpentine Soldier Course

Suitable for indoor or outdoor use

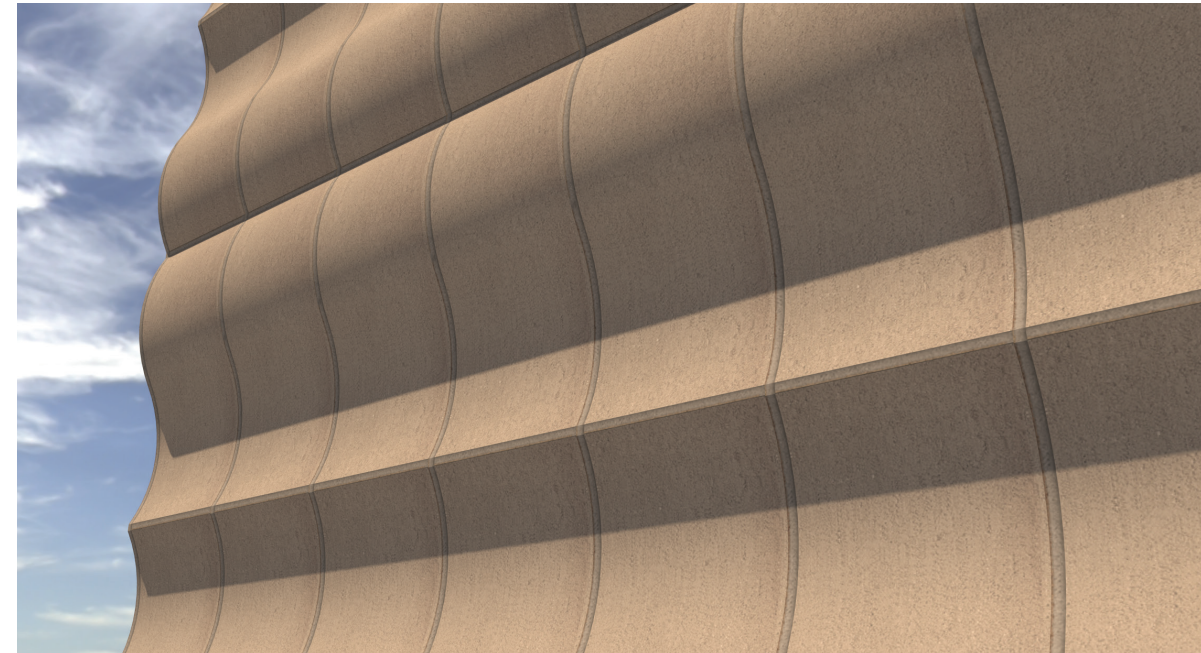
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Fourth Wave Soldier Concave Convex Serpentine Soldier Course

Suitable for indoor or outdoor use

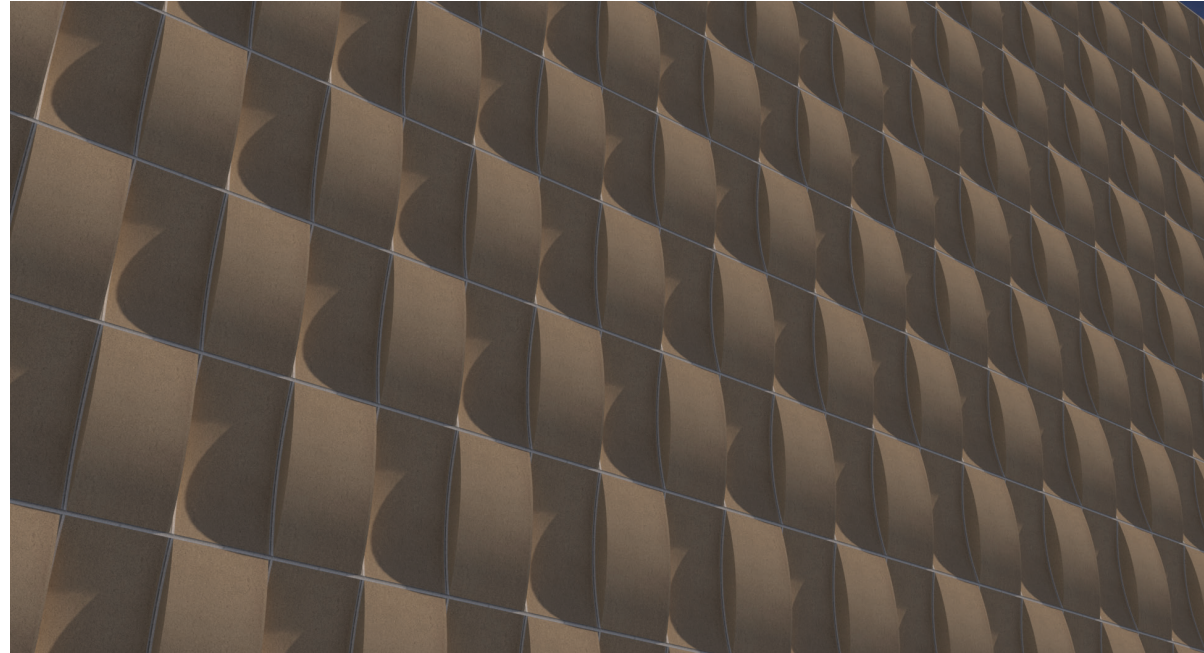
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Wicker Soldier
Concave Convex
Soldier Course

Suitable for indoor or outdoor use

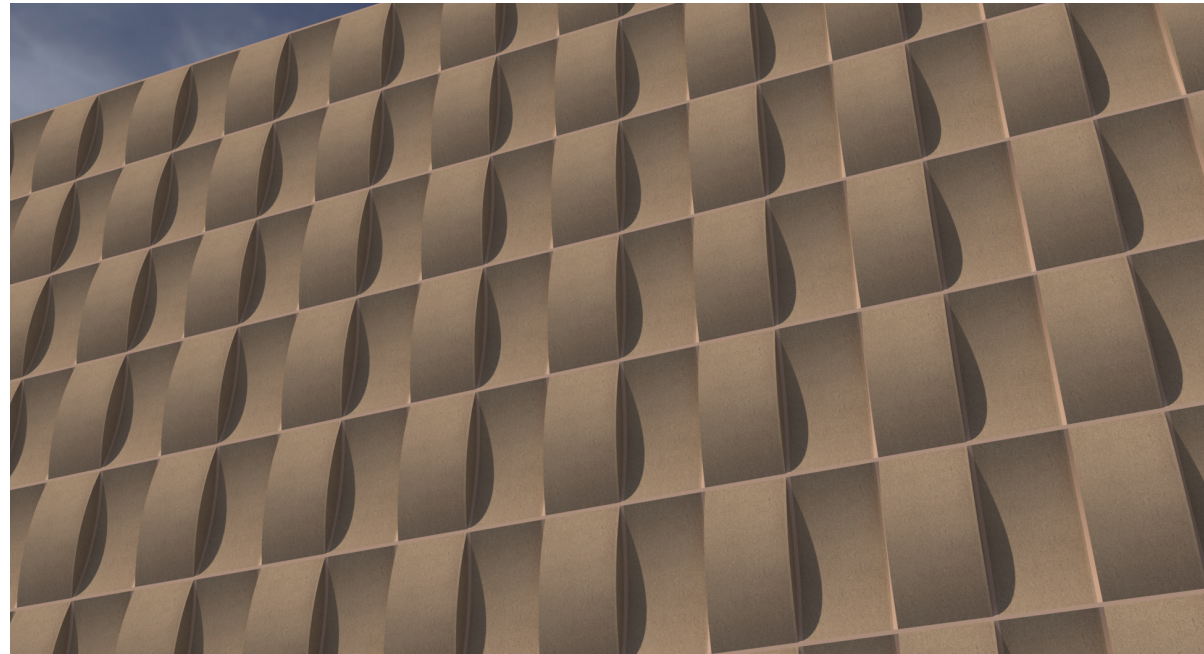
See Design Guide for anchorage and horizontal Joint reinforcement recommendations..



Reciprocation
Concave Convex
Soldier Course

Suitable for indoor or outdoor use

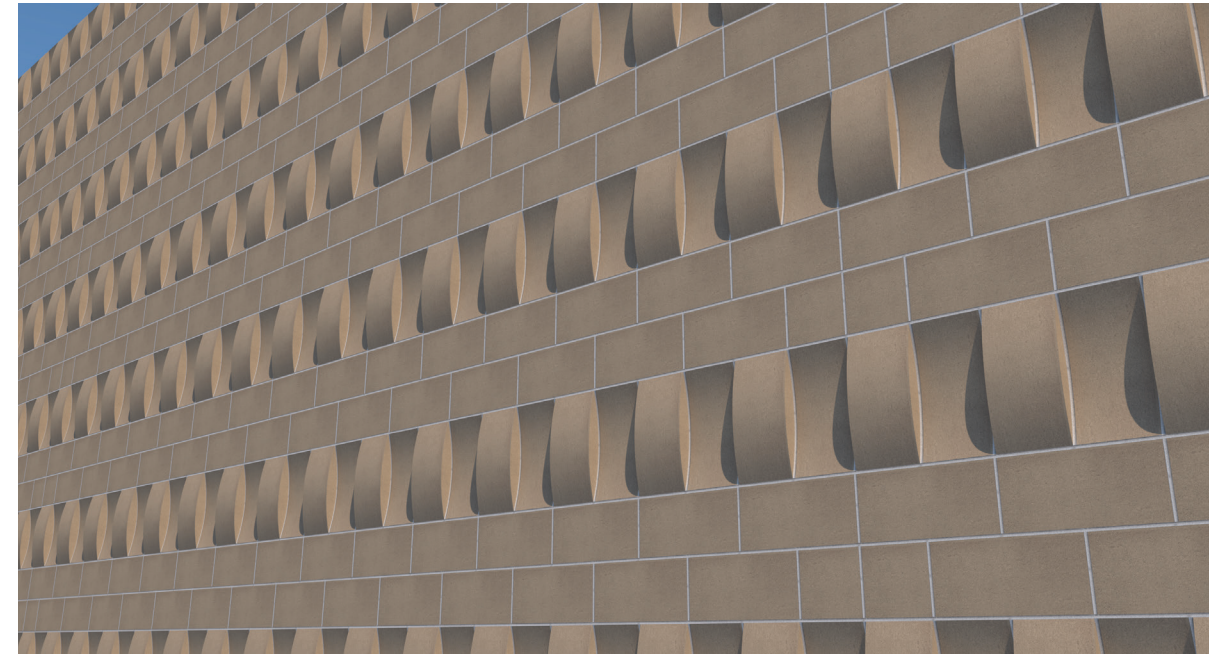
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Double Weave
Concave Convex
Alternating Stack

Ledging should be considered before using for exterior applications

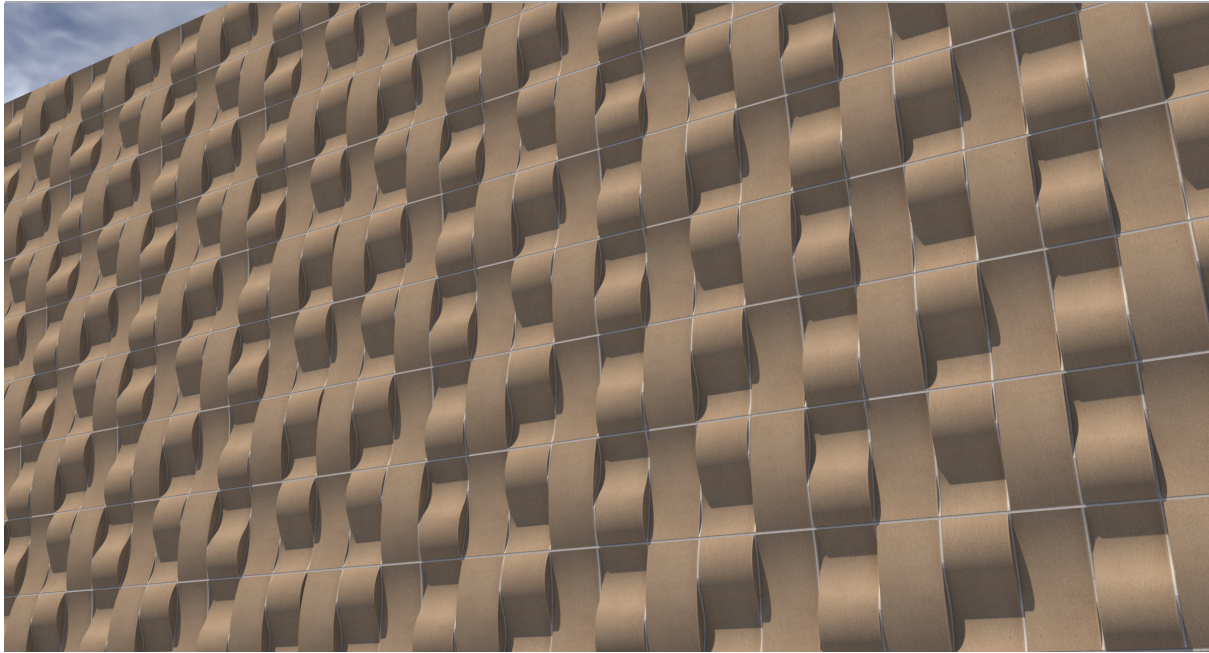
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Wicker Stripe
Concave Convex Flat
Stack and Running Bond

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Madison
Serpentine Concave Convex
Soldier Course

Suitable for indoor or outdoor use

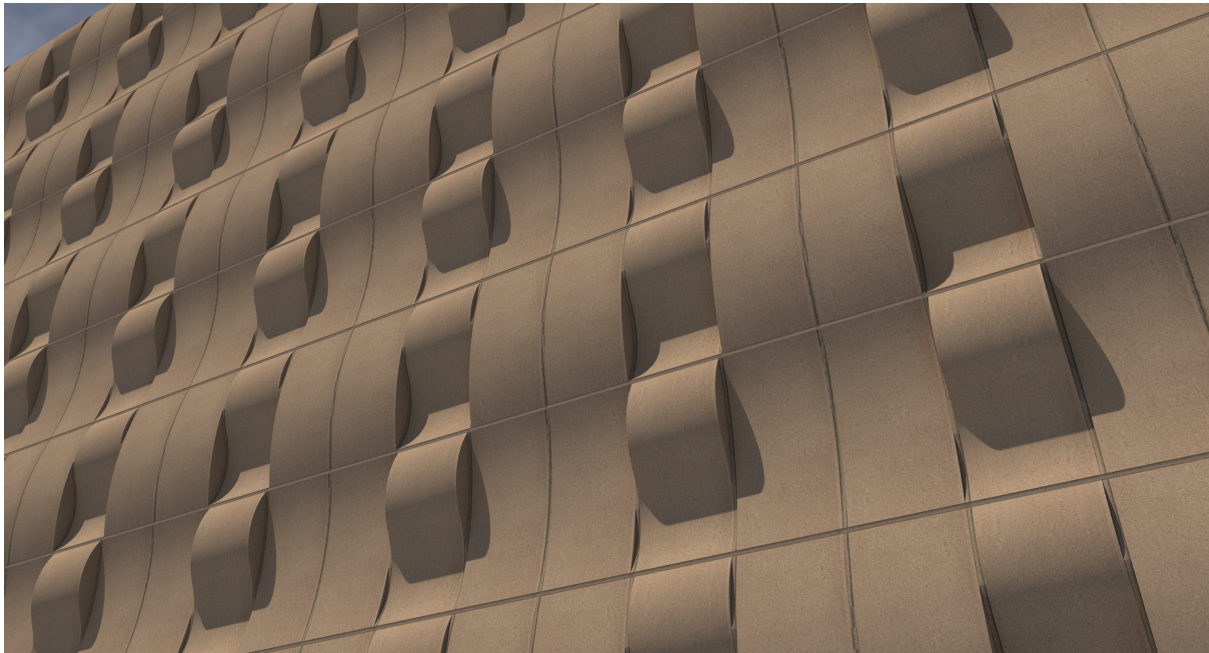
See Design Guide for anchorage and horizontal Joint reinforcement recommendations..



Brule
Serpentine Concave Convex
Soldier Course

Suitable for indoor or outdoor use

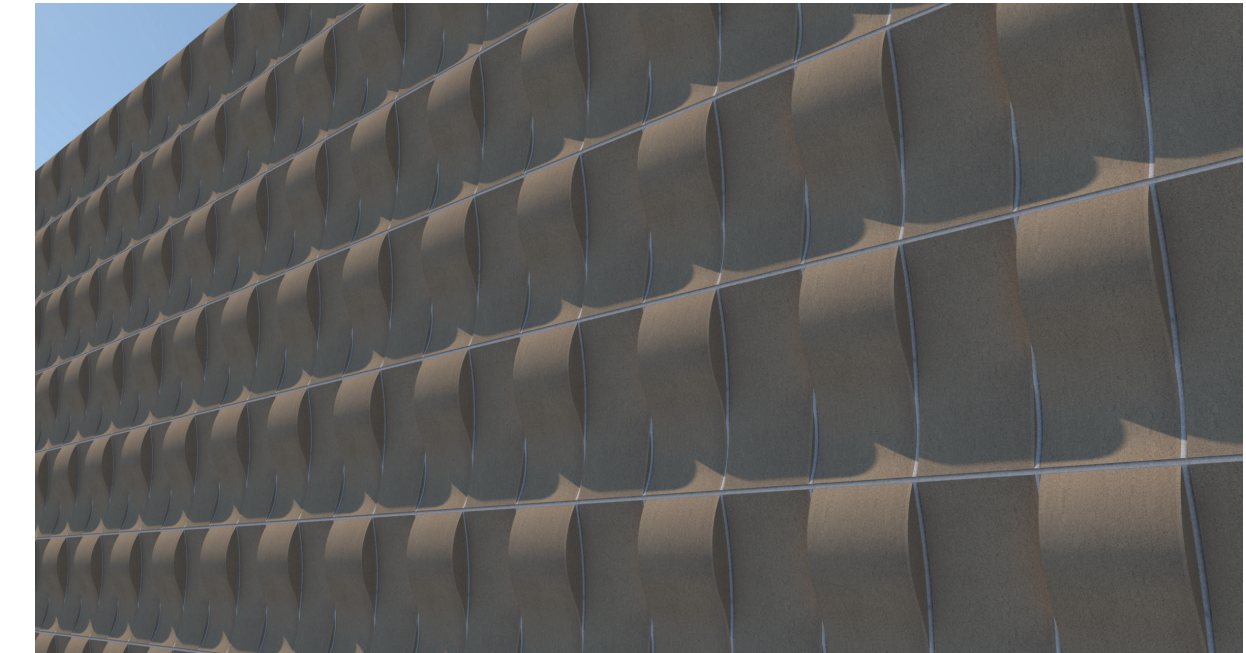
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Gallatin
Serpentine Concave Convex
Soldier Course

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



St Croix
Serpentine Concave Convex
Soldier Course

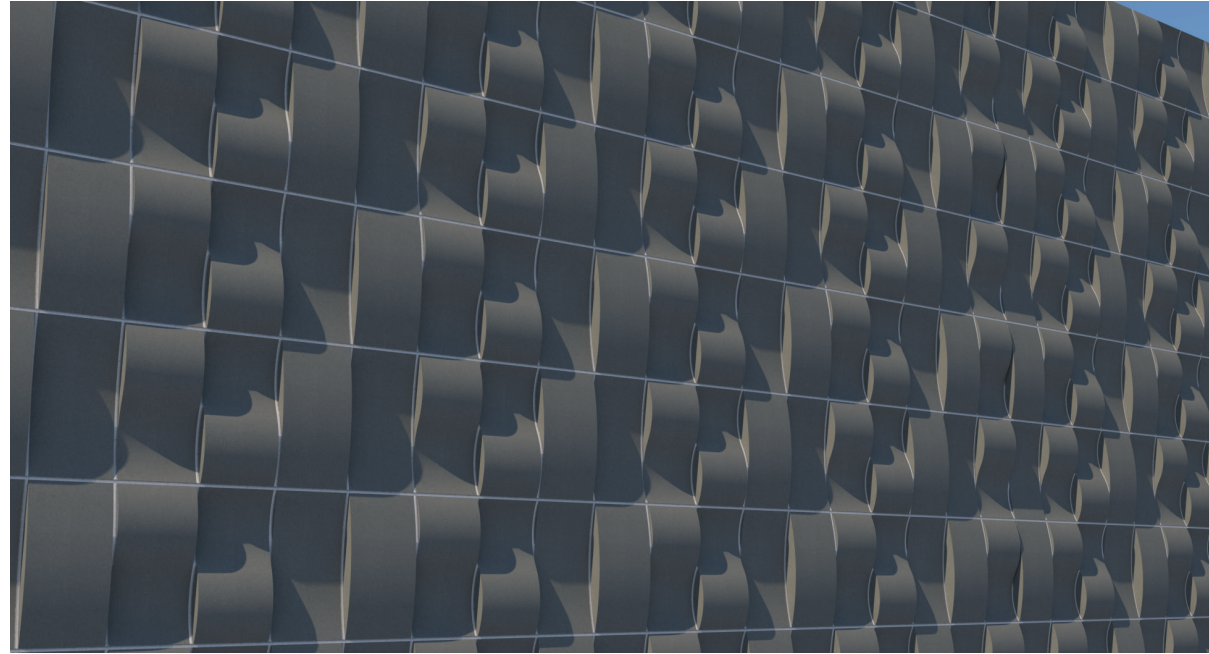
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

Au Sable
Serpentine Concave Convex
Soldier Course

Suitable for indoor or outdoor use

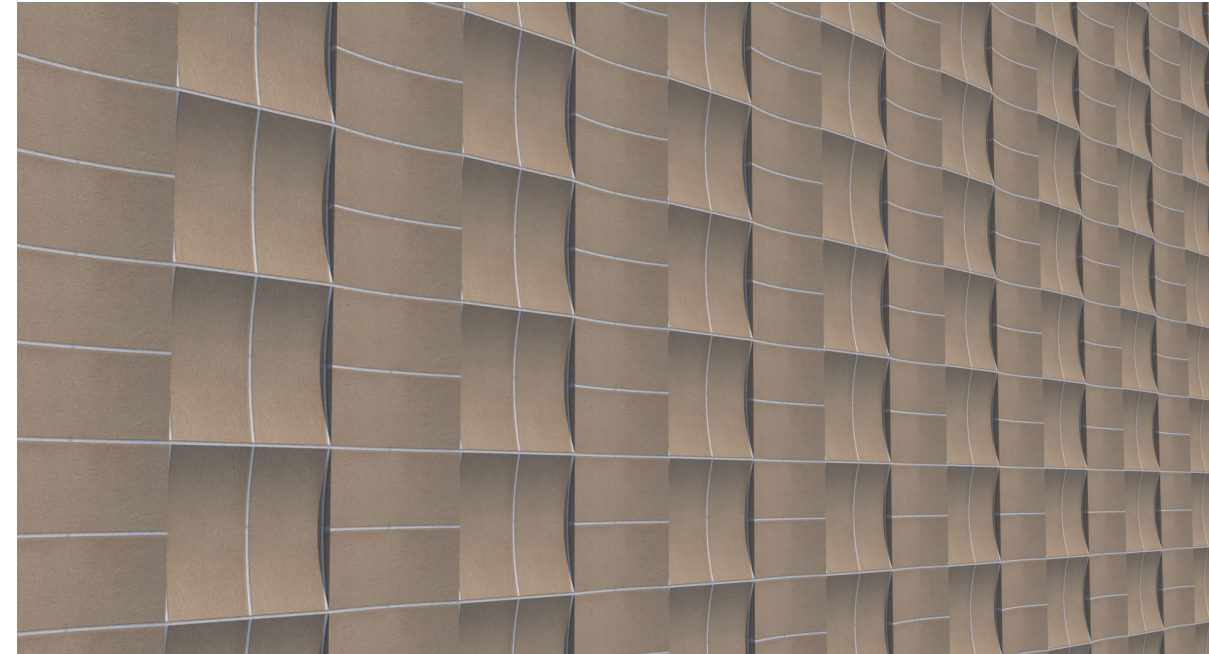
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Waffle
Serpentine Concave Convex
Soldier Course

Suitable for indoor or outdoor use

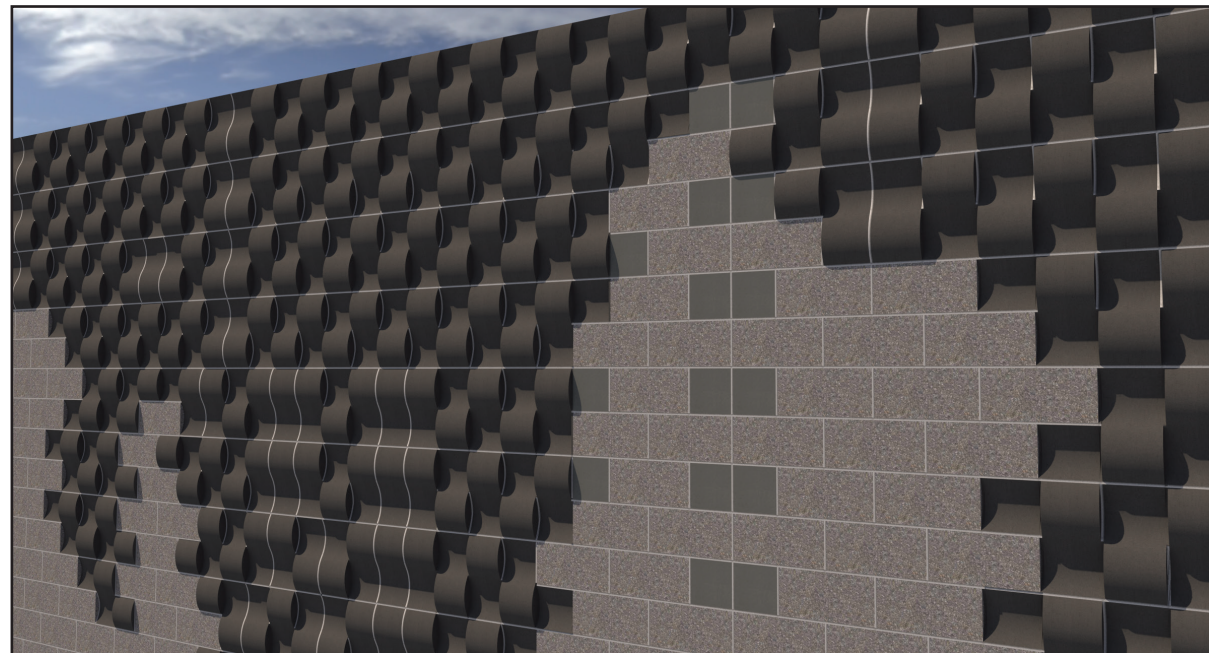
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Waterfall
Serpentine Half Serpentine
Flat
Soldier Course/Running Bond

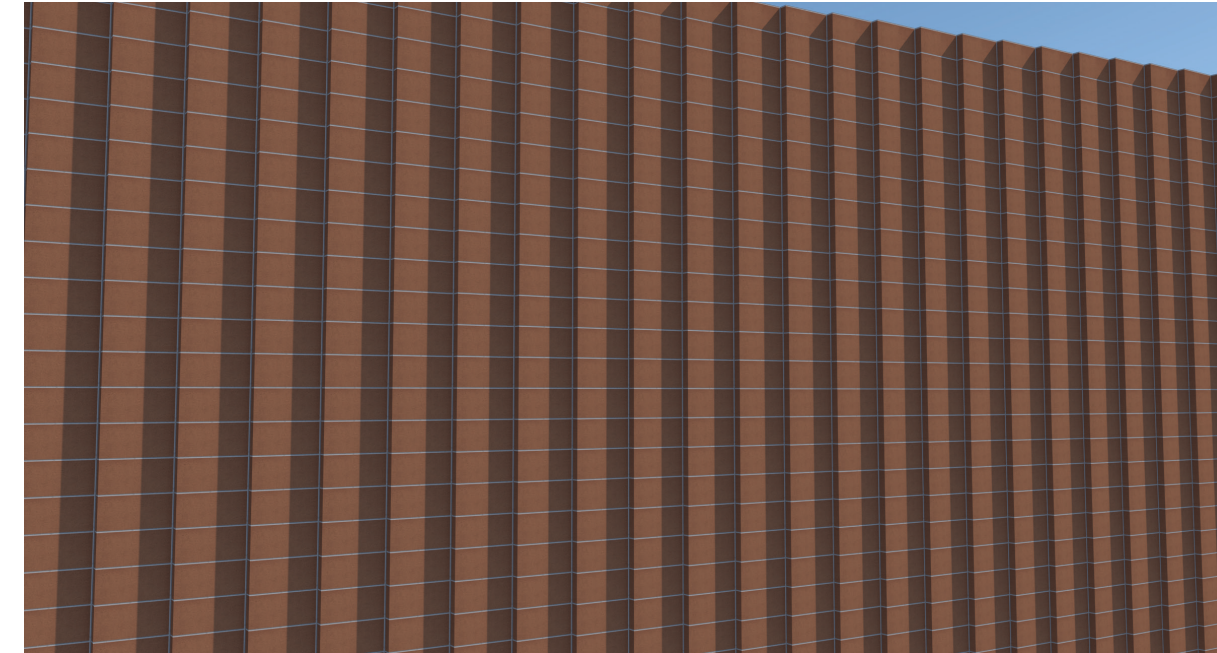
Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Wall Panels Angular Profiles

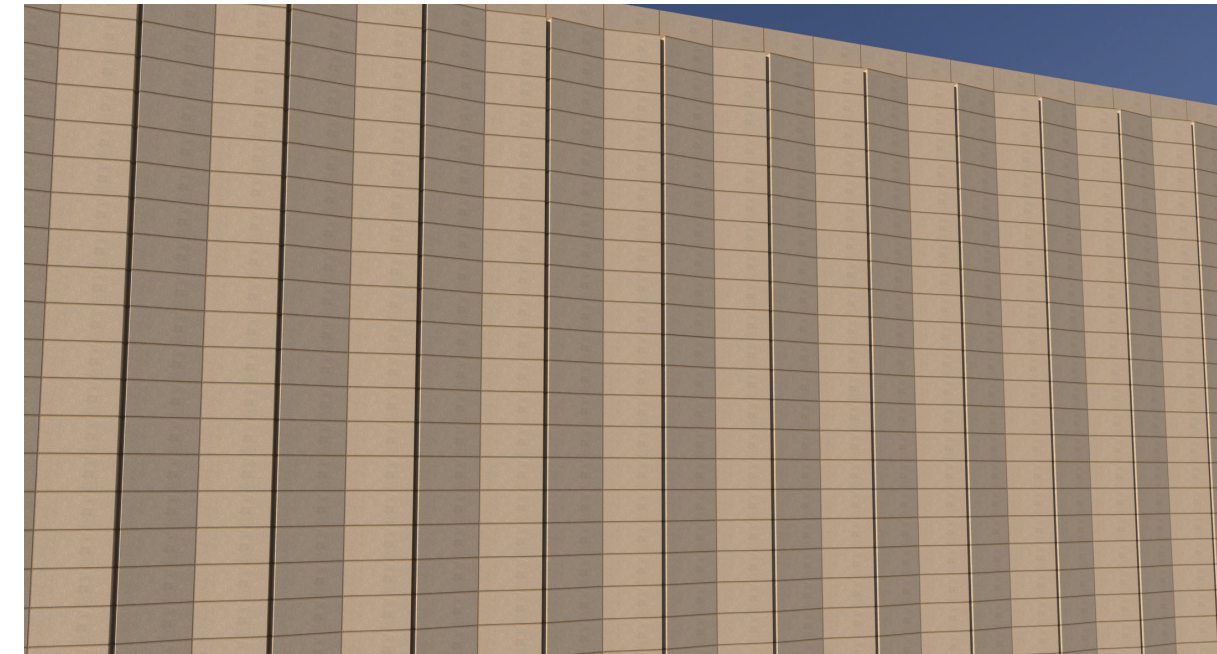
ABRI's Wedge and Shingle units provide dramatic angles and shadowing



Wedge Stack Wedge Stack Bond

Suitable for indoor or outdoor use

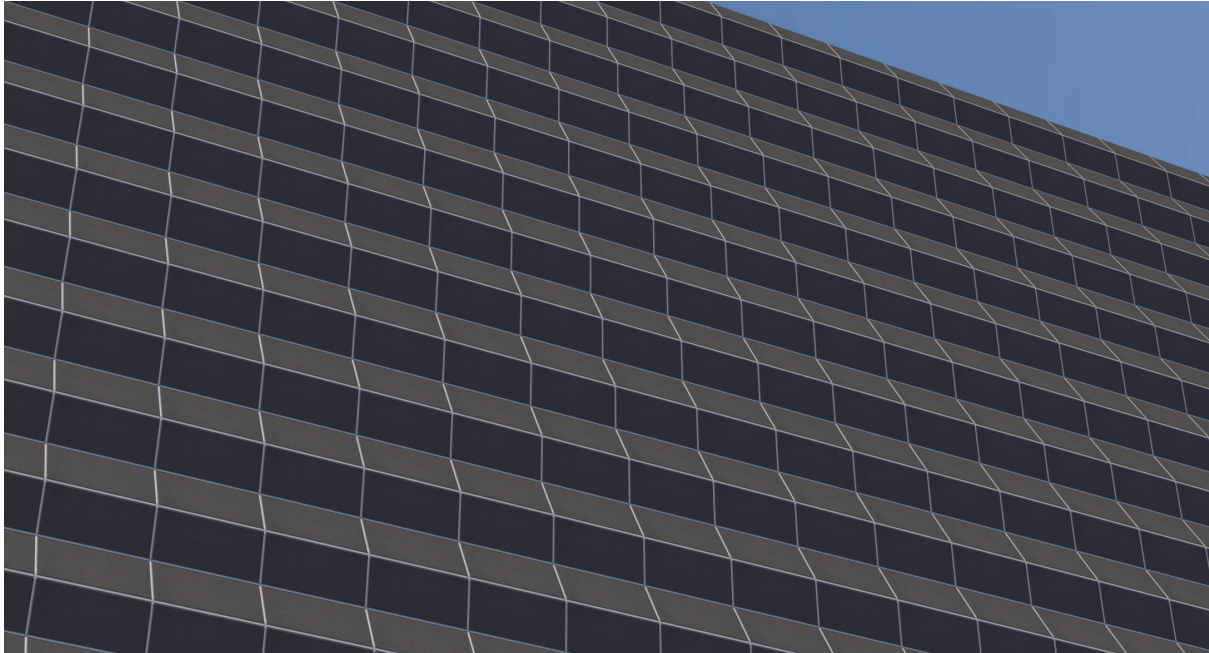
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Opposed Wedge Stack

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

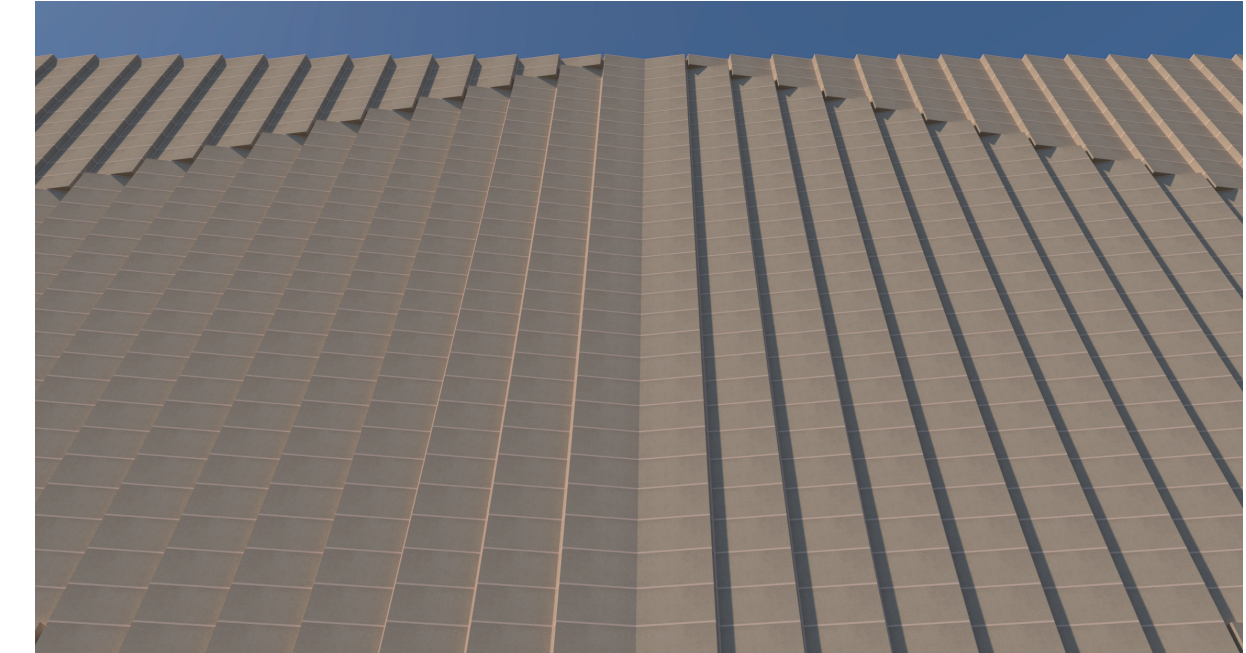


Map Fold Shingle and Flip Shingle Stack Bond

Shingle units are placed in alternating orientation from course to course to create the folded map appearance

Suitable for indoor or outdoor use

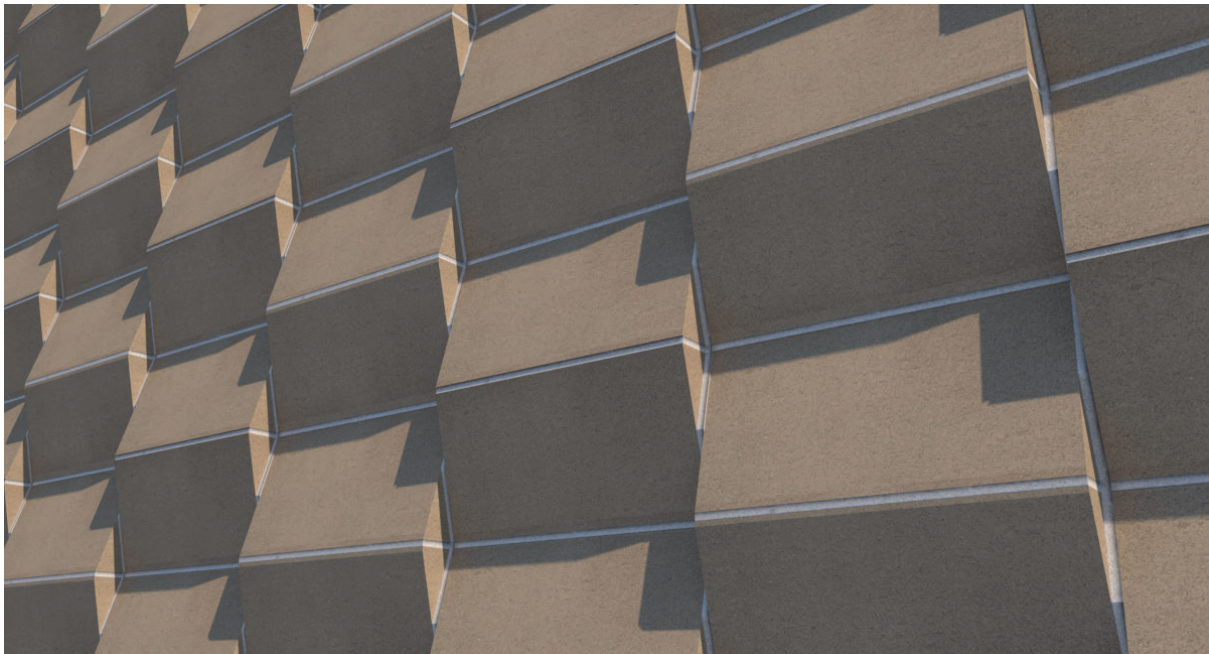
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Arrow Wedge Stack bond

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Rhombus Shingle & Flipped Shingle Stack bond

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Stepped Shingles Shingle and Flipped Shingle Running Bond

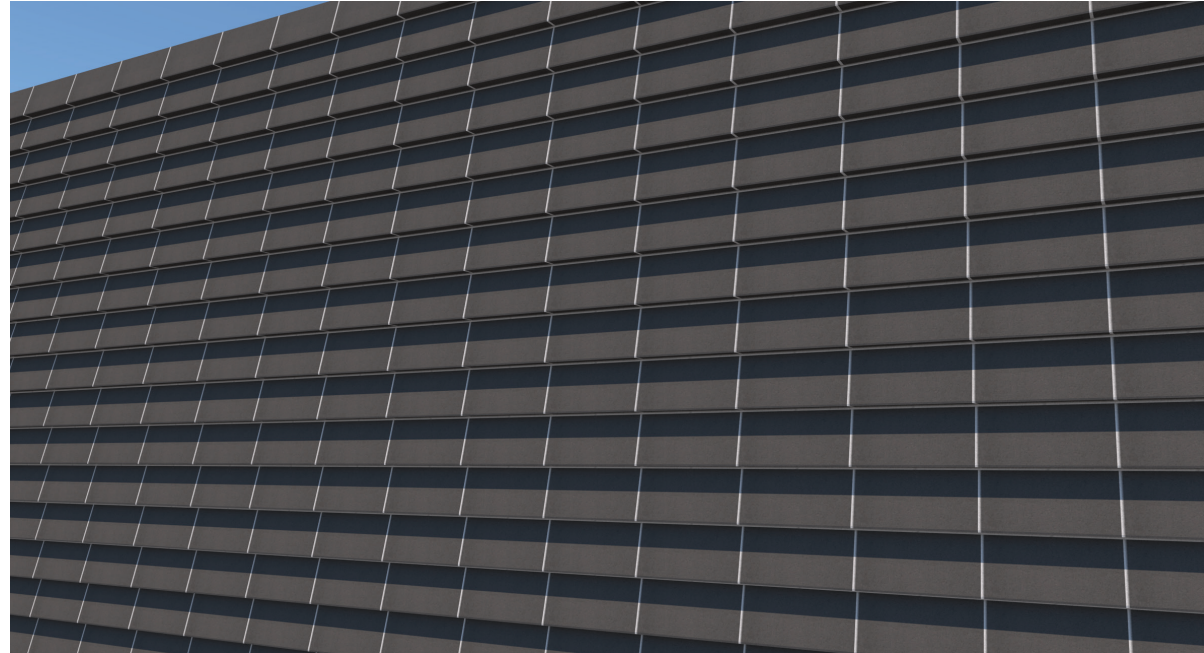
Ledging should be considered before using for exterior applications

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

Shingle Stack ABRI Shingle

Suitable for indoor or outdoor use

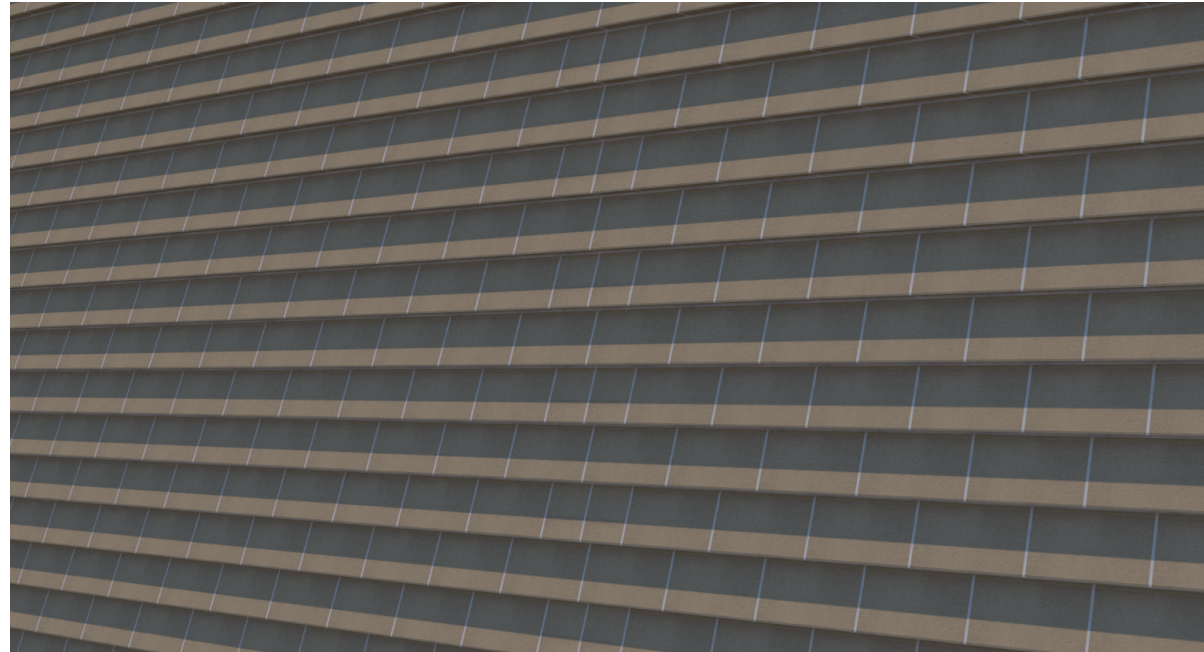
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Shingle Running Bond ABRI Shingle

Suitable for indoor or outdoor use

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.



Wedges Running ABRI Wedge Units Running Bond

Ledging should be considered before using for exterior applications

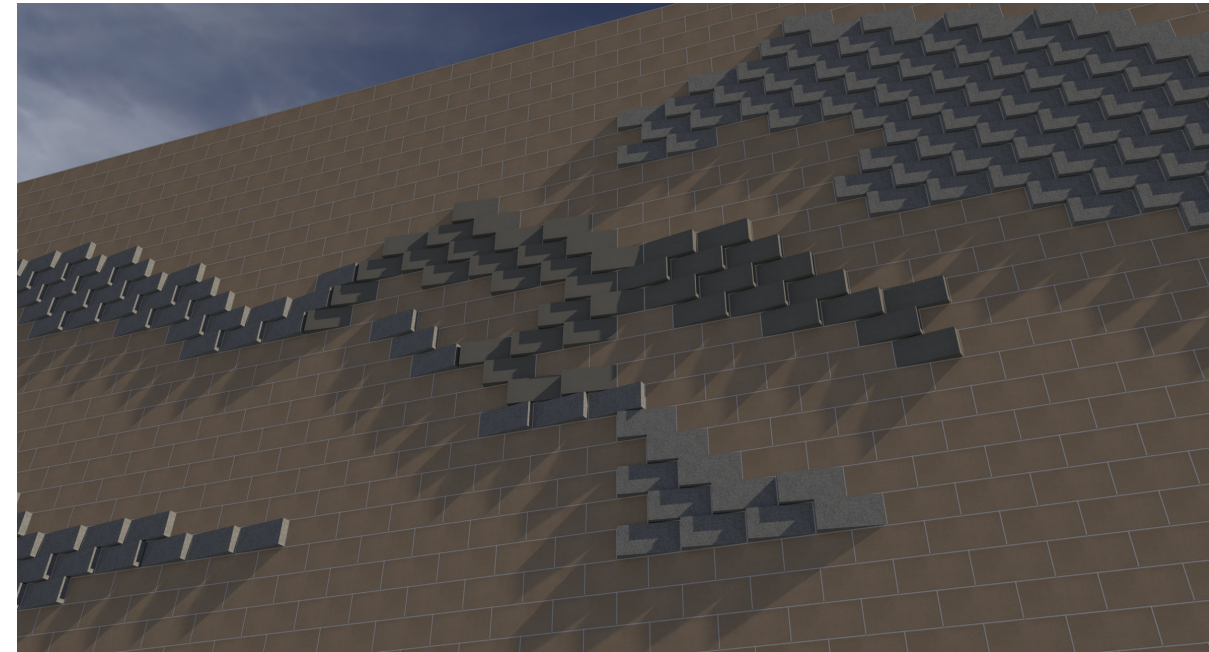
See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

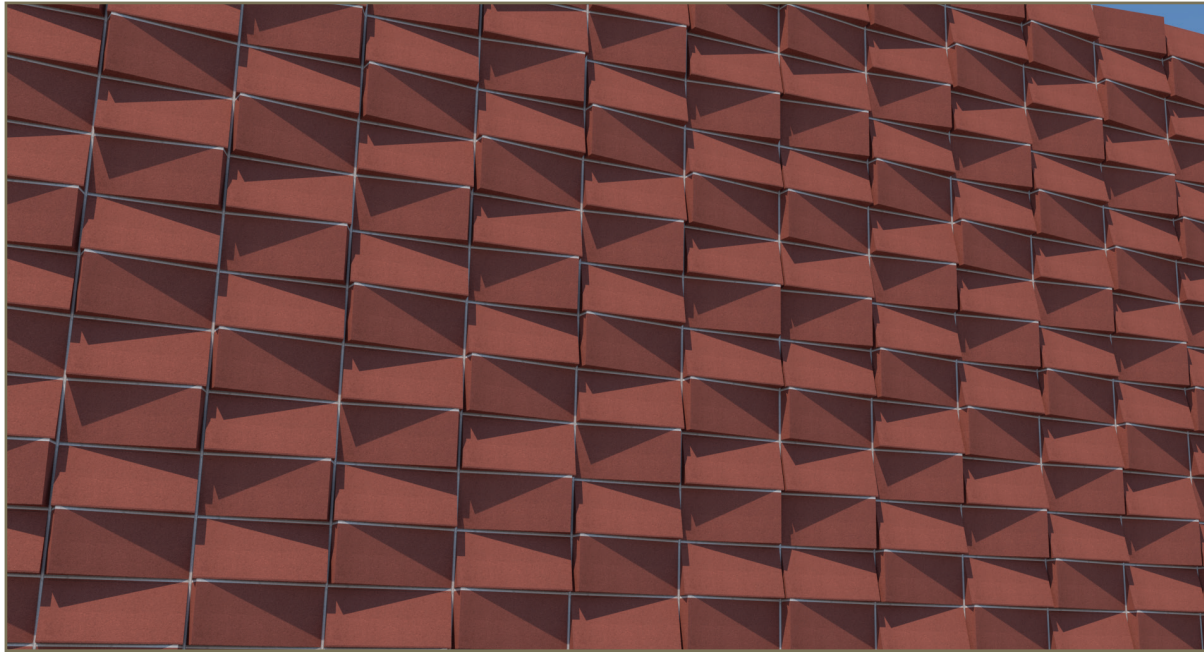


Wedge Outcrop Wedge and Flat CMU Running Bond

Ledging should be considered before using for exterior applications

See Design Guide for anchorage and horizontal Joint reinforcement recommendations.

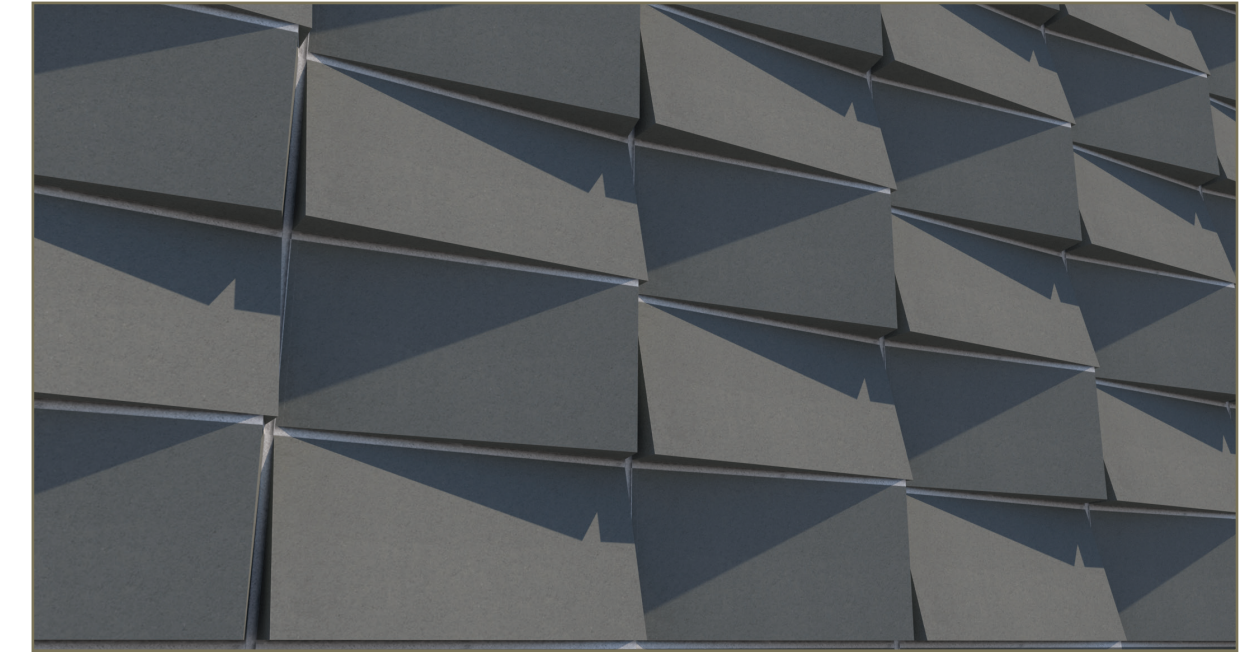




Dragon Shingle Wedge Stack Bond

Suitable for indoor or outdoor applications.

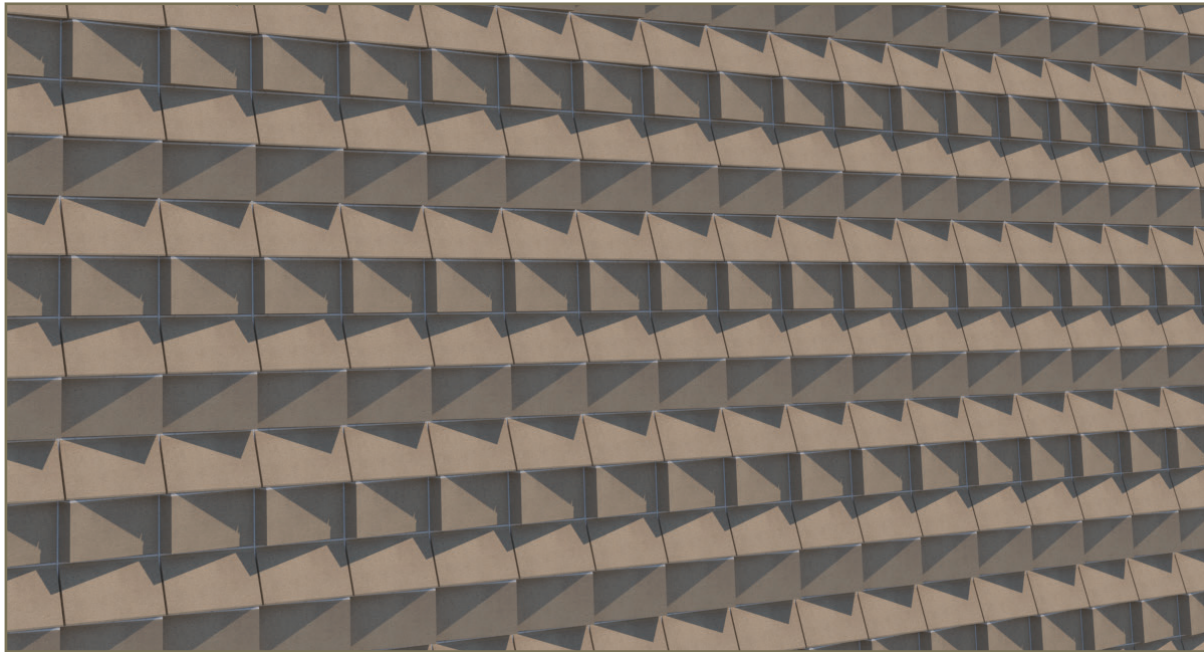
Please see Design Manual for anchorage and reinforcement suggestions.



Komodo Shingle Wedge Stack Bond

Suitable for indoor or outdoor applications.

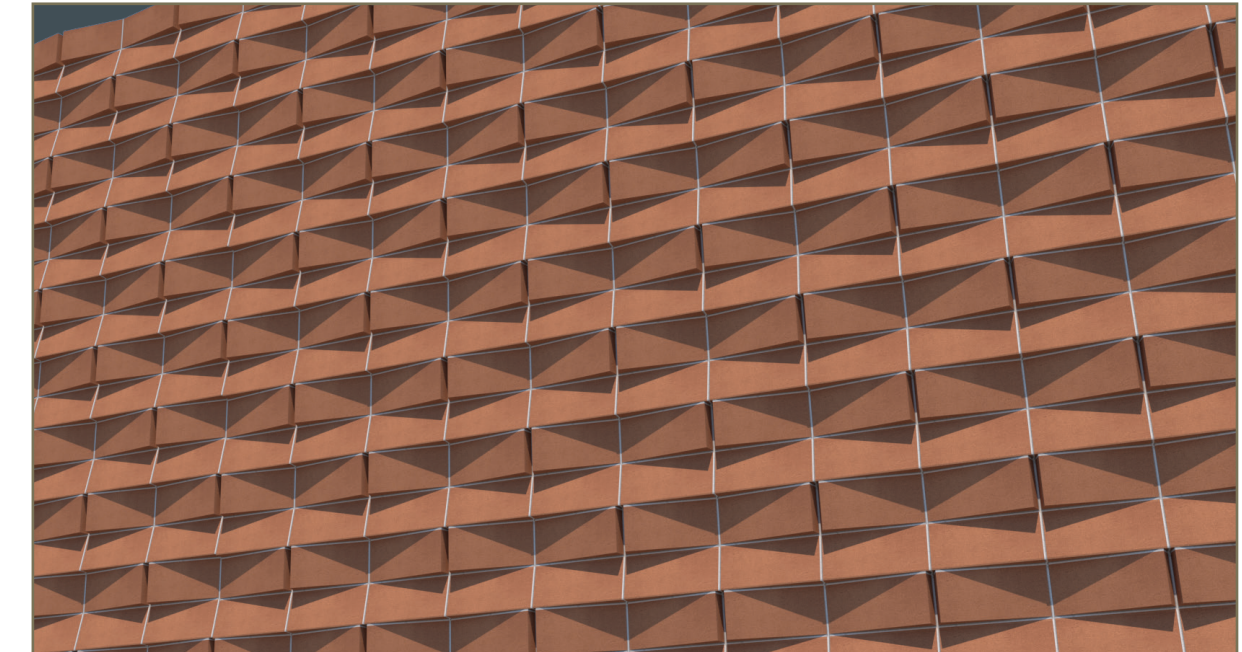
Please see Design Manual for anchorage and reinforcement suggestions.



Igauna Shingle Wedge Stackbond

Suitable for indoor or outdoor applications.

Please see Design Manual for anchorage and reinforcement suggestions.



Gecko Shingle Wedge Shingle Wedge Stack Bond

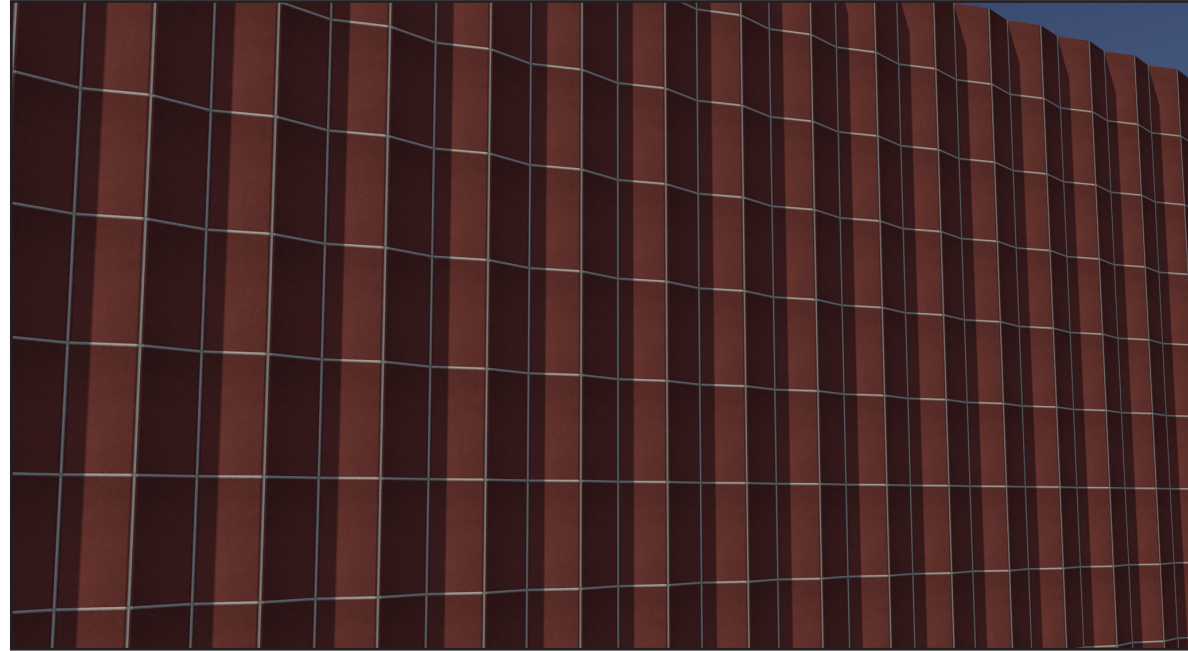
Suitable for indoor or outdoor applications.

Please see Design Manual for anchorage and reinforcement suggestions.

Accordion Shingle Soldier Course

Suitable for indoor or outdoor applications.

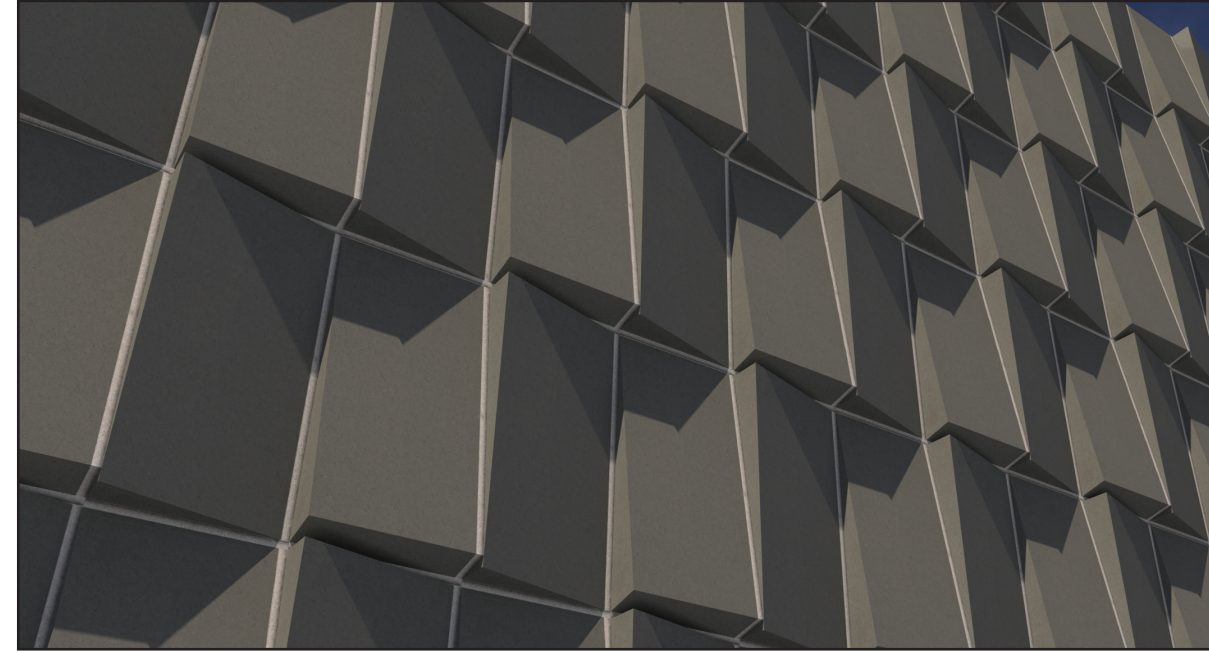
Please see Design Manual for anchorage and reinforcement suggestions.



Diamondback Shingle Wedge Soldier Course

Suitable for indoor or outdoor applications.

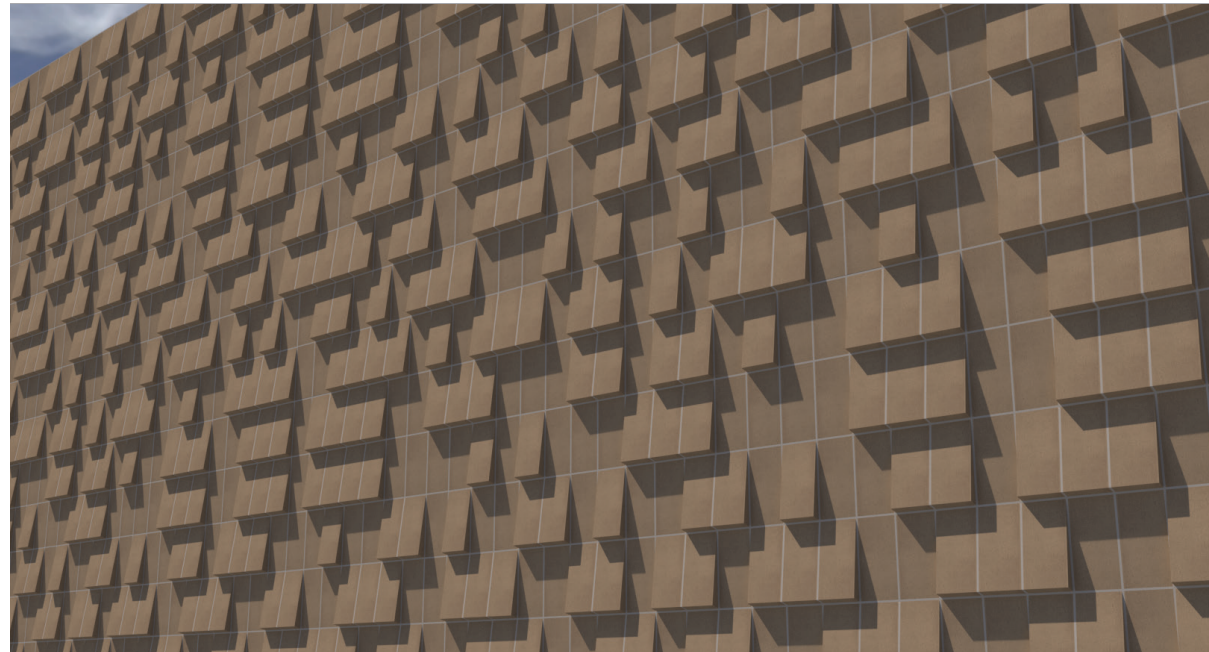
Please see Design Manual for anchorage and reinforcement suggestions.



Math Problem ABRI Wedge and Flat Veneer Units Soldier Course

Suitable for indoor or outdoor applications.

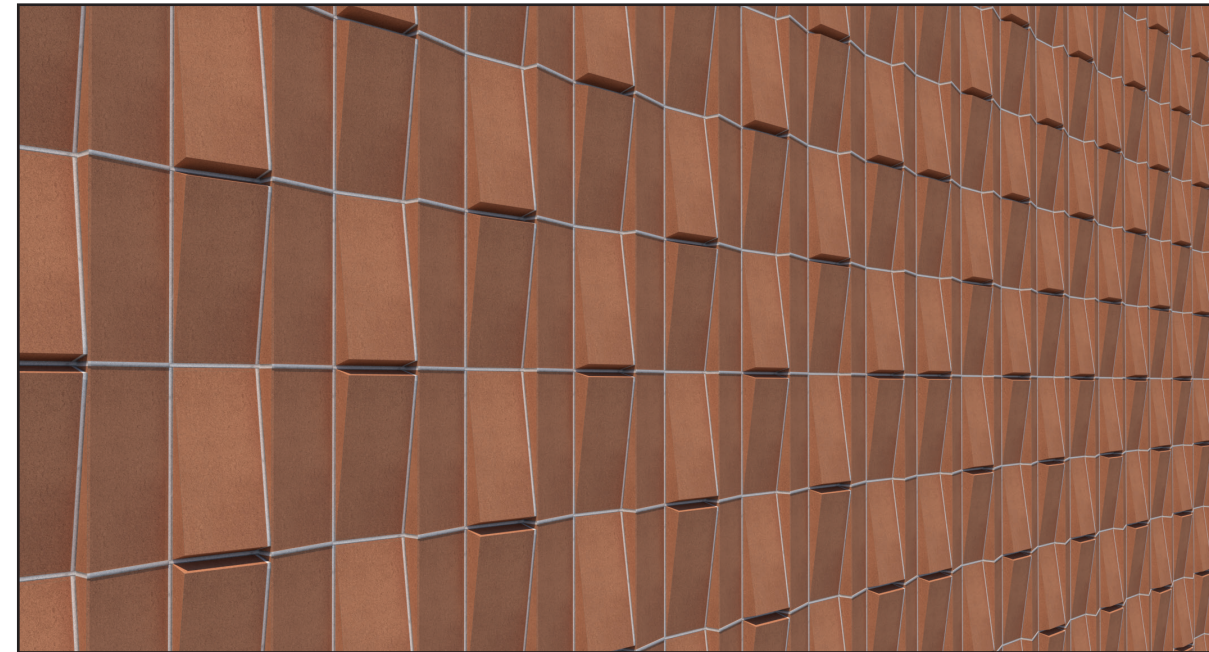
Please see Design Manual for anchorage and reinforcement suggestions.

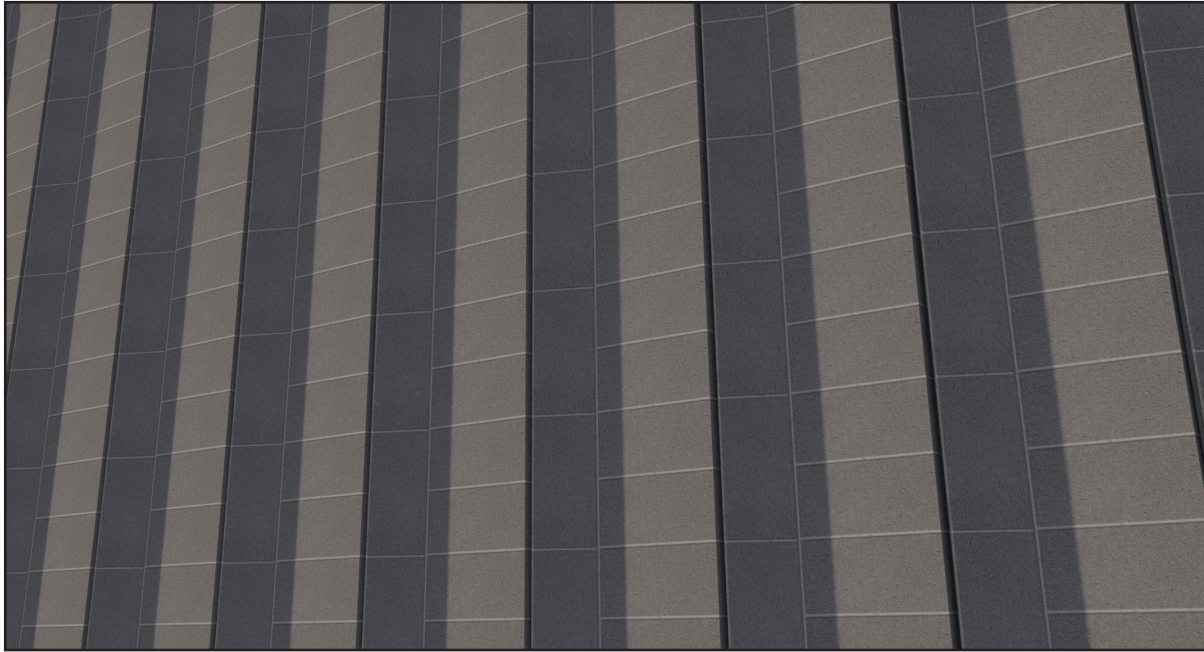


Cobra Shingle Wedge Soldier Course

Suitable for indoor or outdoor applications.

Please see Design Manual for anchorage and reinforcement suggestions.

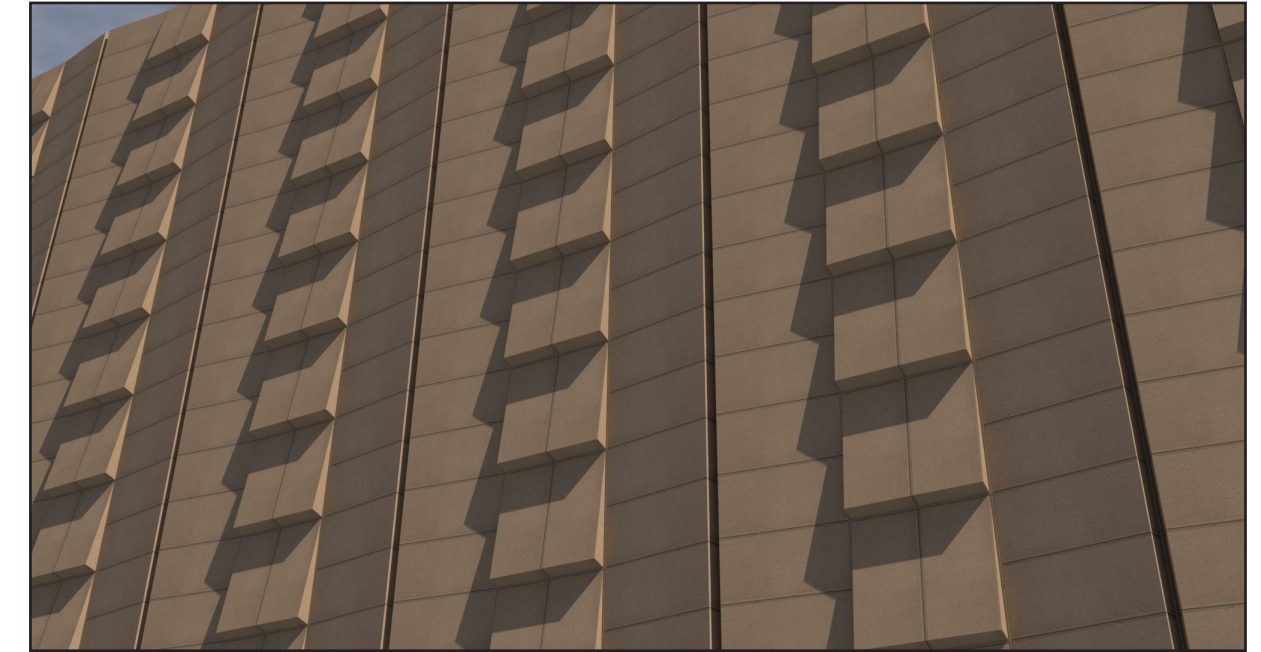




Ridgeline
Wedge Stack
Shingle Soldier Course

Suitable for indoor or outdoor applications.

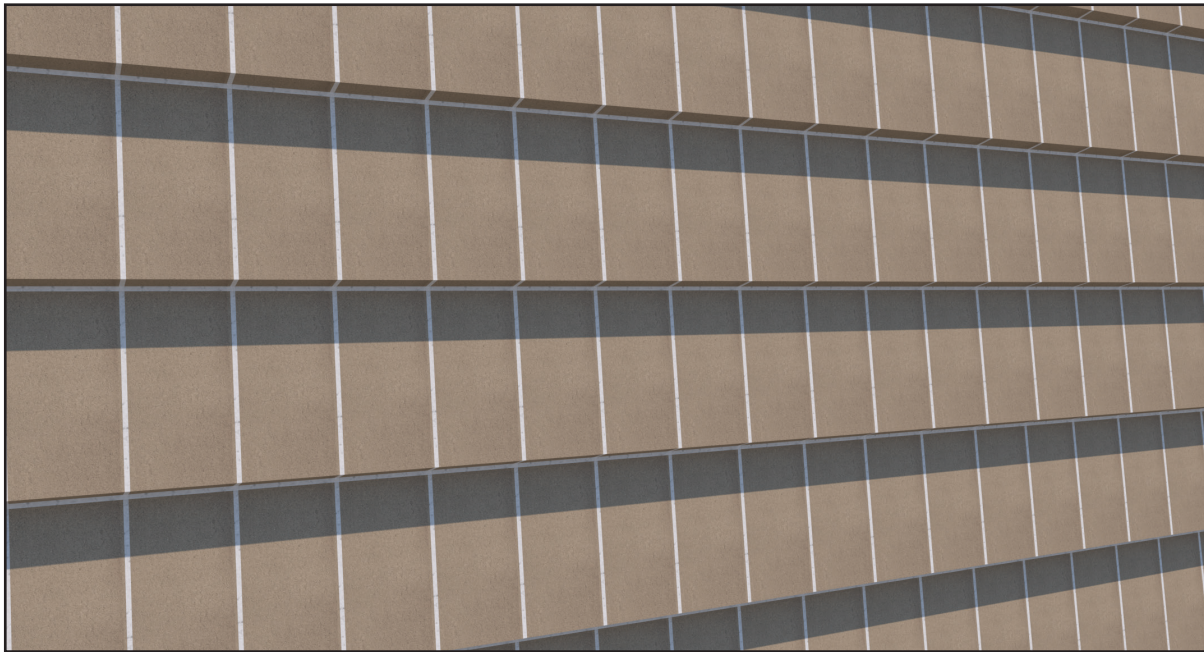
Please see Design Manual for anchorage and reinforcement suggestions..



Zipper
Wedge Soldier Course
Wedge Stack

Suitable for indoor or outdoor applications.

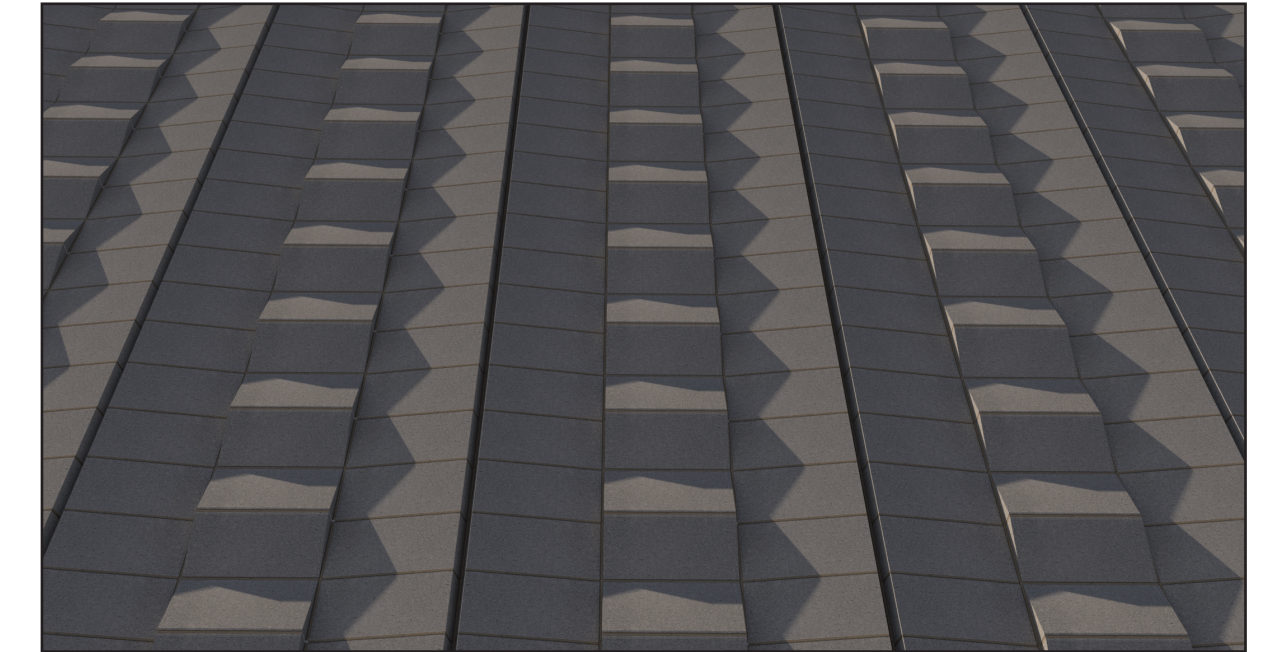
Please see Design Manual for anchorage and reinforcement suggestions.



Wedge Soldier Stack
Wedge
Soldier Course

Suitable for indoor or outdoor applications.

Please see Design Manual for anchorage and reinforcement suggestions.



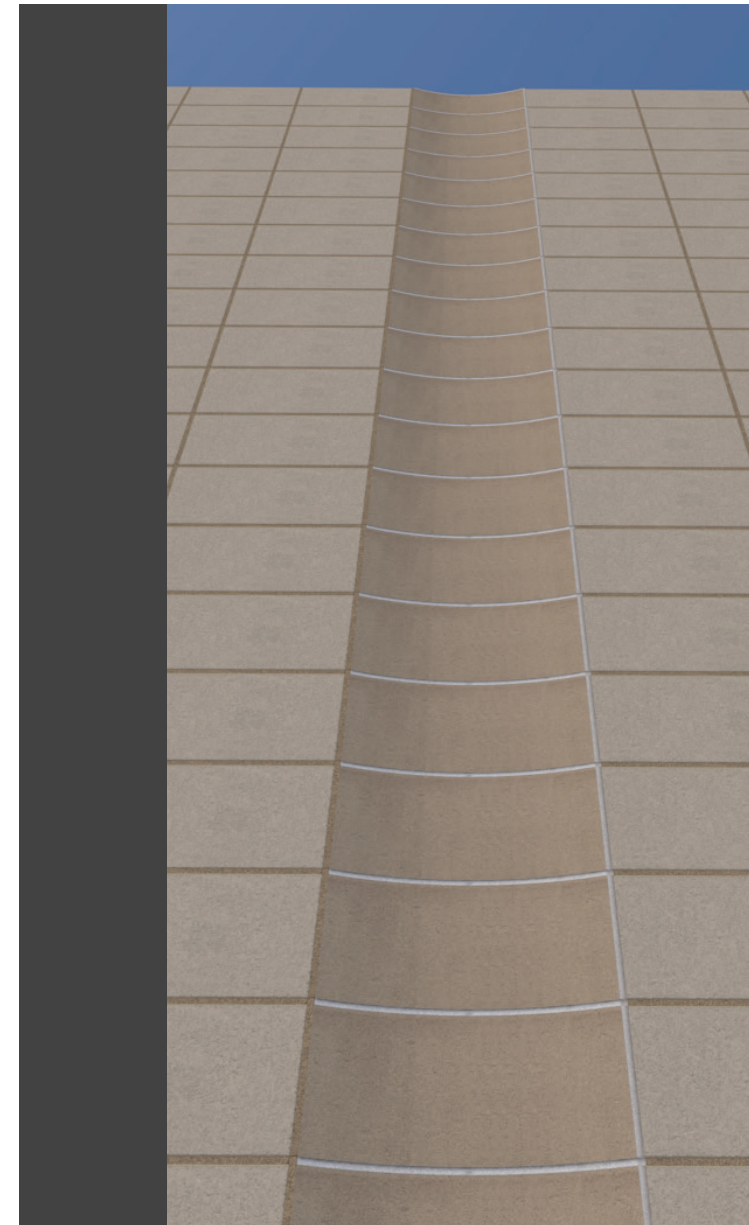
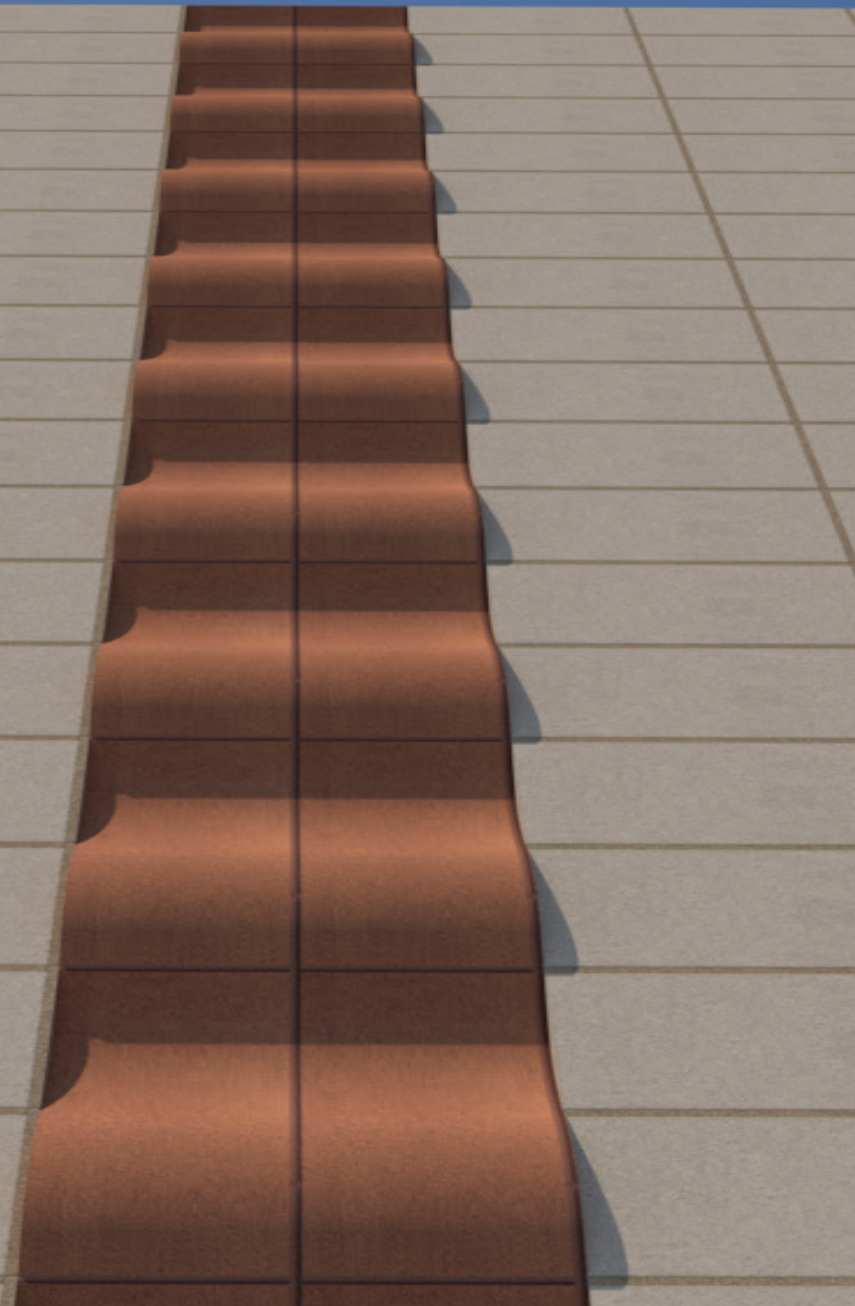
Gator
Wedge Stack
Shingle & Flip Stack

Suitable for indoor or outdoor applications.

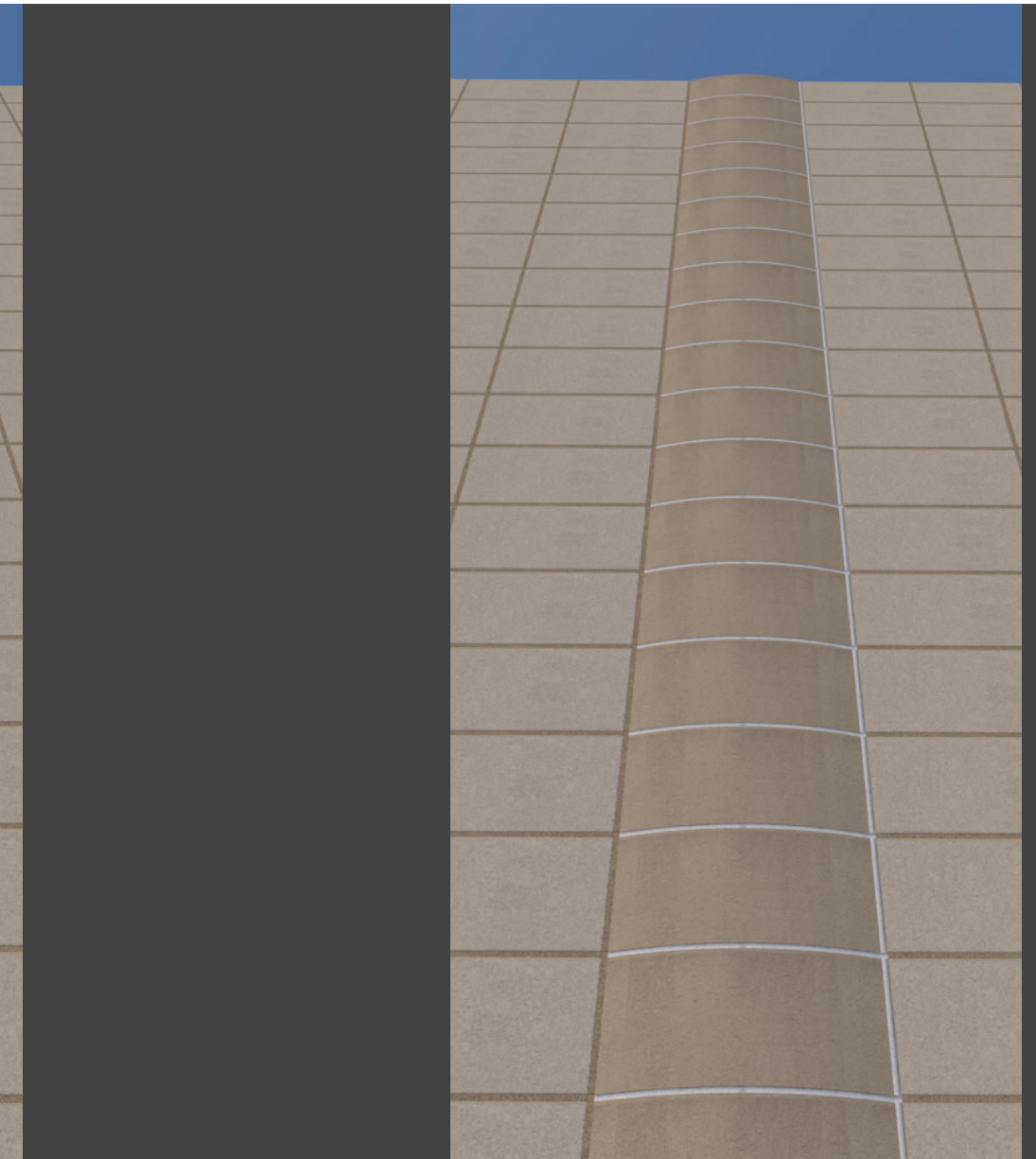
Please see Design Manual for anchorage and reinforcement suggestions.

Accent Columns

ABRI columns for vertical transitions or partitions



Concave



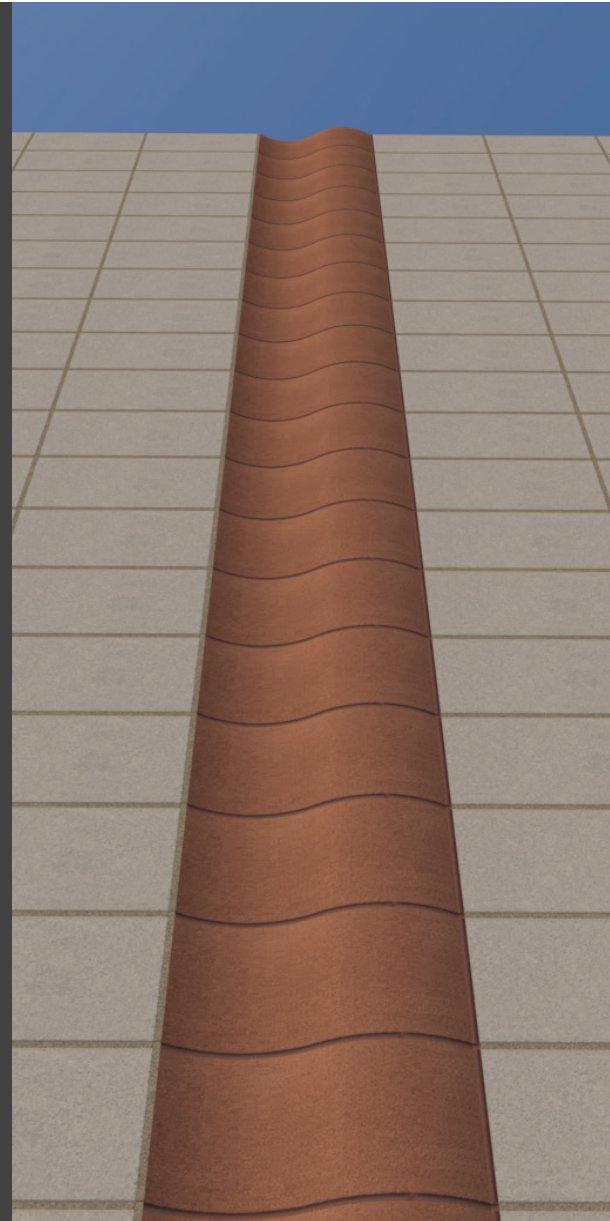
Convex



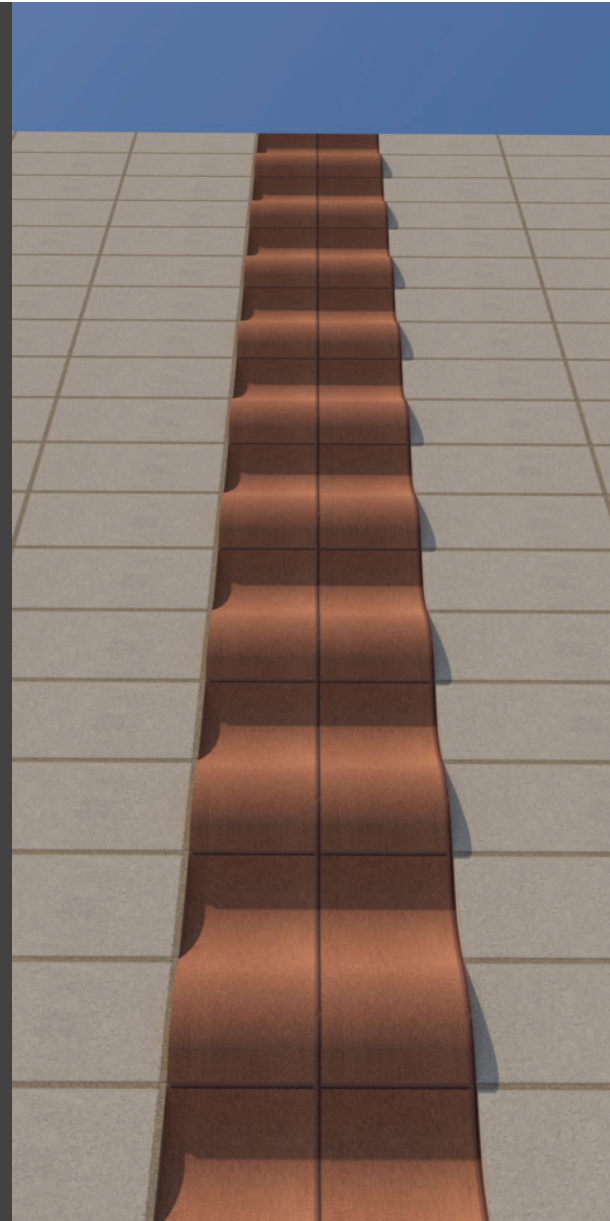
Shingle Vertical
Tent



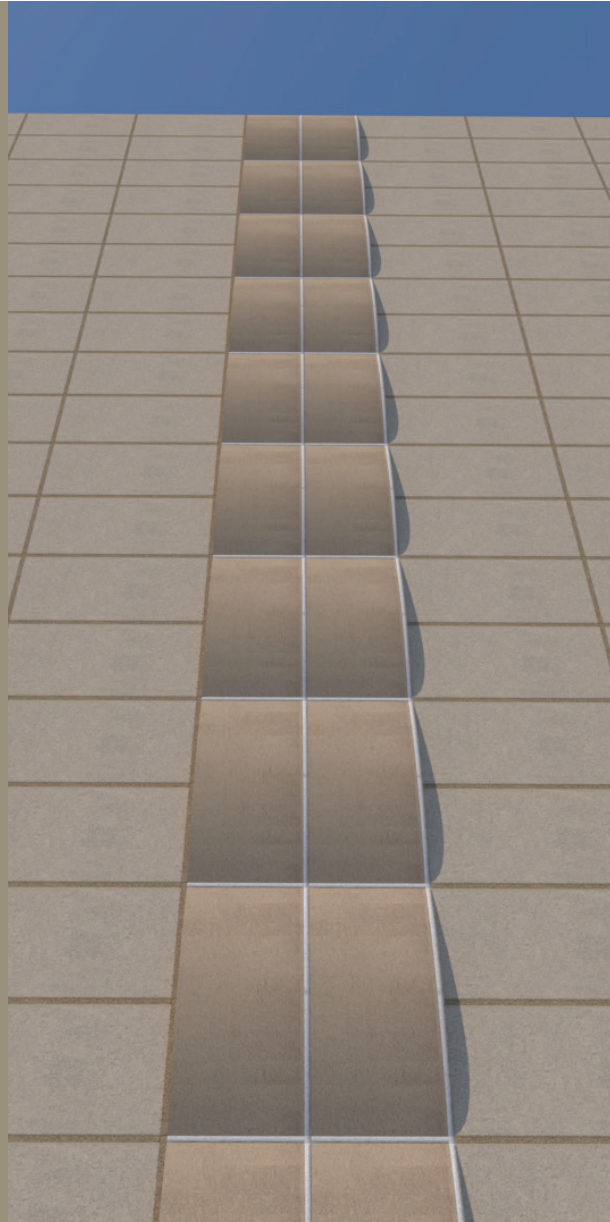
Shingle Vertical
Trough



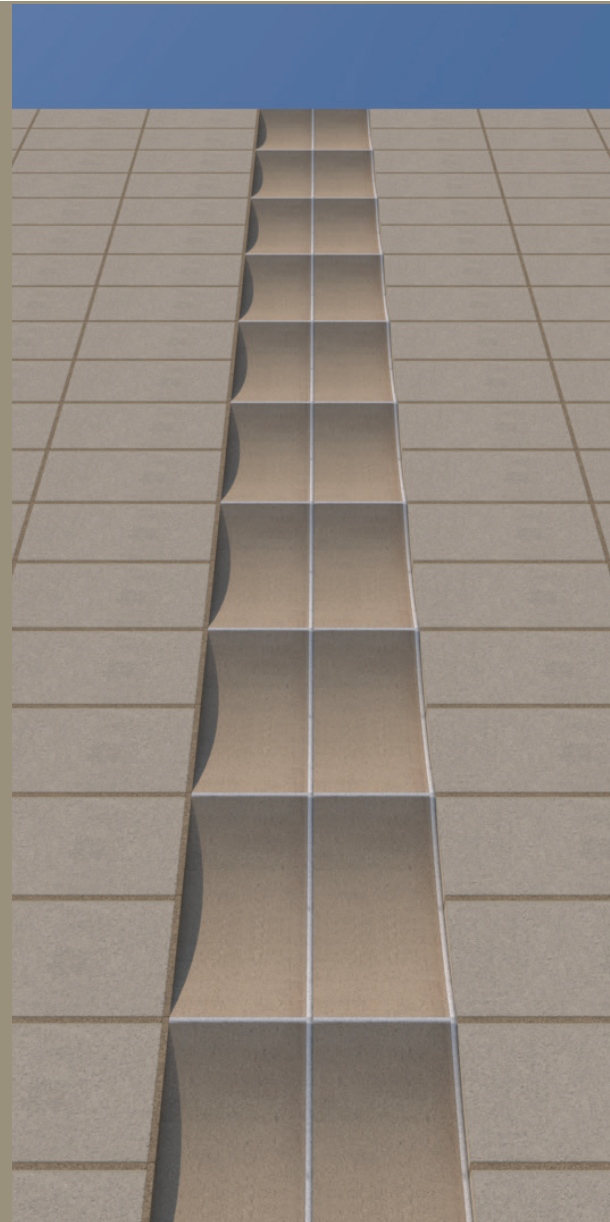
Serpentine



Serpentine Vertical



Convex Vertical



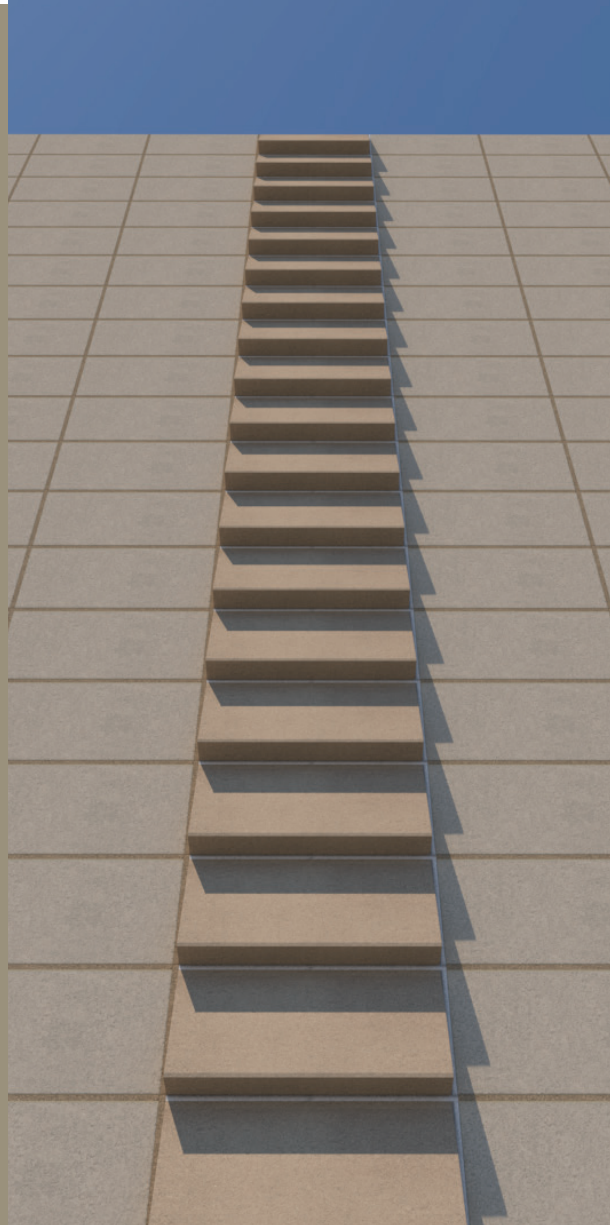
Concave Vertical



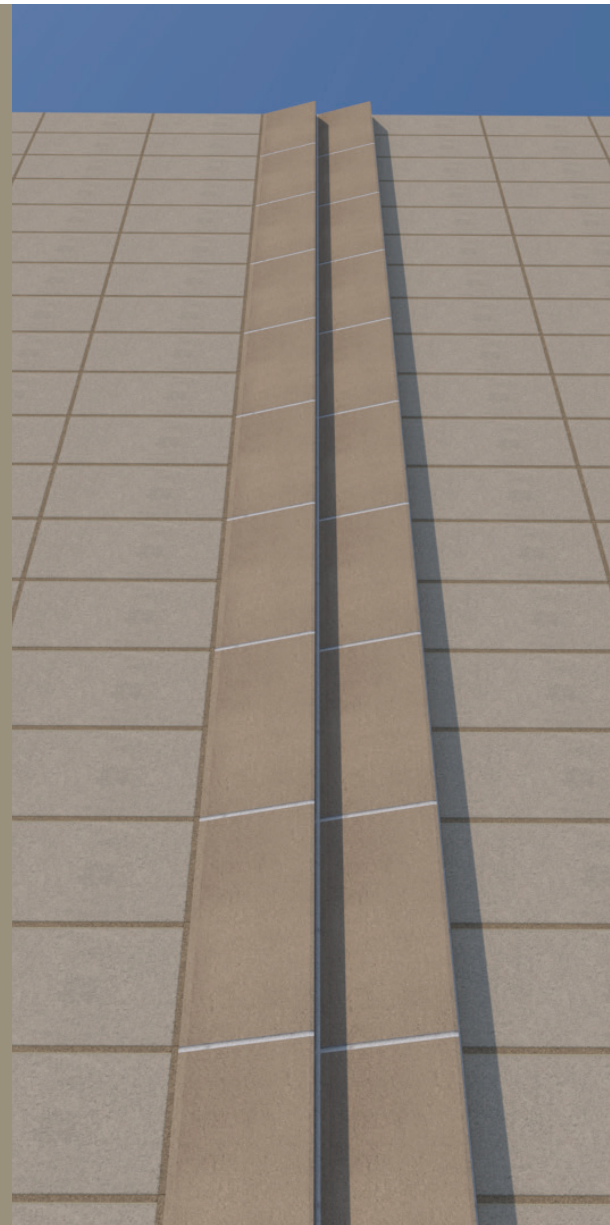
Wedge Vertical



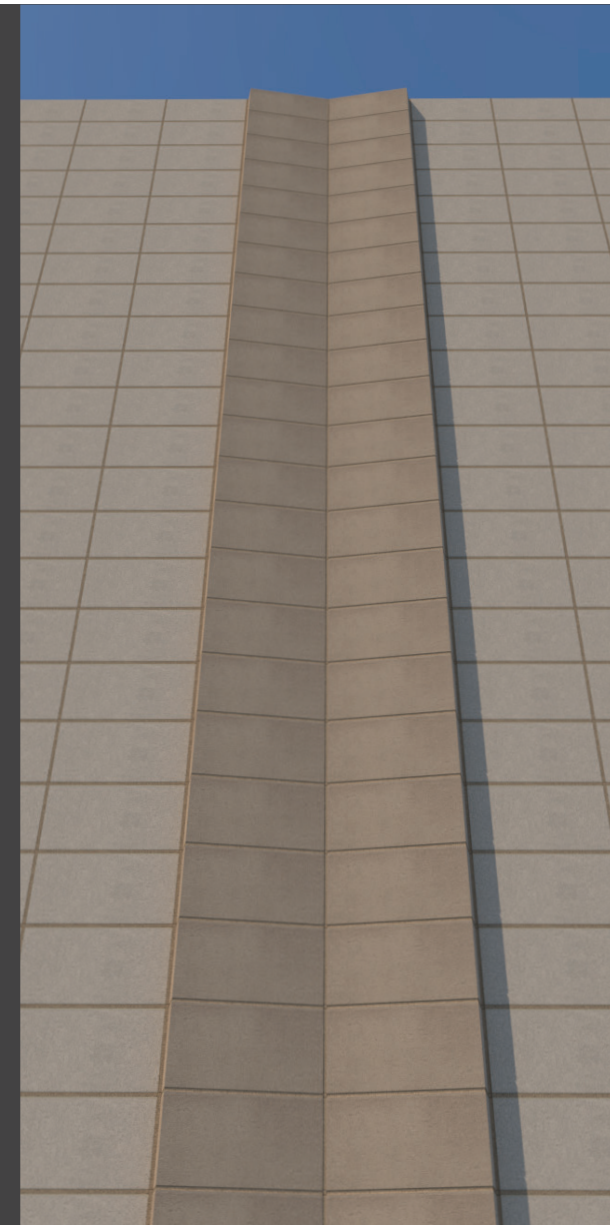
Wedge



Shingle



Shingle Vertical



Opposed Wedges

Accent Bands

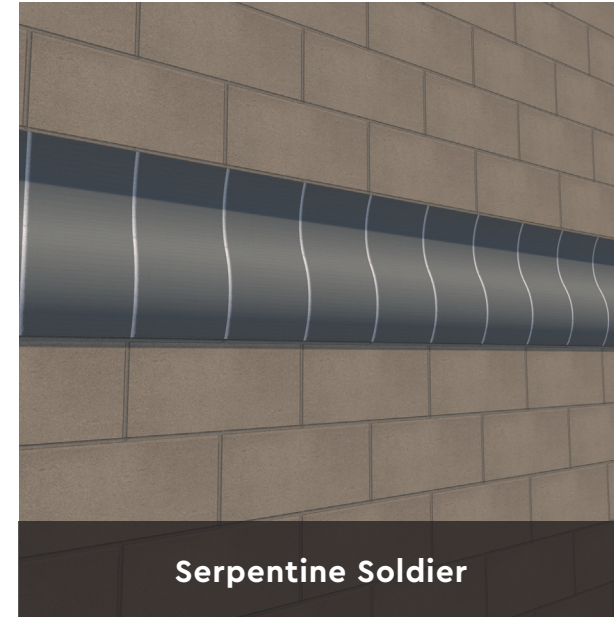
ABRI Horizontal Accents



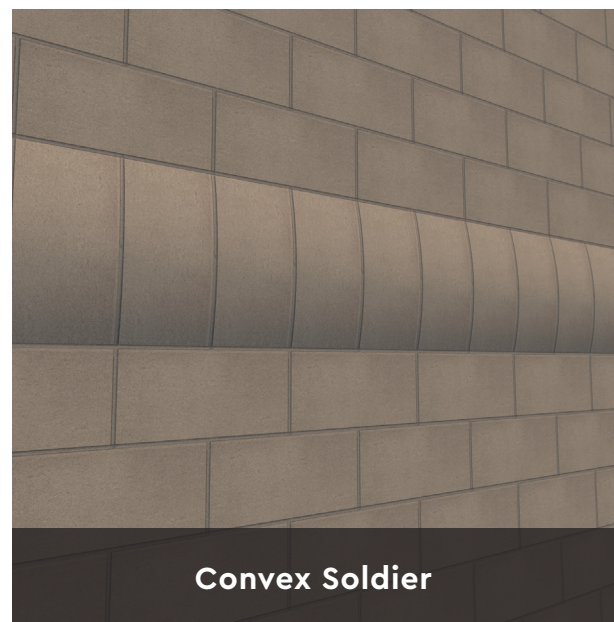
Concave Soldier



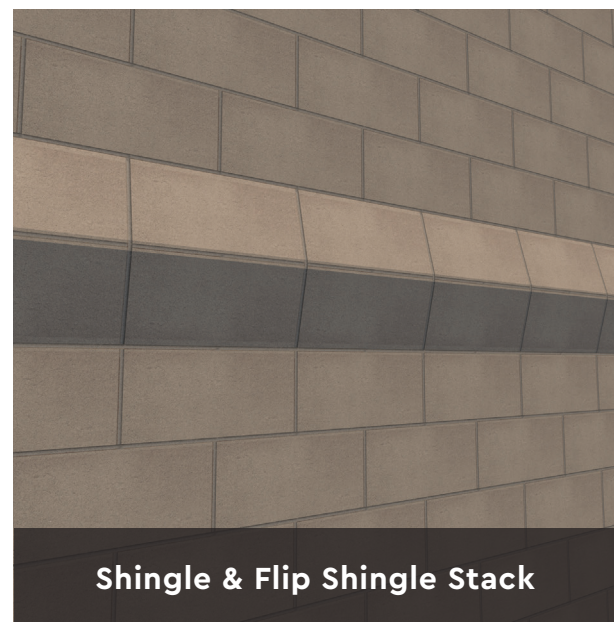
Wedge Soldier



Serpentine Soldier



Convex Soldier

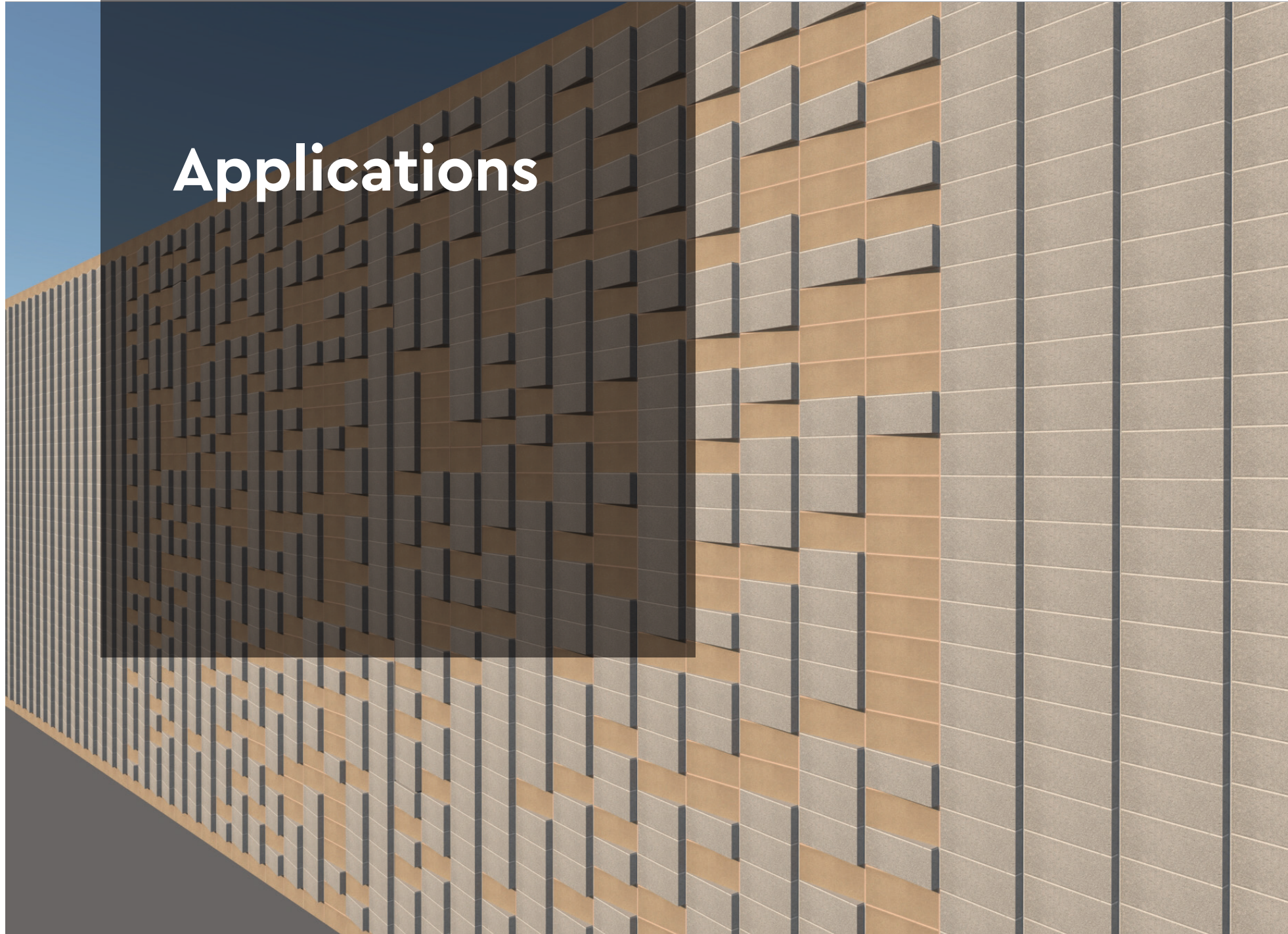


Shingle & Flip Shingle Stack



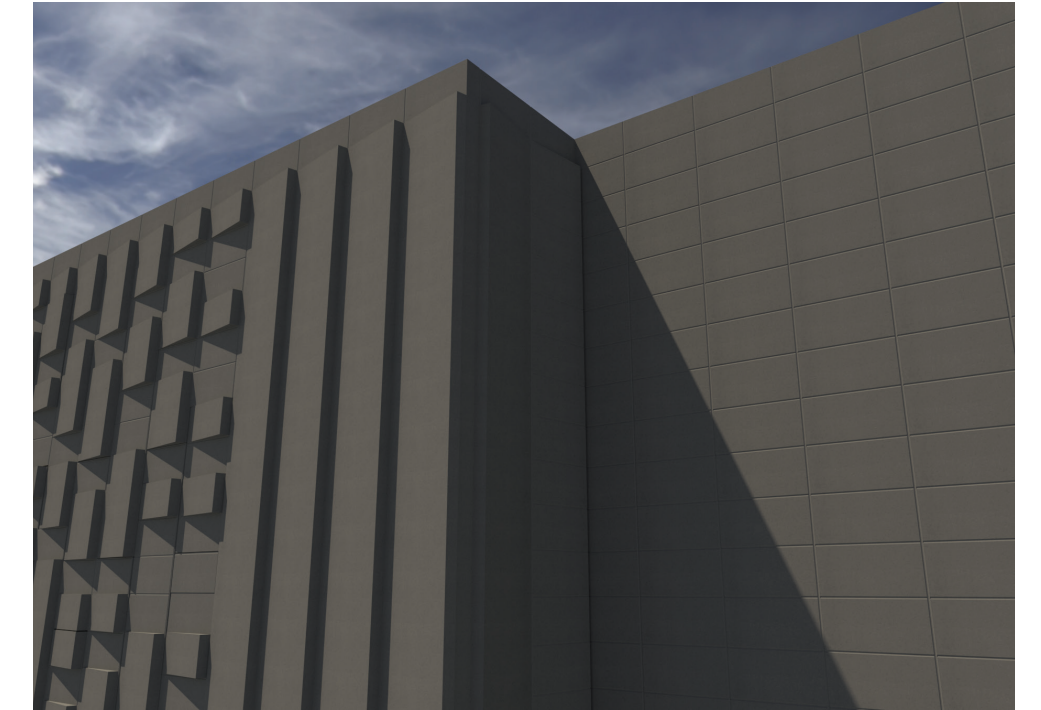
Serpentine Soldier Alternating

Applications

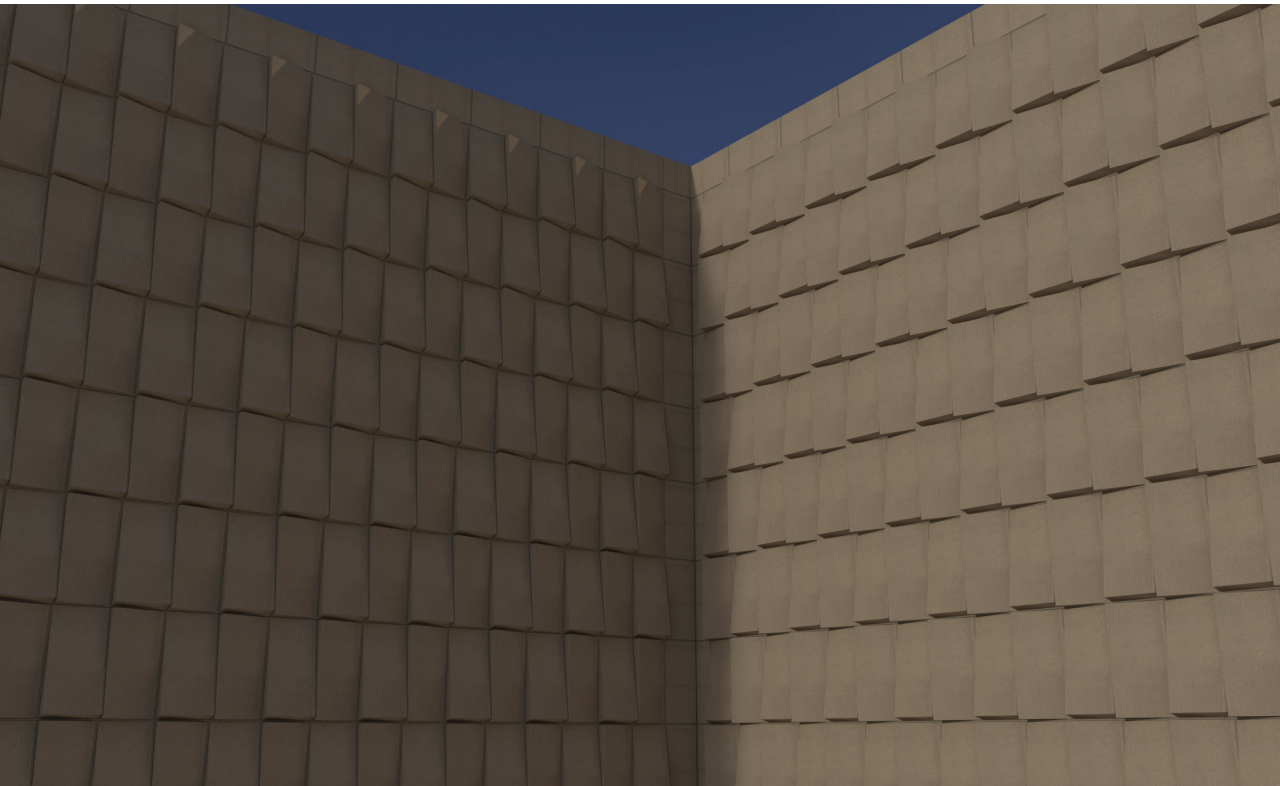


**Thermal Mass Wall – Interior
Rhombus Pattern**

ABRI is excellent for construction of decorative thermal mass walls as part of a passive solar design strategy.



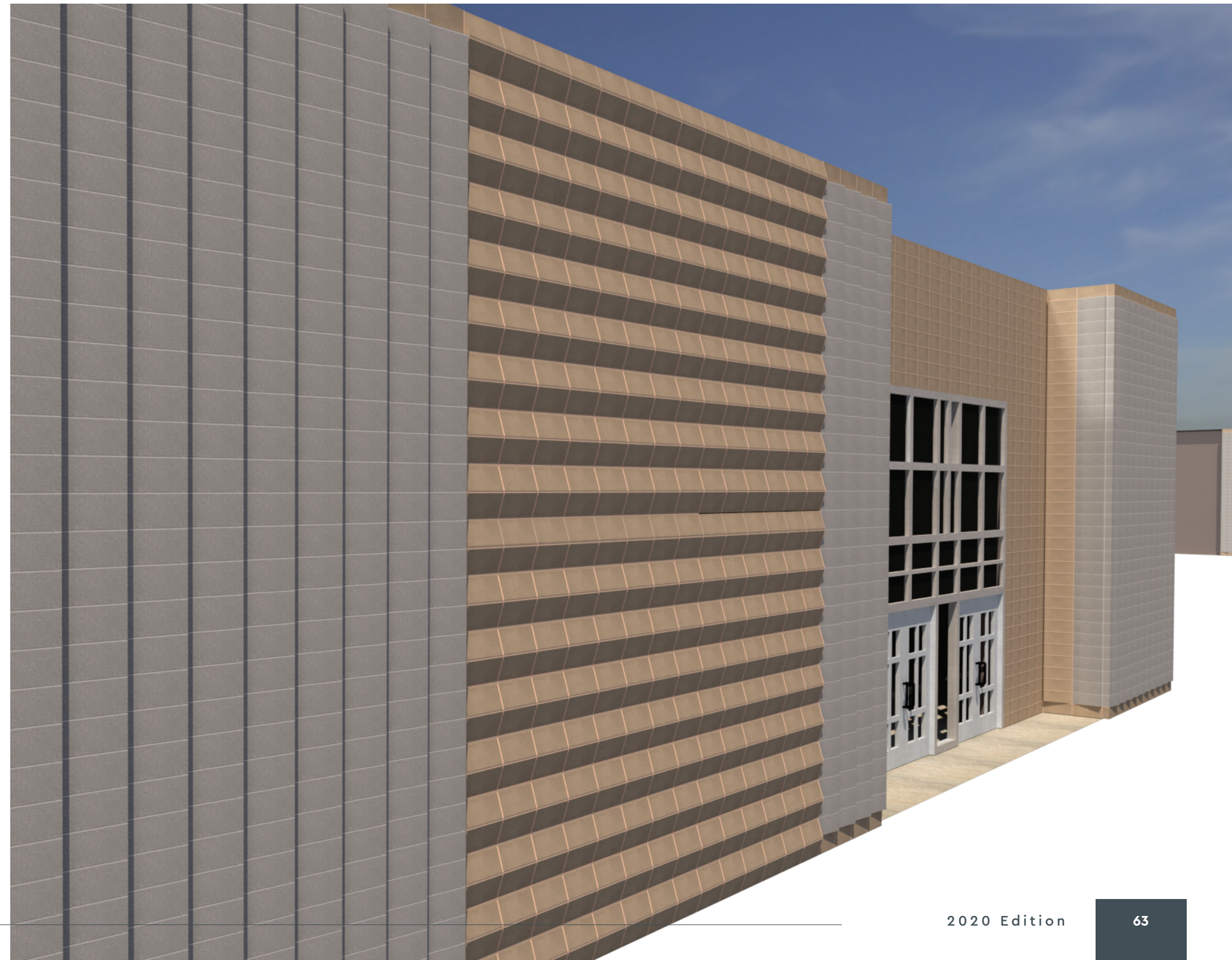
**Corner
Random Wedge Stack, Wedge
Stack**



**Corner
Diamondback pattern**

w

**Entryway
(following page)
Wedge Stack (left)
Map Fold (middle)**

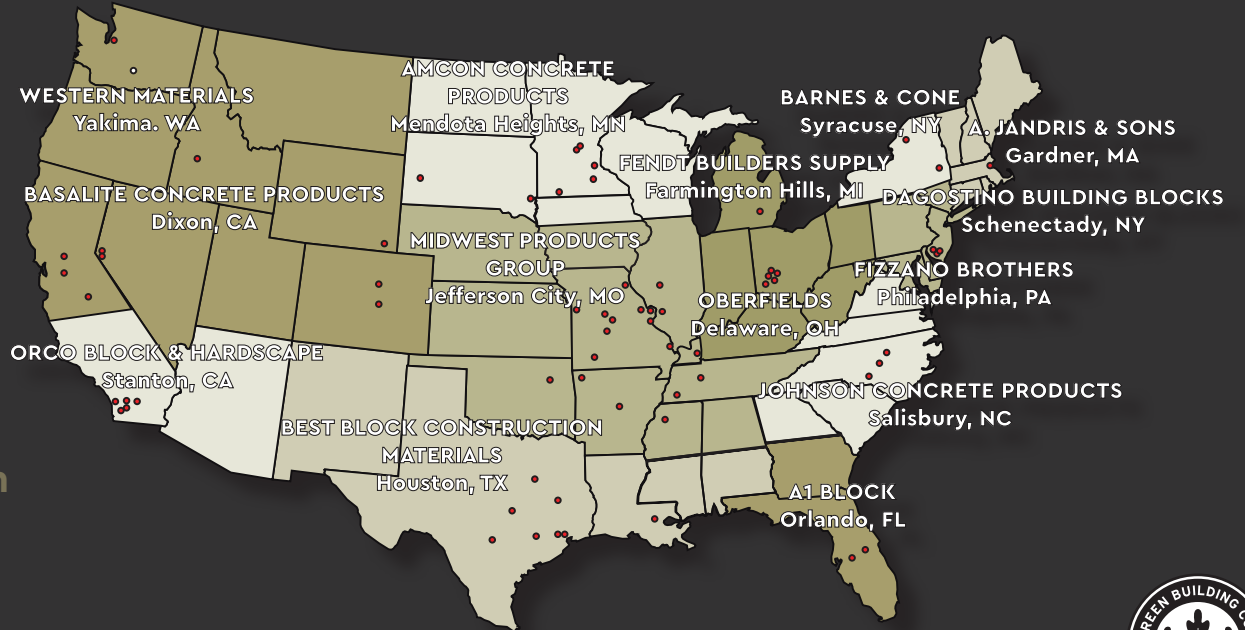




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