

The background is a dark, monochromatic architectural rendering of a building's exterior. It features a grid of window frames and vertical fins, with a prominent rainscreen system highlighted in a lighter shade. The overall aesthetic is technical and modern.

# Frontek

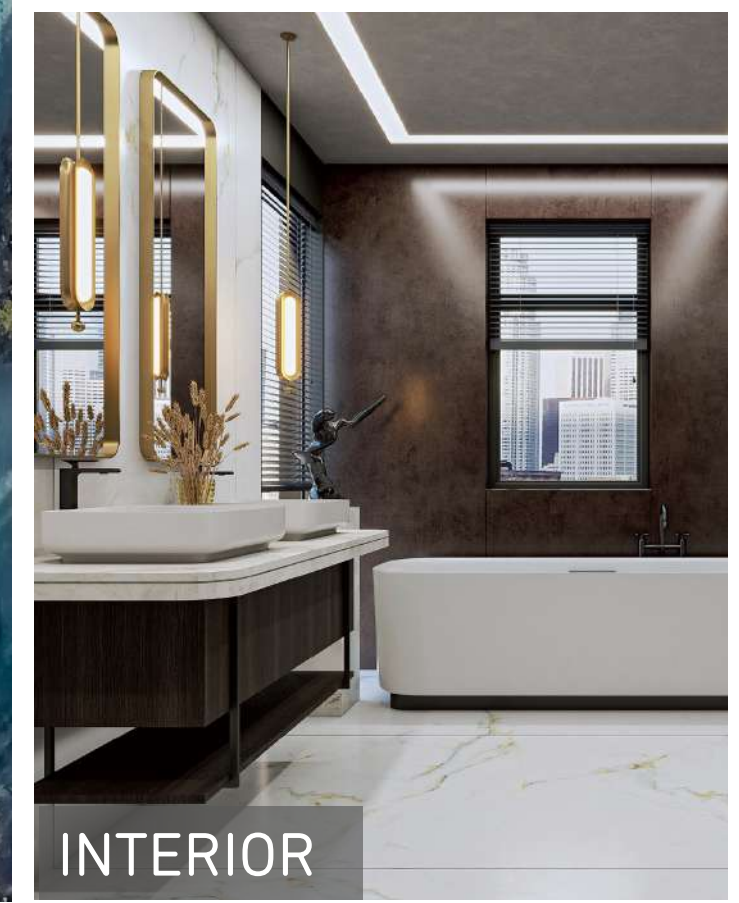
INTELLIGENT EXTRUSION

SPECIFYING EXTRUDED  
PORCELAIN RAINSCREEN SYSTEMS

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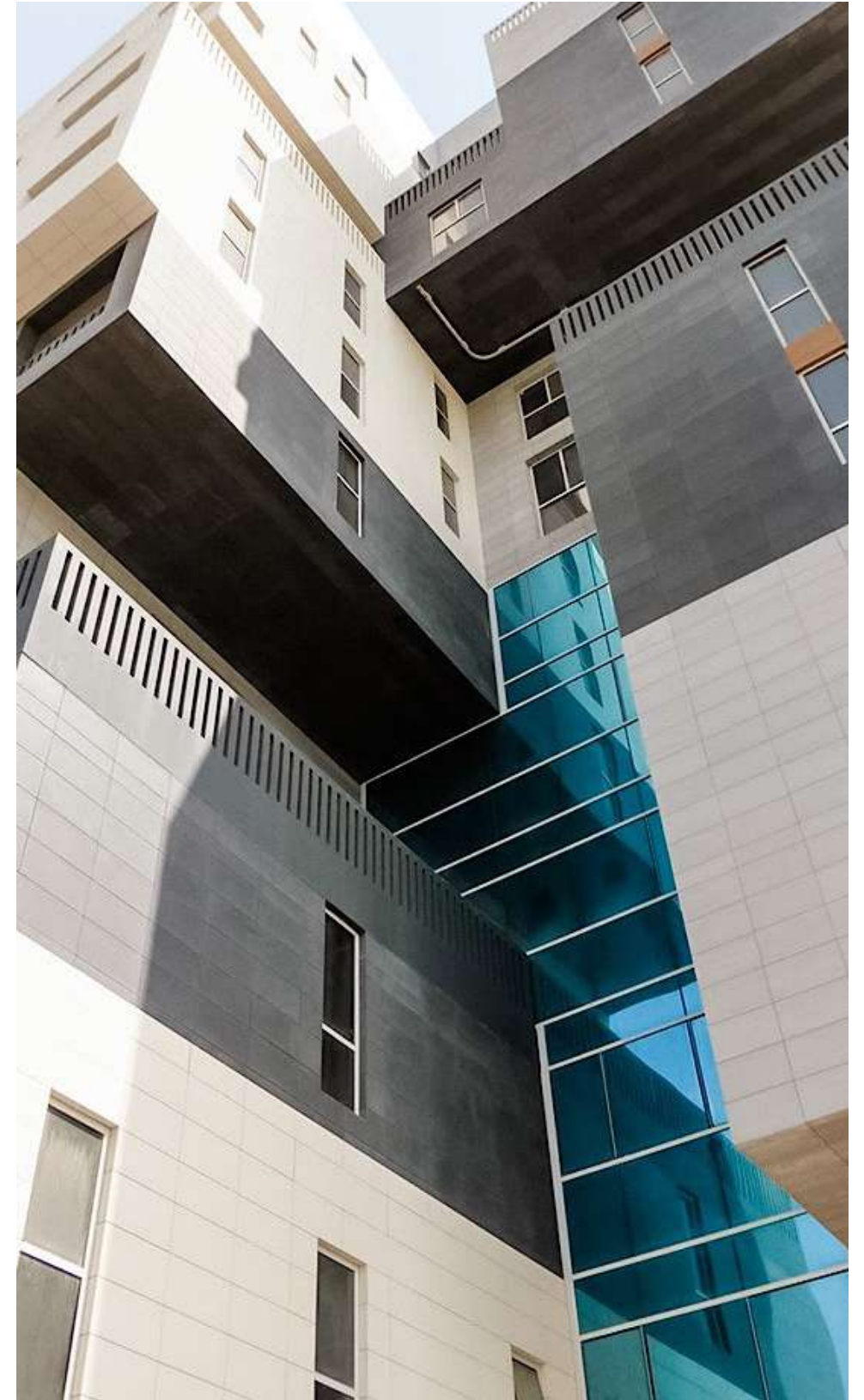




Single Source Partner for Superior Porcelain Systems - 80 Years  
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## SPECIFYING EXTRUDED PORCELAIN RAINSCREEN SYSTEMS

COURSE #A1001 PROVIDER #404109551 CREDIT 1 LU/HSW



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## SPECIFYING EXTRUDED PORCELAIN RAINSCREEN SYSTEMS

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## COURSE OBJECTIVES

- CLADDING + RAINSCREEN: WHAT IS THE DIFFERENCE?
- RAINSCREEN: BENEFITS + ADVANTAGES
- INTRO: EXTRUDED DOUBLE-VENTILATED PORCELAIN FAÇADE SYSTEM
- US CODE COMPLIANCE
- FINISH OPTIONS + GLOBAL TRENDS

SPECIFYING EXTRUDED PORCELAIN RAINSCREEN SYSTEMS

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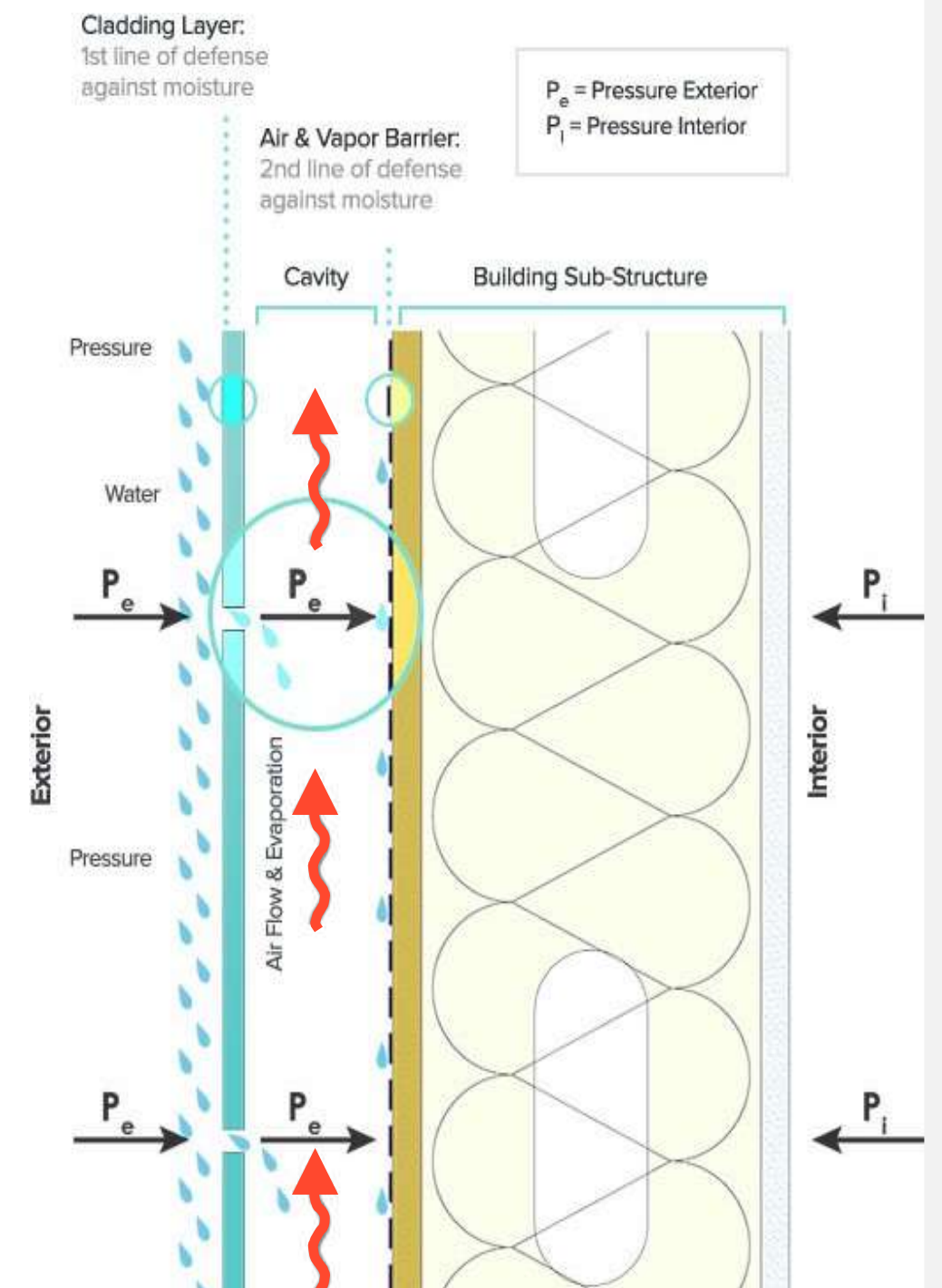


# NORWEGIAN BUILDING RESEARCH INSTITUTE

- Published study, "making air-pressure between the screen and the wall equal to that of the outside" in 1960

# THE ARCHITECTURAL ALUMINUM MANUFACTURERS ASSOCIATION – AAMA

- Published first official guide, "Pressure Equalizing Designs" 1971
- Today rainscreen cladding creates an aesthetic visual impact with a wide range of materials, finishes, textures and colors



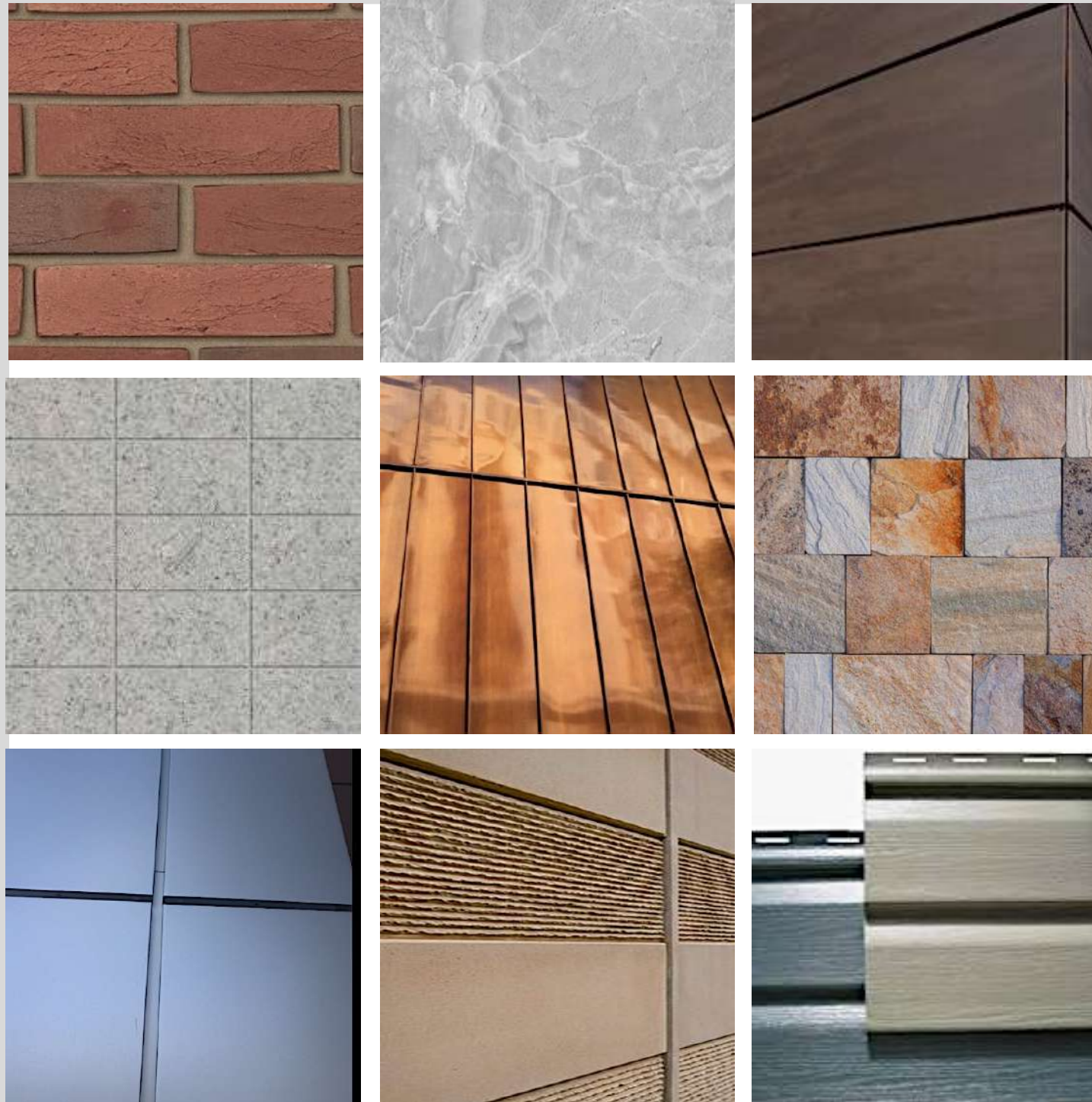


A photograph of a modern building facade featuring a mix of light-colored horizontal panels and dark grey panels. The building has several windows, some with dark frames and others with light-colored blinds. A balcony with a glass railing is visible on the upper left. The sky is clear and blue.

WHAT IS CLADDING?



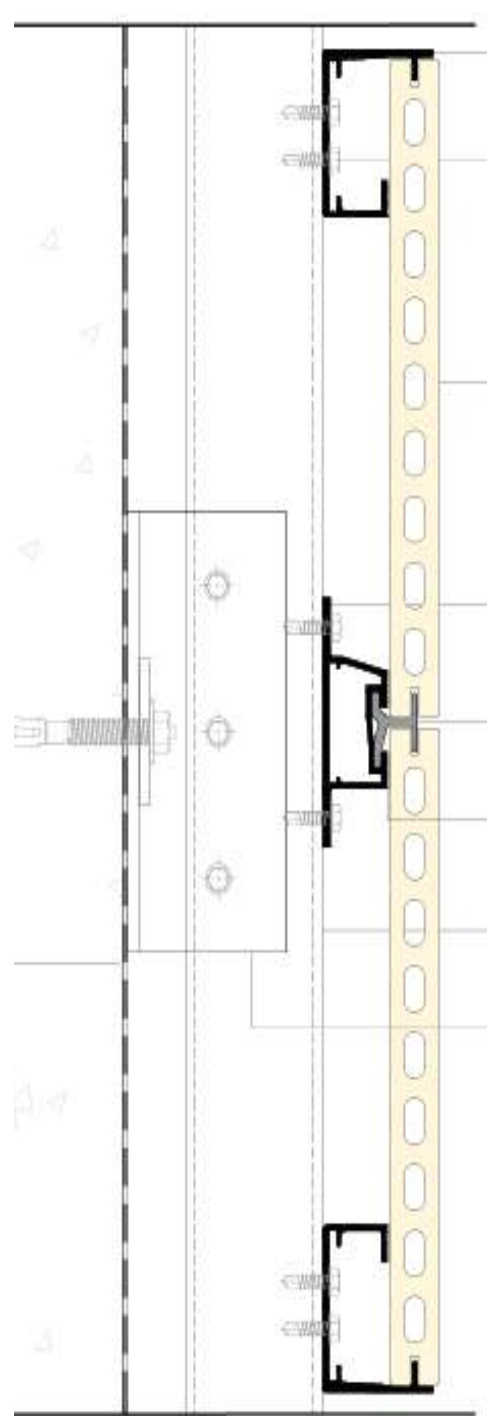
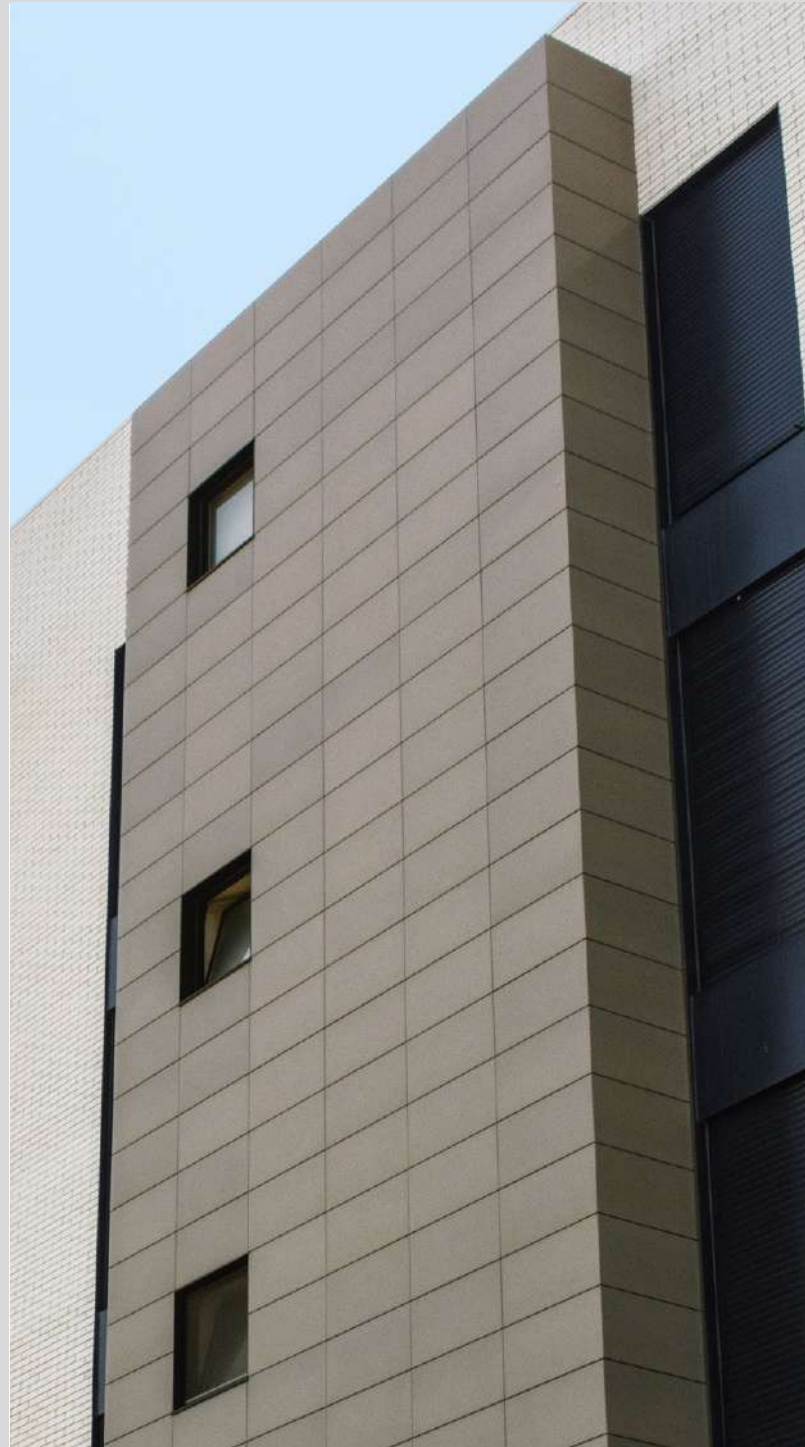
# WHAT IS CLADDING?



- One material over another to provide a skin or layer
- A product, assembly or system attached to an exterior wall
- Cladding adds a degree of thermal insulation, weather resistance and protection
- Buildings still need to be weather / water-proofed with an impervious material

Brick  
Wood  
Marble  
Granite  
Stone  
Porcelain  
Copper  
Metal  
ACM  
3D  
Concrete  
Vinyl  
Siding  
Tile Panels  
Composite  
EIFS

# IS CLADDING STRUCTURAL?



- Cladding is attached to primary building structure
- Forms non-structural external surface
- Transfers wind, snow, impact loads to the frame + foundation
- When choosing cladding material, evaluate the following:
  - Live Loads / Dead Loads
  - Wind Speeds [PSF]
  - Building Deflections
  - Interstory drift of IDR [displacement between two consecutive floors]
  - Seismic – 1997 UBC / benchmark
  - Performance of system + materials



# WHAT IS A RAINSCREEN?





# RAINSCREENS



- Exterior cladding attached to a building
- A rainscreen is a “gap of air” “between” cladding and the structure of the building
- It is the “integration” of the “cladding with the air gap” that creates the rainscreen
- Critical “gap” or “cavity” behind cladding that provides air circulation and an area for drainage, preventing water and moisture from being trapped



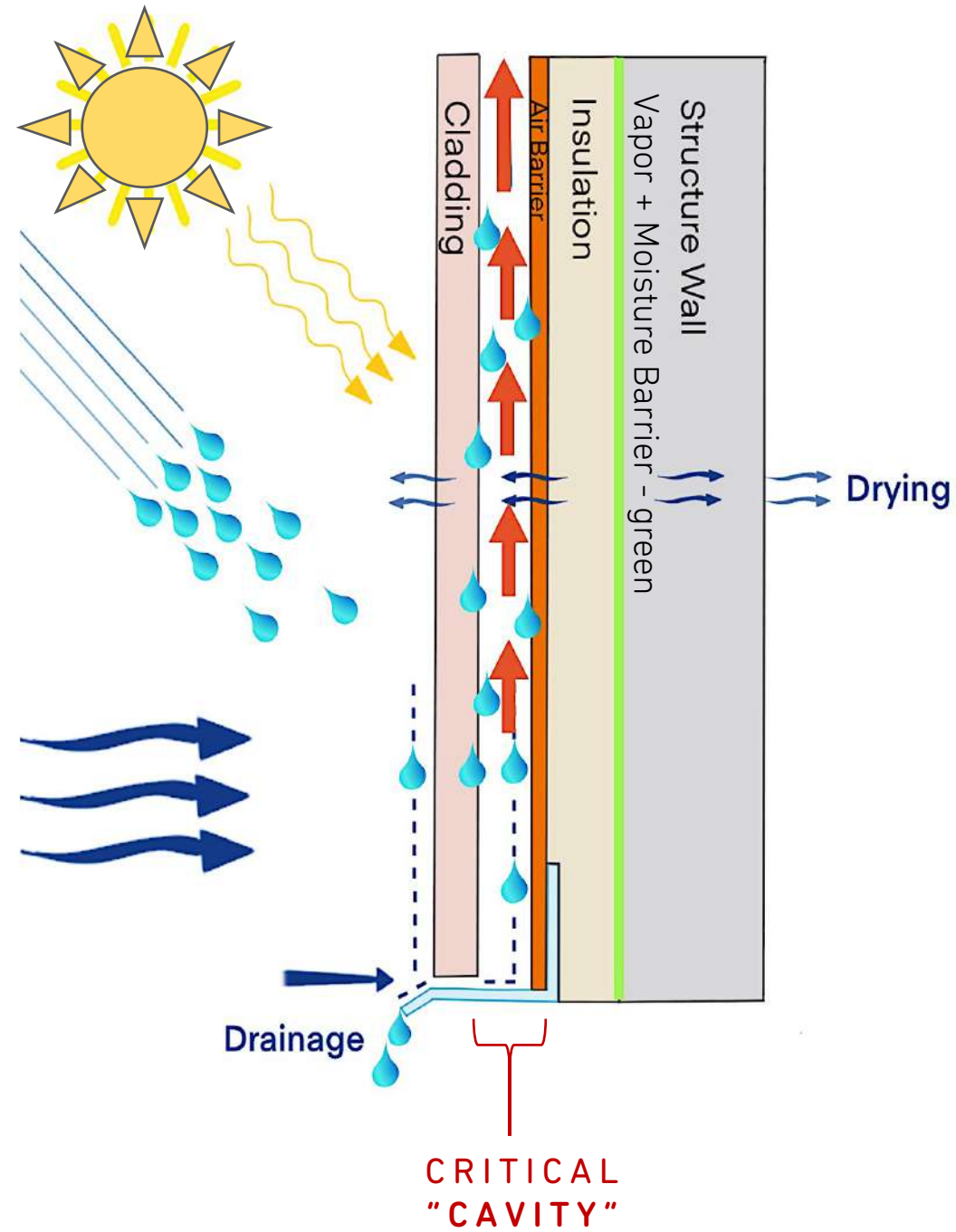
# BENEFITS OF RAINSCREEN SYSTEMS



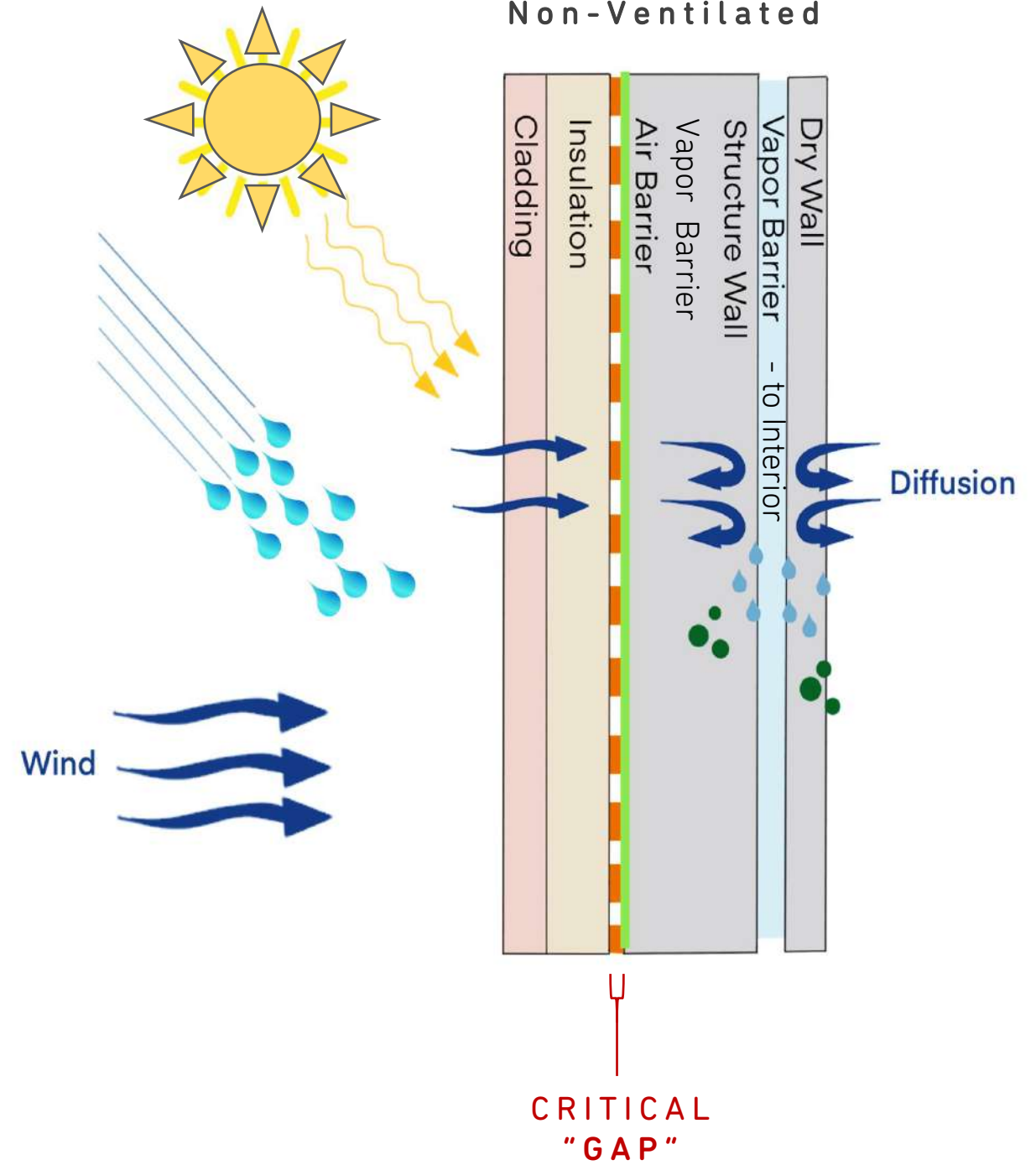
- Gap = extra layer of insulation for improved thermal performance
- Decreases the impact of rain, snow, ice + wind more than traditional cladding
- Reduces water absorption
- Reduces sound to interior
- Increases solar reflectivity
- Improve a buildings resistance to cracking
- Resistance to air + chemical pollution
- Provides design flexibility

# RAINSCREEN SYSTEMS

DRAIN and BACK VENTILATED  
Ventilated



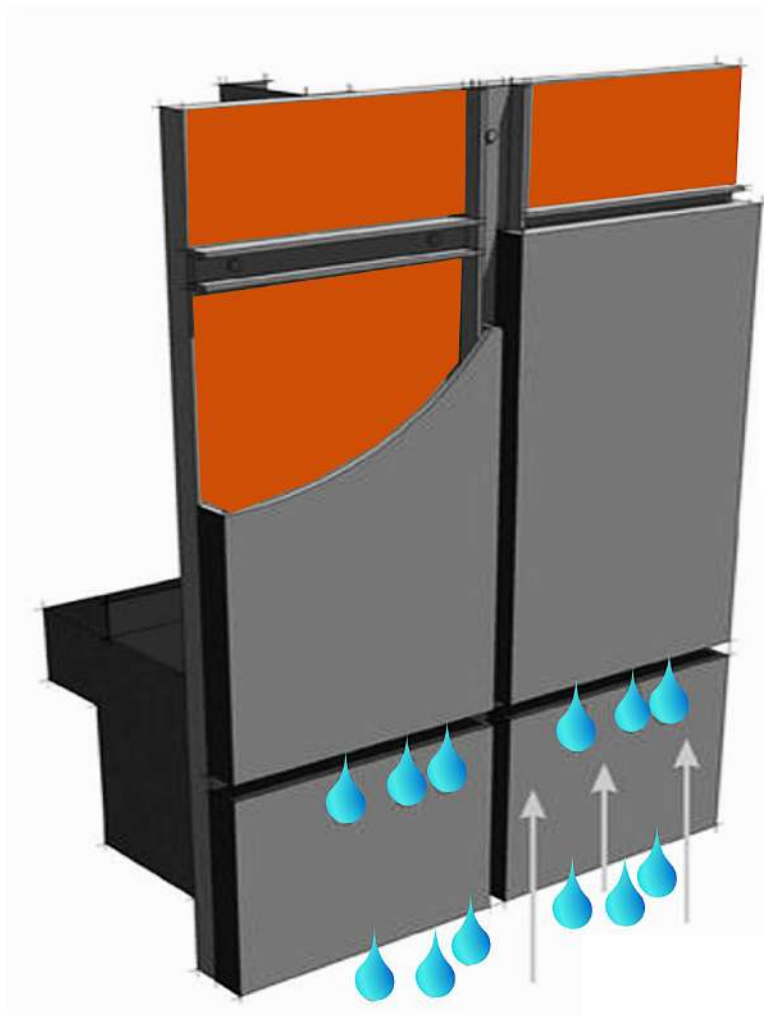
PRESSURE EQUALIZED  
Non-Ventilated





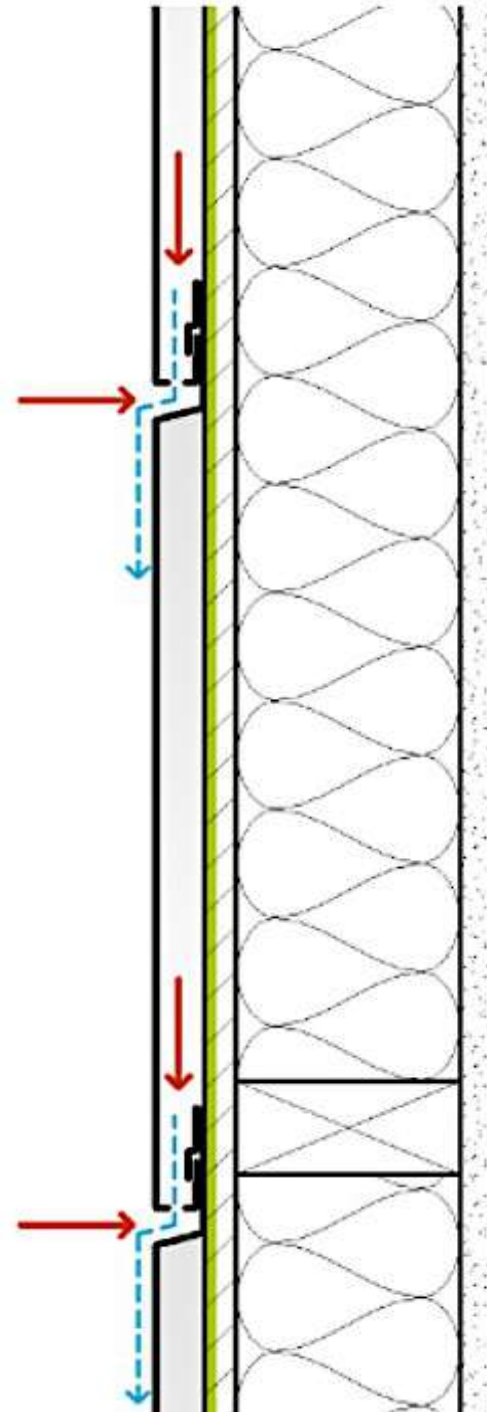
# PRESSURE EQUALIZED

- AIR
- WATER
- DRAINAGE PLANE



AIR ENTERS

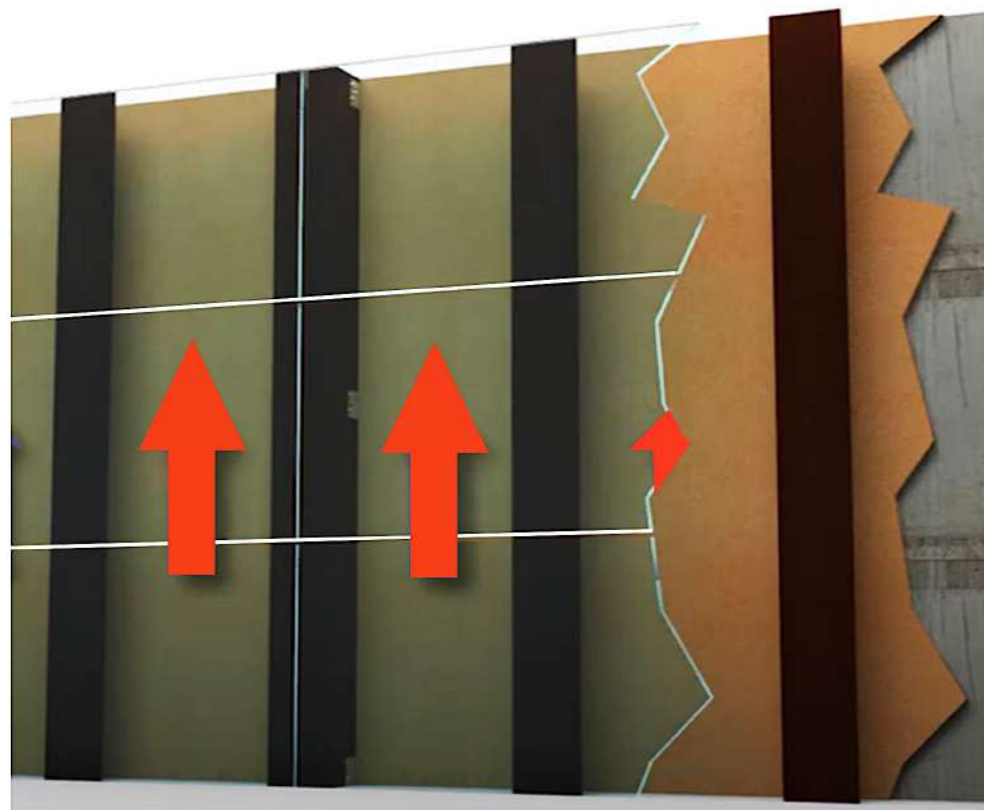
WATER, MOISTURE, VAPOR OUT



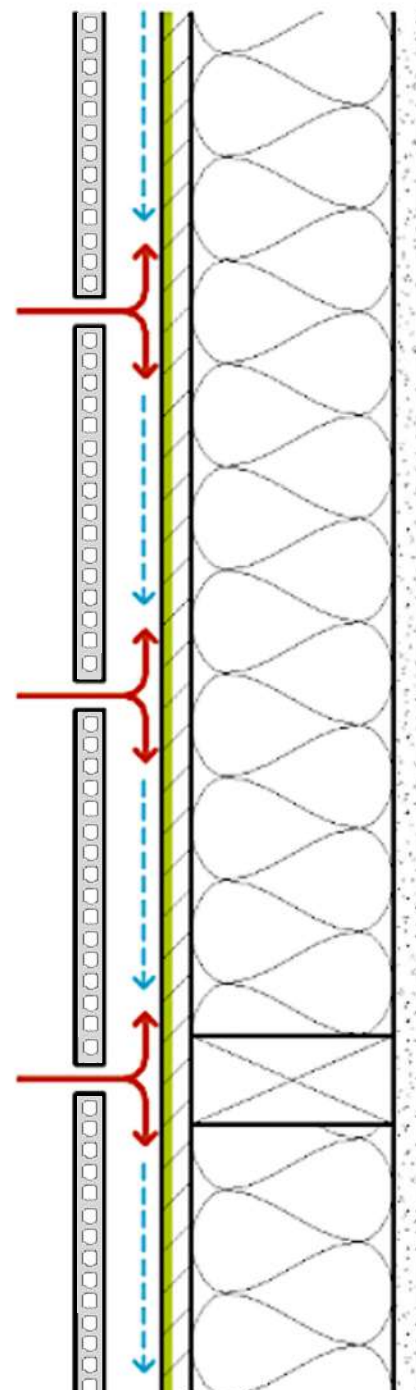
- Closed at the top and sides
- Air cannot exit at the top and circulates back down
- Open at the bottom
- Non-ventilated rainscreen system
- Vapor, moisture + rain weep out from each panel

# DRAIN and BACK VENTILATED

- AIR
- WATER
- DRAINAGE PLANE



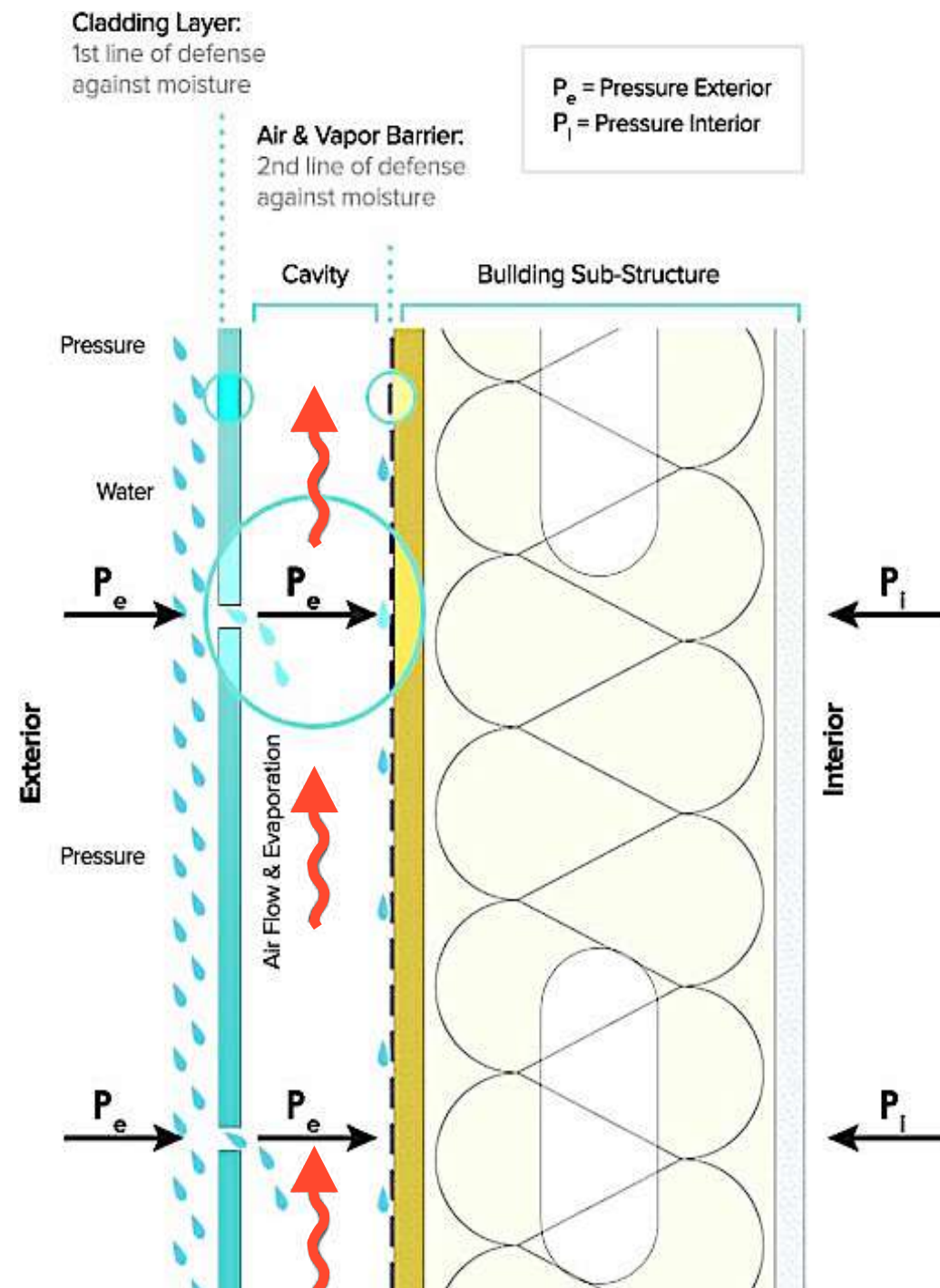
THE CHIMNEY EFFECT



- Engineered with the expectation cladding will drain
- No attempt to minimize the effects of wind or pressure equalization
- Rainscreen performs on unrestricted air movement in air CAVITY
- Designed to drain, dry most moisture and vapor
- No grout, gaskets, sealants, no reactions, no efflorescence. This is an open jointed system
- No mechanical stress between panels

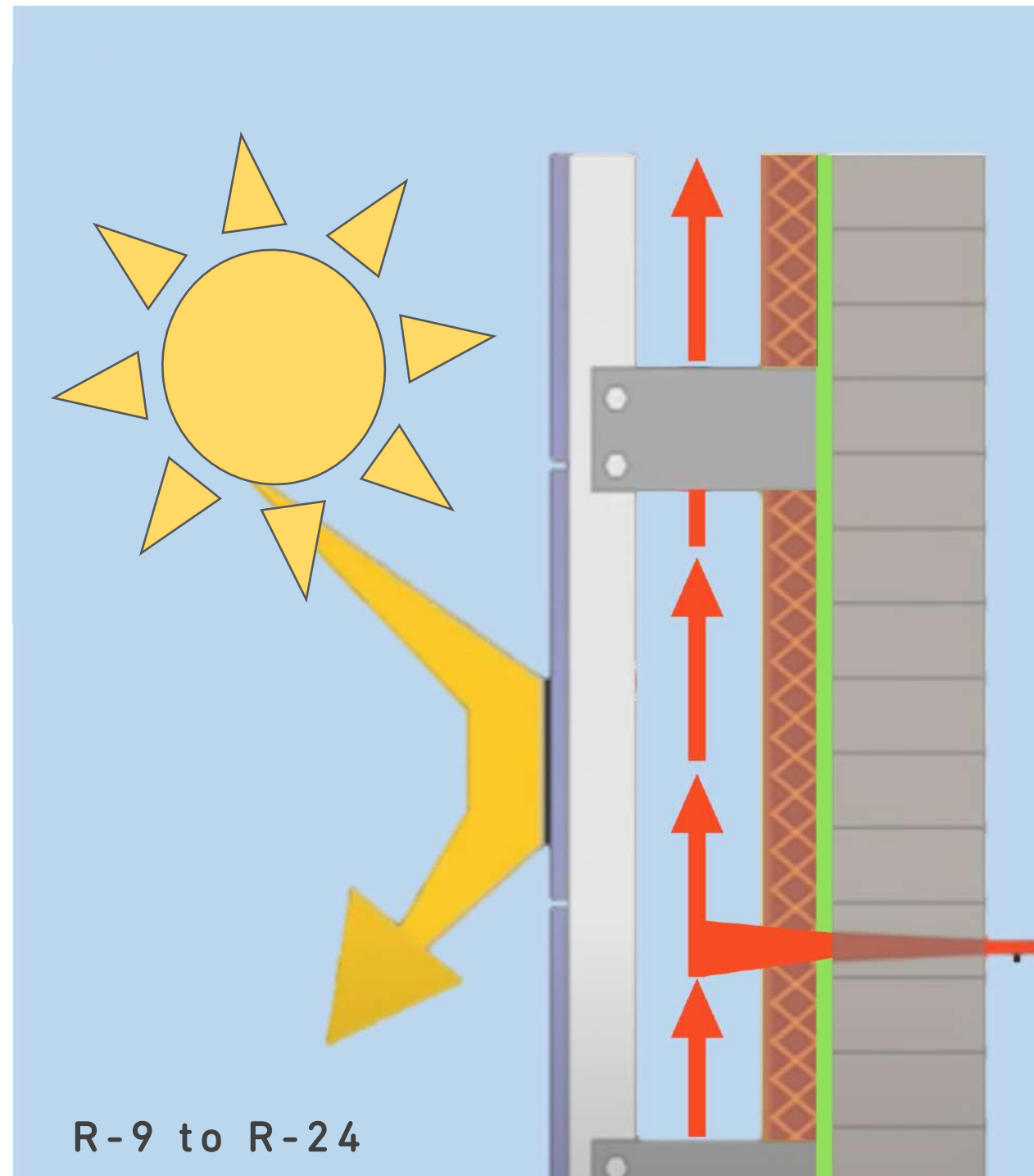


# DRAIN and BACK VENTILATED



- Cladding Layer = 1<sup>st</sup> line of defense against moisture
- Air and Vapor Barrier - 2<sup>nd</sup> line of defense against moisture
- $P_e$  = Pressure Exterior
- $P_i$  = Pressure Interior
- Open joints promote air movement and allows the rainscreen system to function
- Cavity allows unrestricted air flow + evaporation

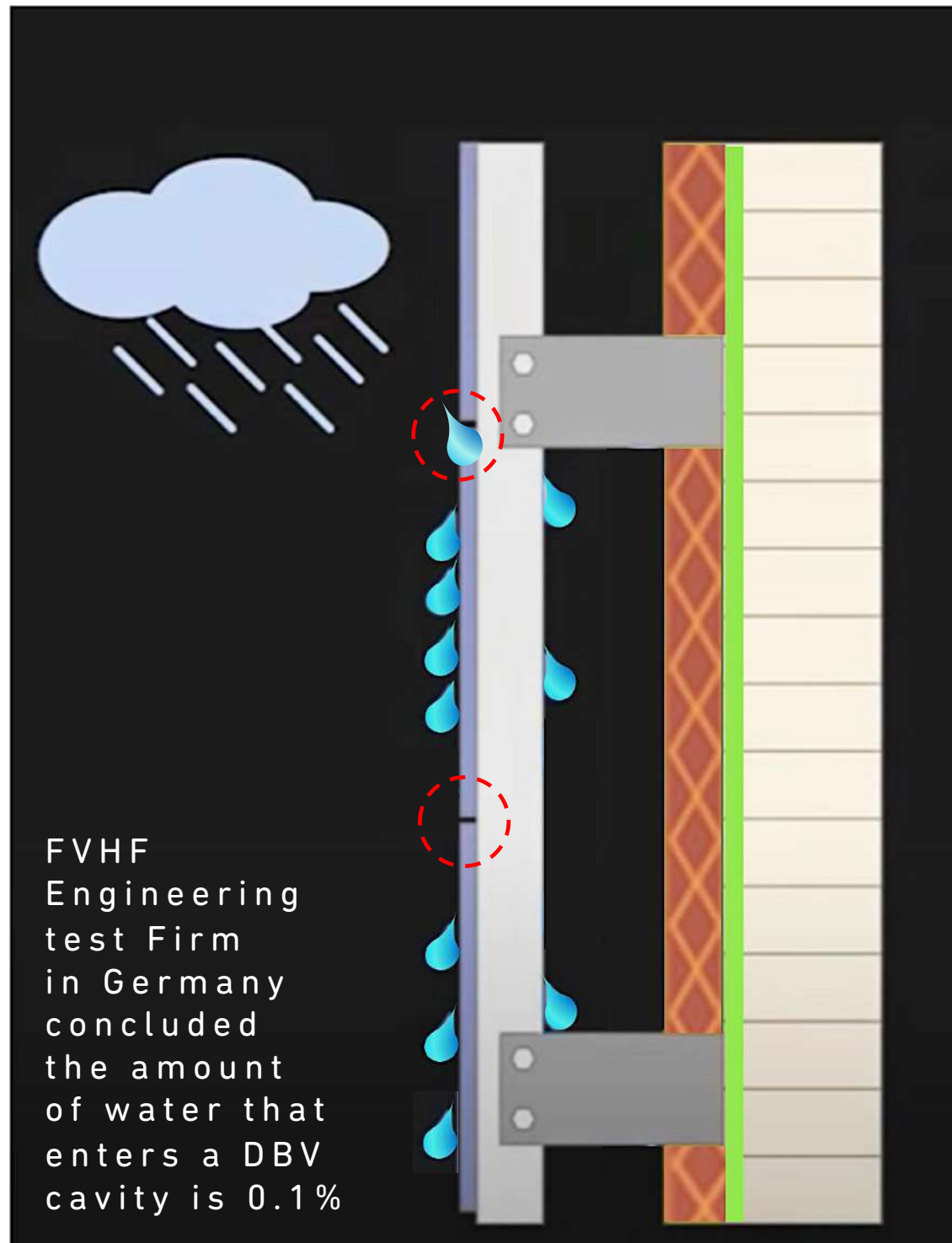
## RAINSCREENS SIGNIFICANTLY REDUCE SOLAR HEAT GAIN



- Air cavity improves interior comfort
- Overheating is reduced by the cavity breathing, open joints, extruded honeycomb panels
- Open vertical and horizontal joints let air in and out
- Reduces thermal energy that reaches the interior
- Internal structure is protected from direct radiation by thermal insulation
- Cooler in summer retaining heat during winter

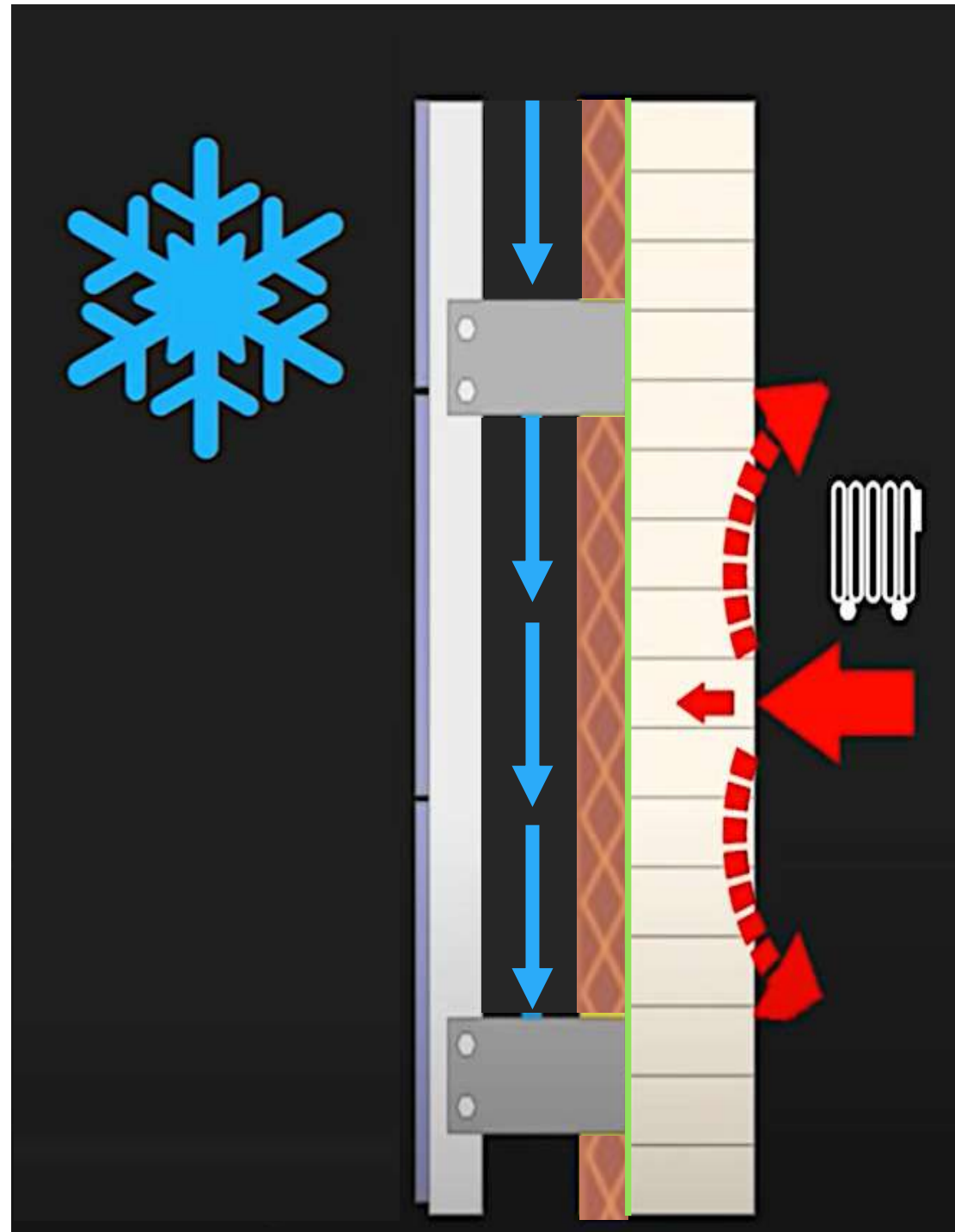


# PERMEABILITY AND WATER PROTECTION



- Exterior surface breaks force of wind driven water movement
- Water that gets through the small breaches loses its momentum
- Behind cladding and insulation is a weather resistant barrier
- Weather resistant barrier repels vapor, moisture and water
- In driving rain, a membrane forms across the joints
- Moving air provides protection from the elements

## RAINSCREENS DURING WINTER

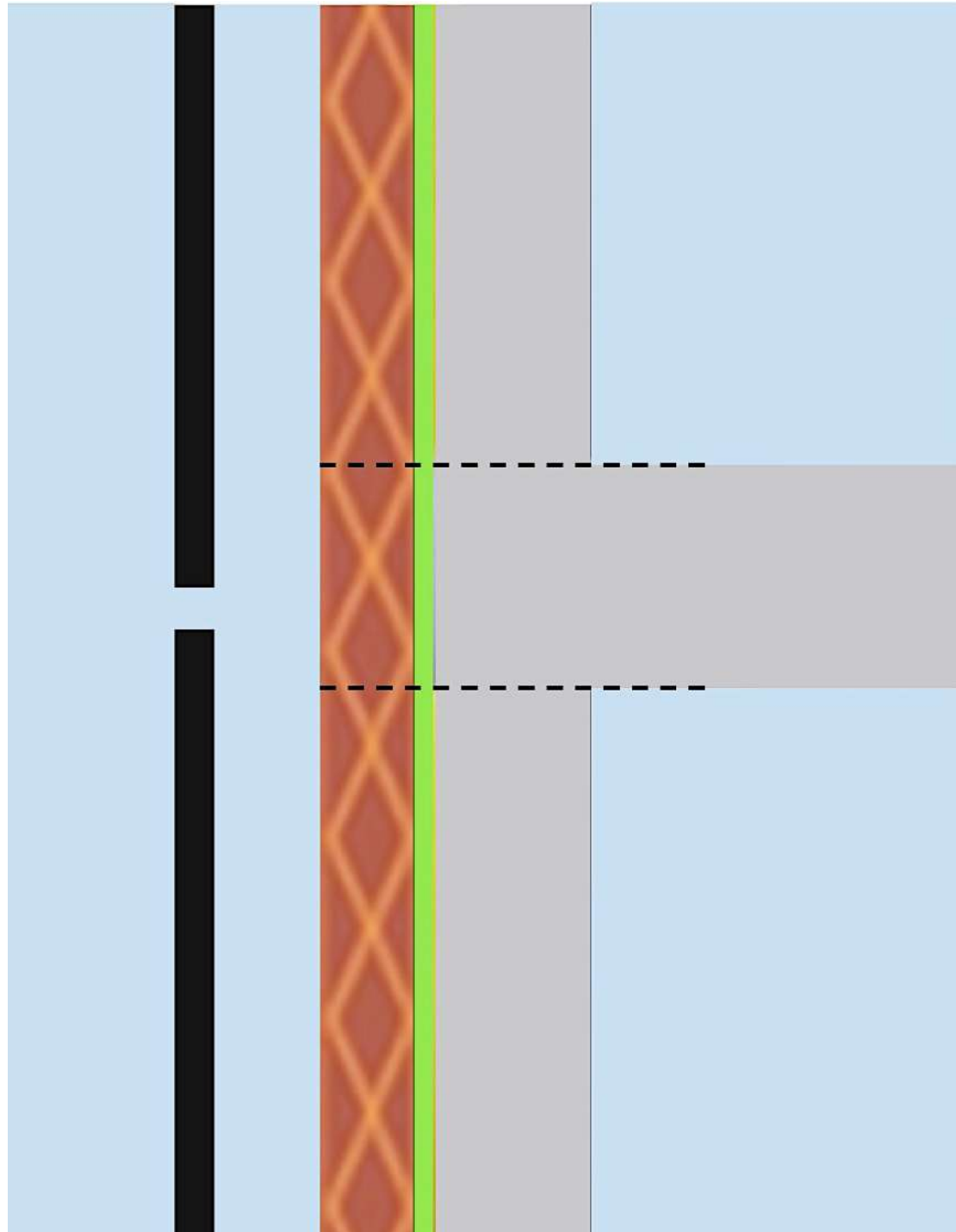


Energy Savings Average 35%

- During winter, cold air will sink in the cavity
- Cooler air in cavity will improve insulation
- In the wintertime, insulation keeps the building warm
- Cold air prevented from affecting the building structure
- Building is resistant to frost

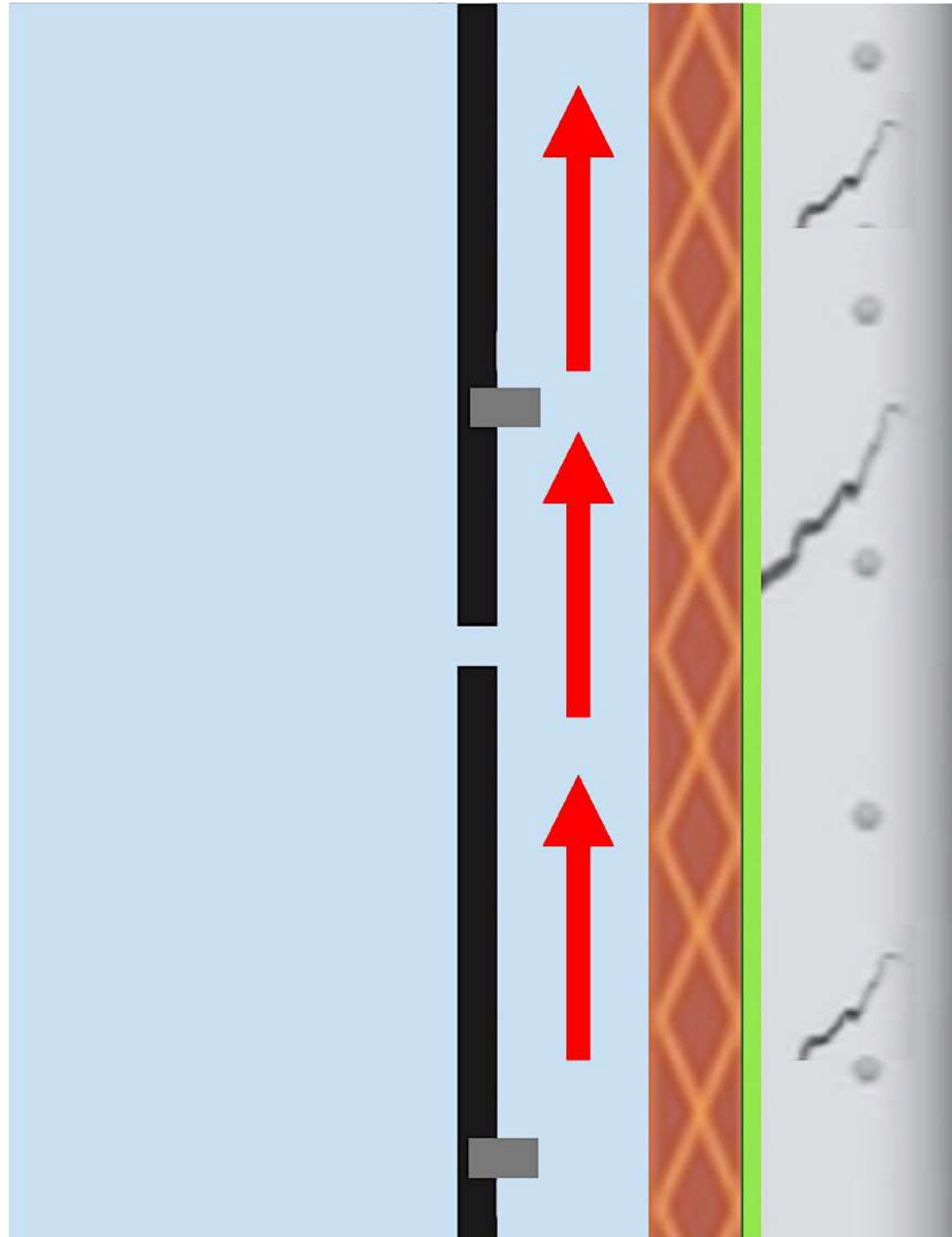


# ELIMINATING THERMAL BRIDGES



- In the wintertime, insulation keeps the building warm and helps eliminate thermal bridges
- Cold air prevented from affecting the building structure
- Reduces structural movement [expansion, contraction, shifts] due to changes in temperature
- Results in less cracks on the cladding + structural walls
- Heat loss and condensation occur, can lead to mold growth

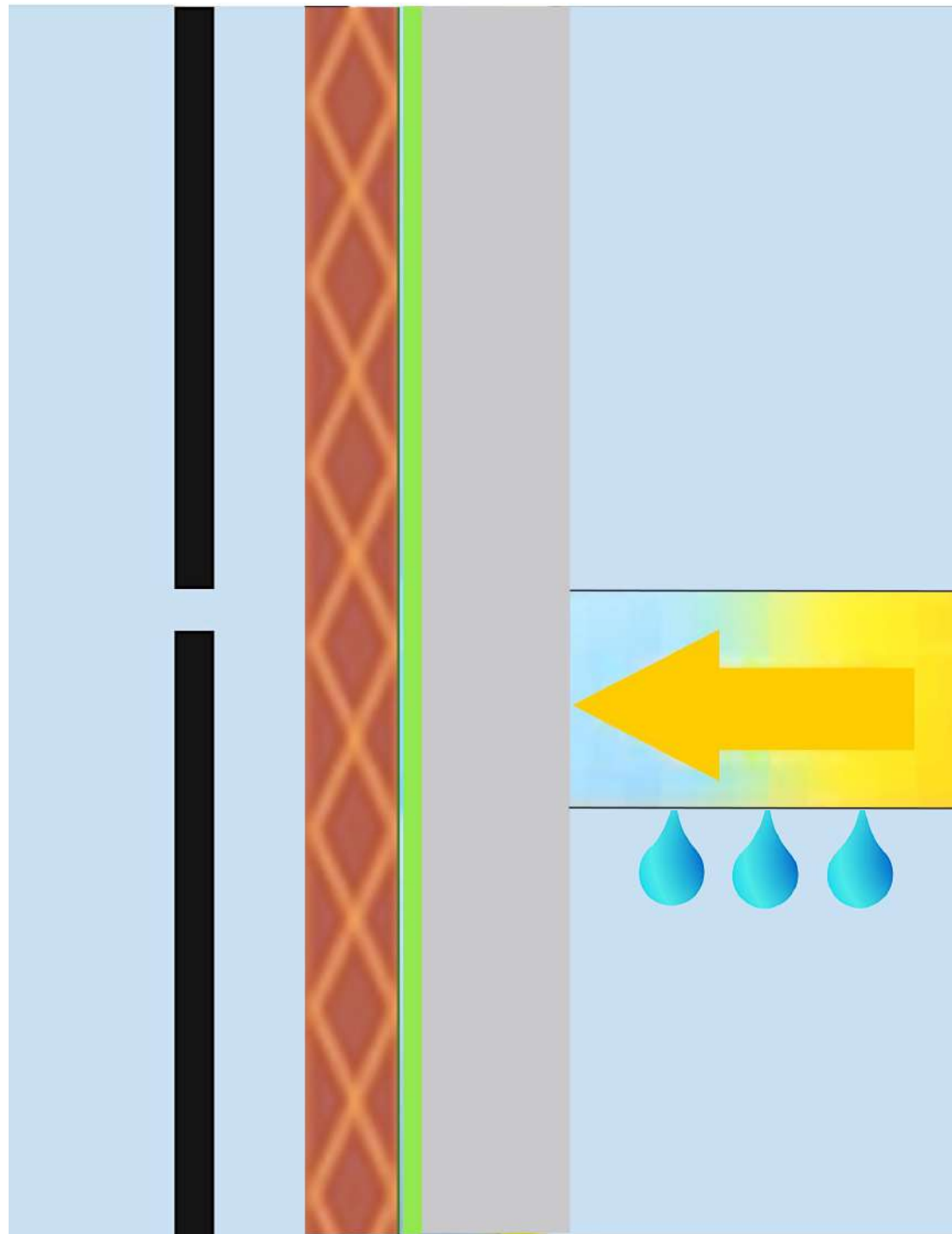
# THERMAL INSULATION ADVANTAGES



- In the wintertime, insulation keeps the building warm and helps eliminate thermal bridges
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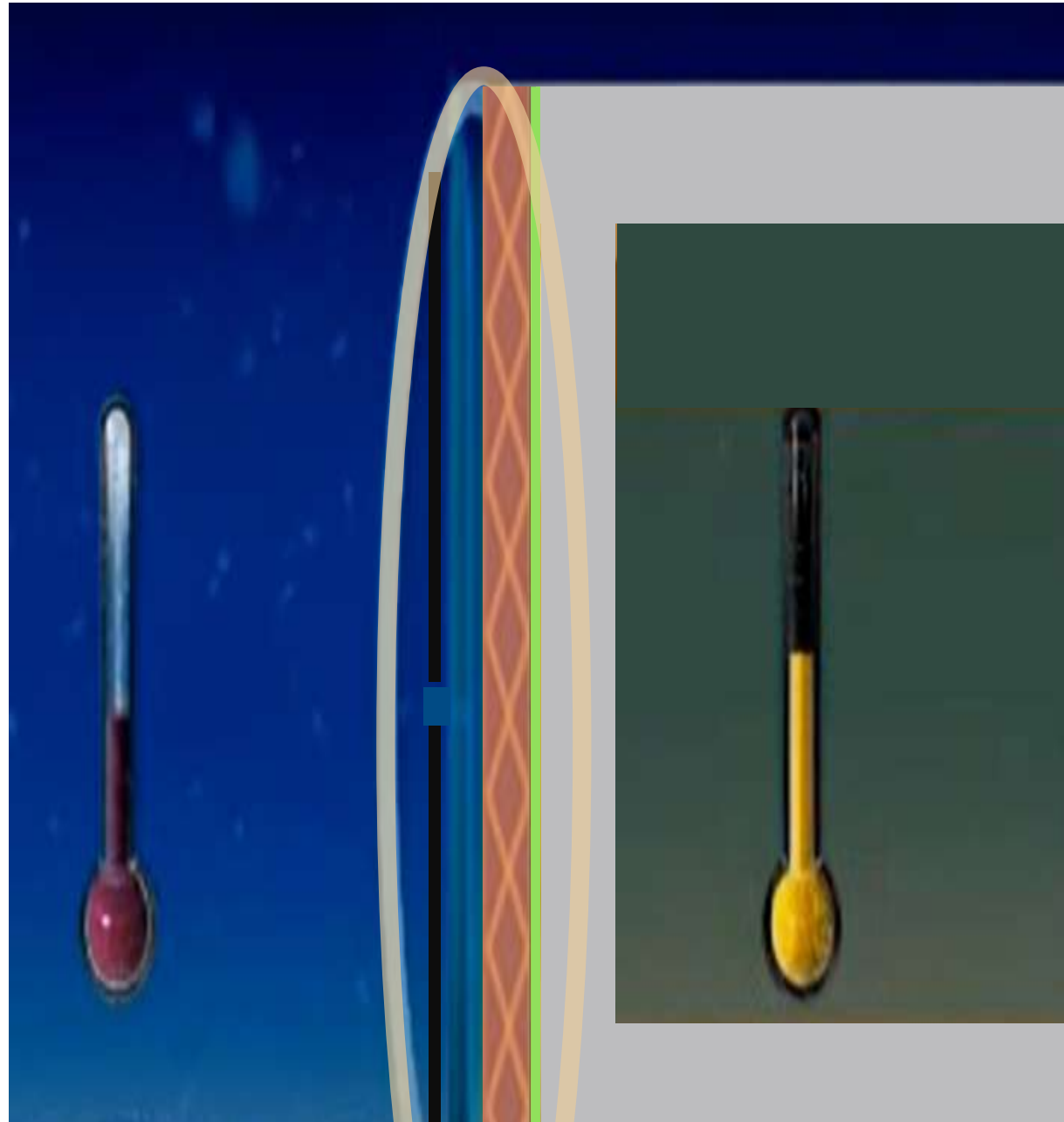


# INSULATION STOPS COLD BRIDGES



- In the wintertime, insulation keeps the building warm and helps eliminate thermal bridges
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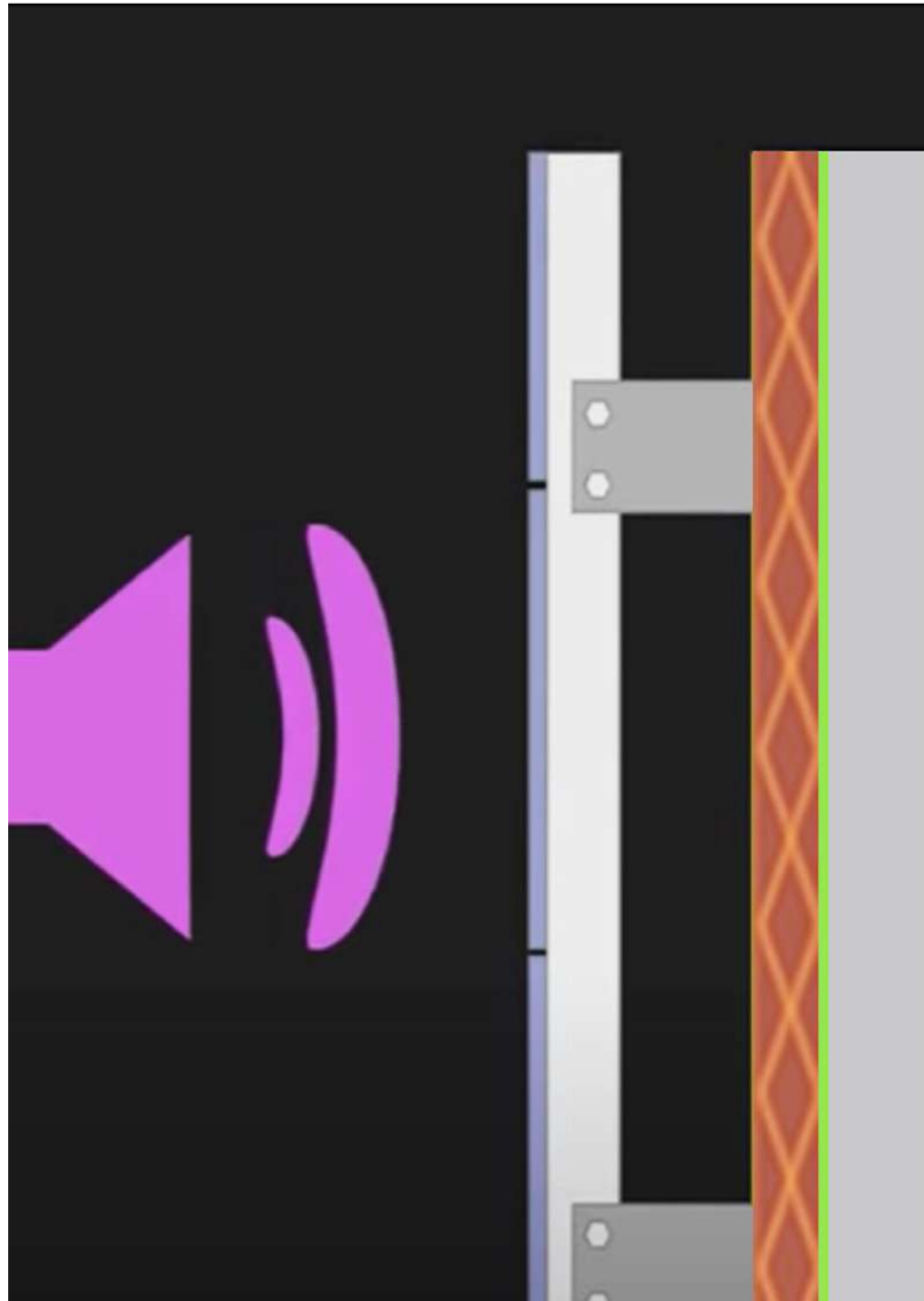
# CONTROLLING INTERIOR CONDENSATION, VAPOR, HUMIDITY



- Drain and Back rainscreen eliminates condensation, vapor and excessive humidity on the interior
- Non-perforated, nonwoven products with microscopic pores maintain excellent air and water holdout
- Vapor barriers that can breathe is essential for letting moisture vapor get out of walls from the interior
- Insures greater comfort for the occupants



# NOISE REDUCTION CONTROL - NRC



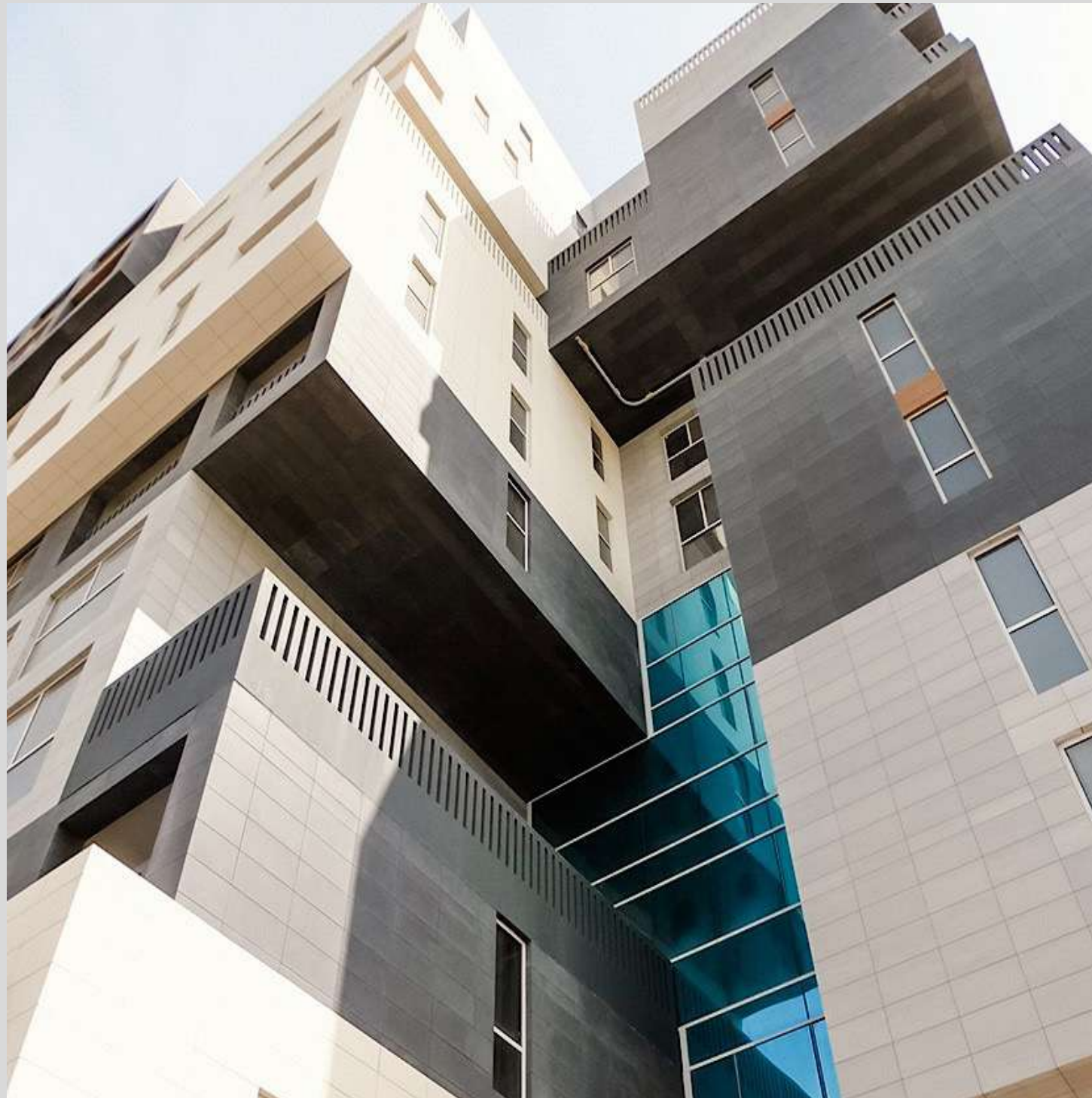
- 
- Provides increase reflection of external noises
- 
- Compound system with several layers noise reduction
- 
- Reduces outside noises "by" 9 to 14 dB
- 
- Contributing to a healthier indoor environment

A photograph of a modern building facade featuring extruded porcelain cladding. The building has a complex, multi-tiered structure with a prominent corner. The cladding consists of horizontal, rectangular panels with a textured, slightly irregular surface. The color is a muted, dark blue-grey. The sky is a pale, overcast blue. The text "BENEFITS OF EXTRUDED PORCELAIN" is overlaid in white, bold, sans-serif capital letters, centered on the building's facade.

BENEFITS  
OF  
EXTRUDED PORCELAIN



# CHOOSING AN EXTERIOR SYSTEM



- Performance
- Sustainability
- Code Compliance
- Product Testing
- Pricing
- Aesthetics

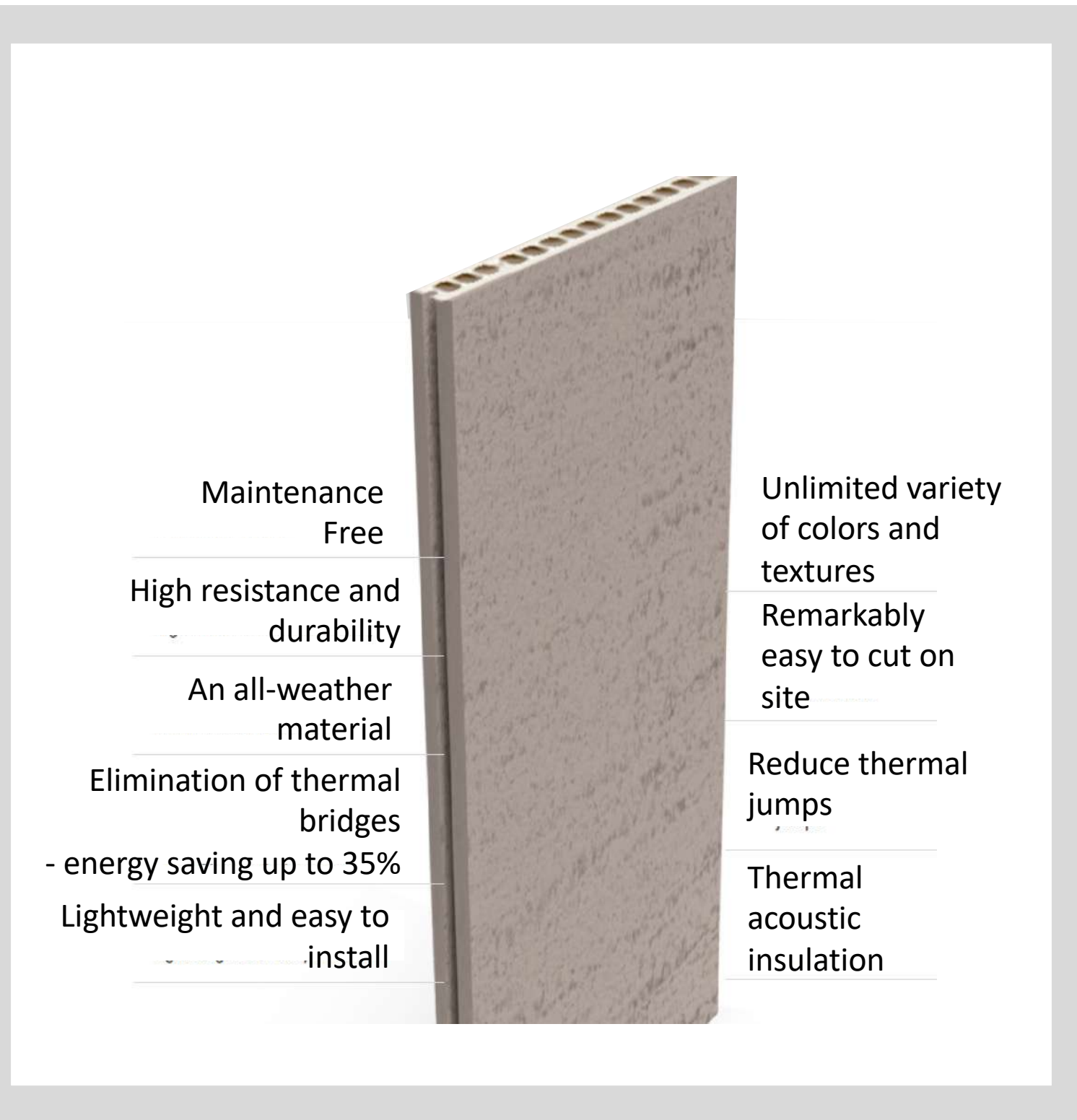
# MINERALS TO MAKE PORCELAIN



- Fine grained white clay body
- A vitreous ceramic
- **CRITICAL: Ingredients, Temperature, Duration + Process**
- Usually, pure white due to its high Kaolin content
- Kaolin is critical as it retains the shape of panel and allows tremendous dimensional stability
- Finer clay, packed higher pressures, baked higher temperatures
- Porcelain panels fired at 2,600 F
- Extruded = denser + stronger than pressed porcelain



# EXTRUDED HONEYCOMB PORCELAIN PANEL BENEFITS



- Flexible due to its unique honeycomb structure
- Excellent bending strength
- Impervious to mold + bacteria
- Porcelain tiles do not retain dust or residue
- Stain + Abrasion resistant

# BENEFITS OF A PORCELAIN FACADE



- Improving thermal insulation
- Increasing energy efficiency  
35% - 40% energy savings
- Low water absorption <math><0.5\%</math>
- Improving acoustic insulation
- Reduced maintenance costs and  
easy cleaning
- Lightness and durability



# BENEFITS OF PORCELAIN RAINSCREEN WALL SYSTEM

Feature	Extruded Porcelain	Fibercement product type 1	Terracotta	ACM	Natural Stone	Fibercement Product Type 2	GRC
AESTHETIC VERSATILITY	Any design/texture is possible	Glazed	Traditional glazing	Laminated paint	Only one nature	Limited designs	Limited designs
BREAKING LOAD	1349 lbf (6000N)	779 lbf (3466N)	944 lbf (4200N)	Elasticity	Depends on the type (igneous, sedimentary, metamorphic) and thickness	Unknown	
WEIGHT	6.75 lb/sqft 33 Kg/m2	3.1 lb/sqft 15 Kg/m2	8.6 lb/sqft 42 Kg/m2	1.65 lb/sqft 8 kg/m2	9.22-16.4 lb/sqft 45 to 80 Kg/m2	5.5 lb/sqft	Up to 16.4 lb/sqft
WATER ABSORPTION	0.5%	> 6%	> 6%	0% (Metalic)	2-10%	32%	< 10.62%
EASE OF INSTALLATION	* All panels are Factory rectified * Connect with the Grooves, at the bottom and at the top. * Easy to cut on site.	It's produced molded	Caliber is required, cut not rectified	Differences in reflection	Requires perforations and very heavy	Requires additional perforations	Heavy equipment required
MAINTENANCE	Very Low, almost none	High	High	affected by uva and uvb rays	High	High	High
FIRE RESISTANCE	NFPA285, A1	A2s1, d0	Bs1,d0	Bs1,d0	A1	Depends on the type of panels	Depends on the type of panels

# GRAFFITI RESISTANT



- Removal of graffiti is easier on smooth surfaces than heavy textured surfaces
- Color Permanence
- Great for high traffic areas and Master Planning –  
  
Facades, Walls, Amenity, Fountains, Signage, Pavers, other



## PORCELAIN PANELS - ECO FRIENDLY

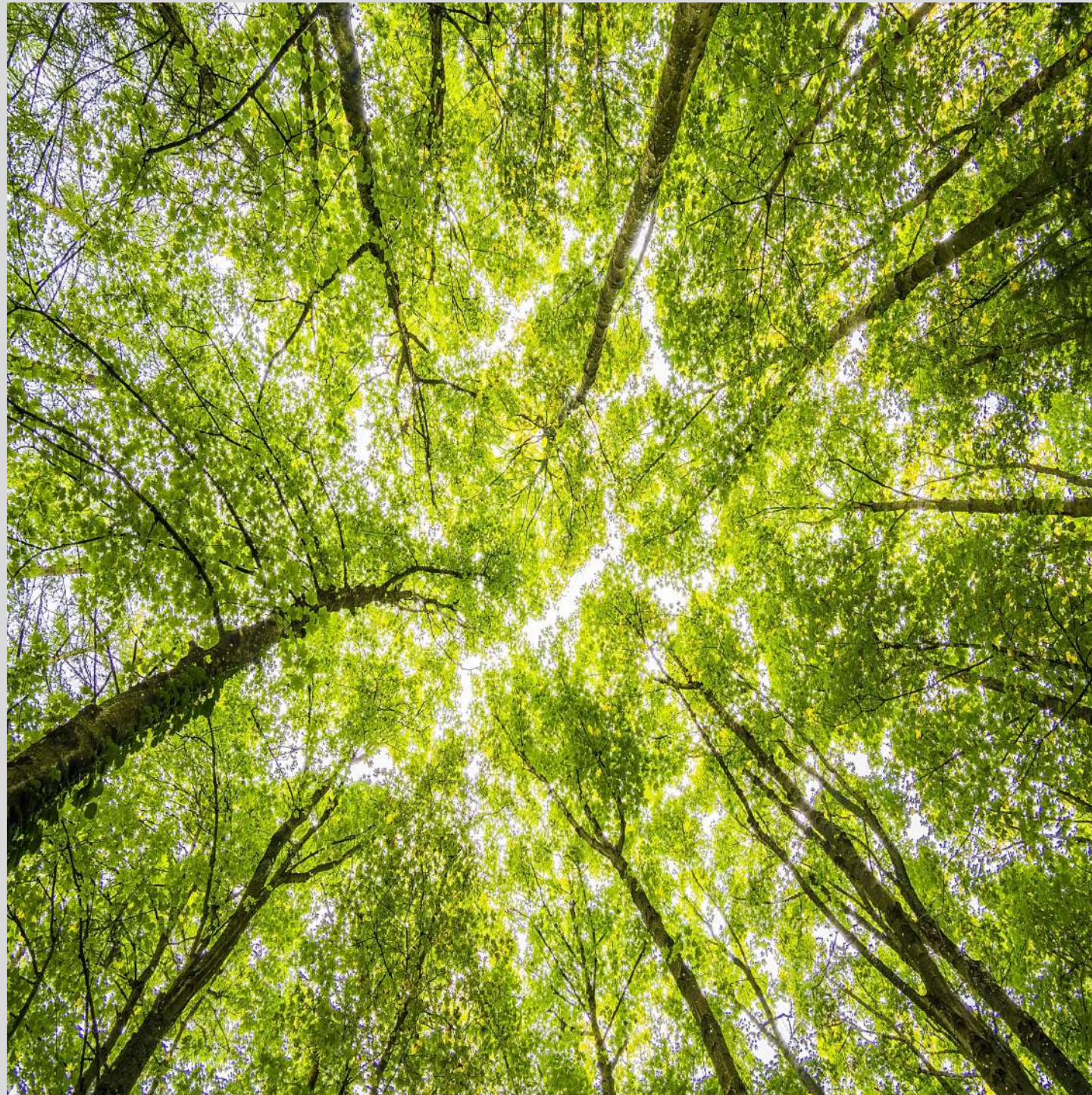


- Zero waste in manufacturing of porcelain tiles
- Porcelain tile panels product zero VOC's. No off-gassing.
- Can be removed off building after decades and then applied to new exterior / interior buildings, walls, floors, soffits, pavers + roads, sidewalks, hardscapes.
- Meets city, state and federal requirements regarding emission specifications.
- Healthiest, ecological product on the market.



# WHAT IS A **GlobalEPD**?

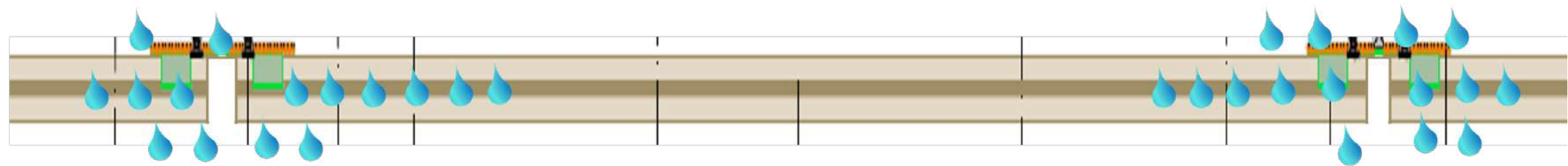
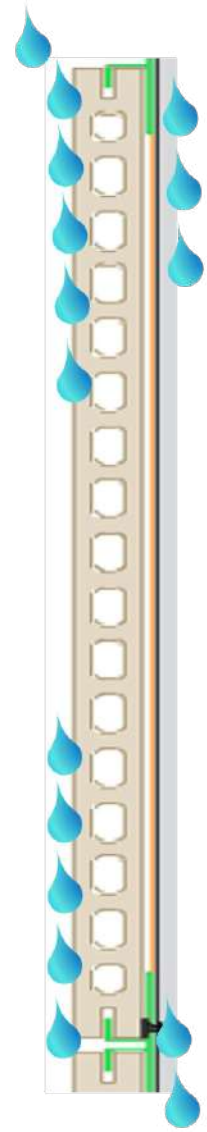
A VERIFIED ENVIRONMENTAL DECLARATION



- Founded -1998 by the Swedish Environmental Protection Agency
- Transparent objective report
- Communicates what a product is made of and how it impacts the environment throughout its entire life cycle.
- Such as Global Warming, Smog Creation, Ozone Depletion, and Water Pollution.
- A verified environmental declaration can earn you product credits for LEED v4 and other Green rated building systems.



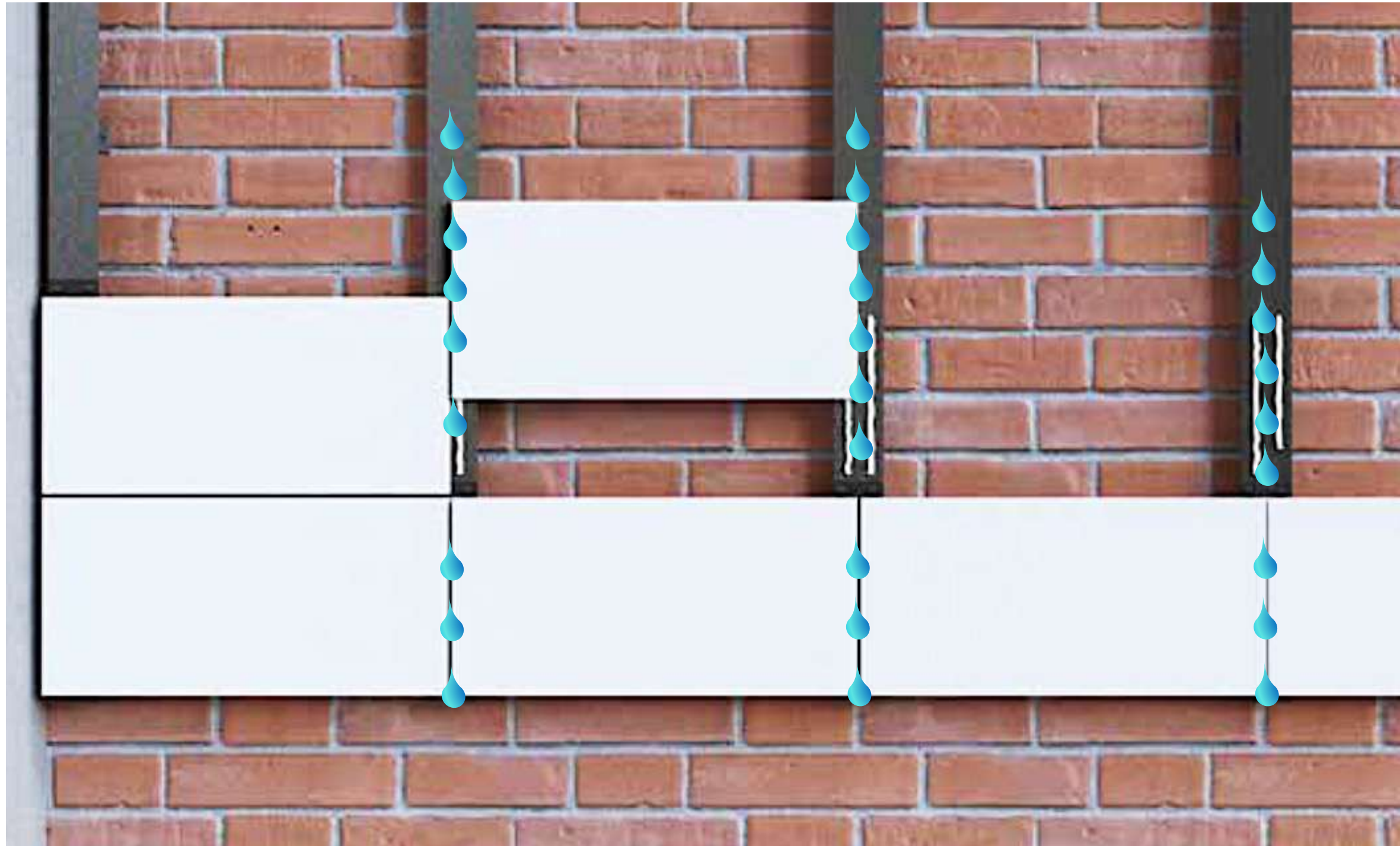
# EXTRUDED HONEYCOMB PORCELAIN TILE PANEL – ENGINEERED DESIGN



SECTION



# POLYURETHANE ON FACE OF VERTICAL STRUCTURAL T'S







# STRUCTURAL COMPONENTS



# ATTACHMENT COMPONENTS, THERMAL ISOLATORS + FASTENERS







# INSTALLATION ASSEMBLY



# MAIN EXTERIOR STRUCTURAL WALLS



- Responsible for the building's stability
- Concrete, Brick, Wood, Metal Studs, CMU
- Must be able to withstand the weight and loads transferred from the facade



# INSTALLATION

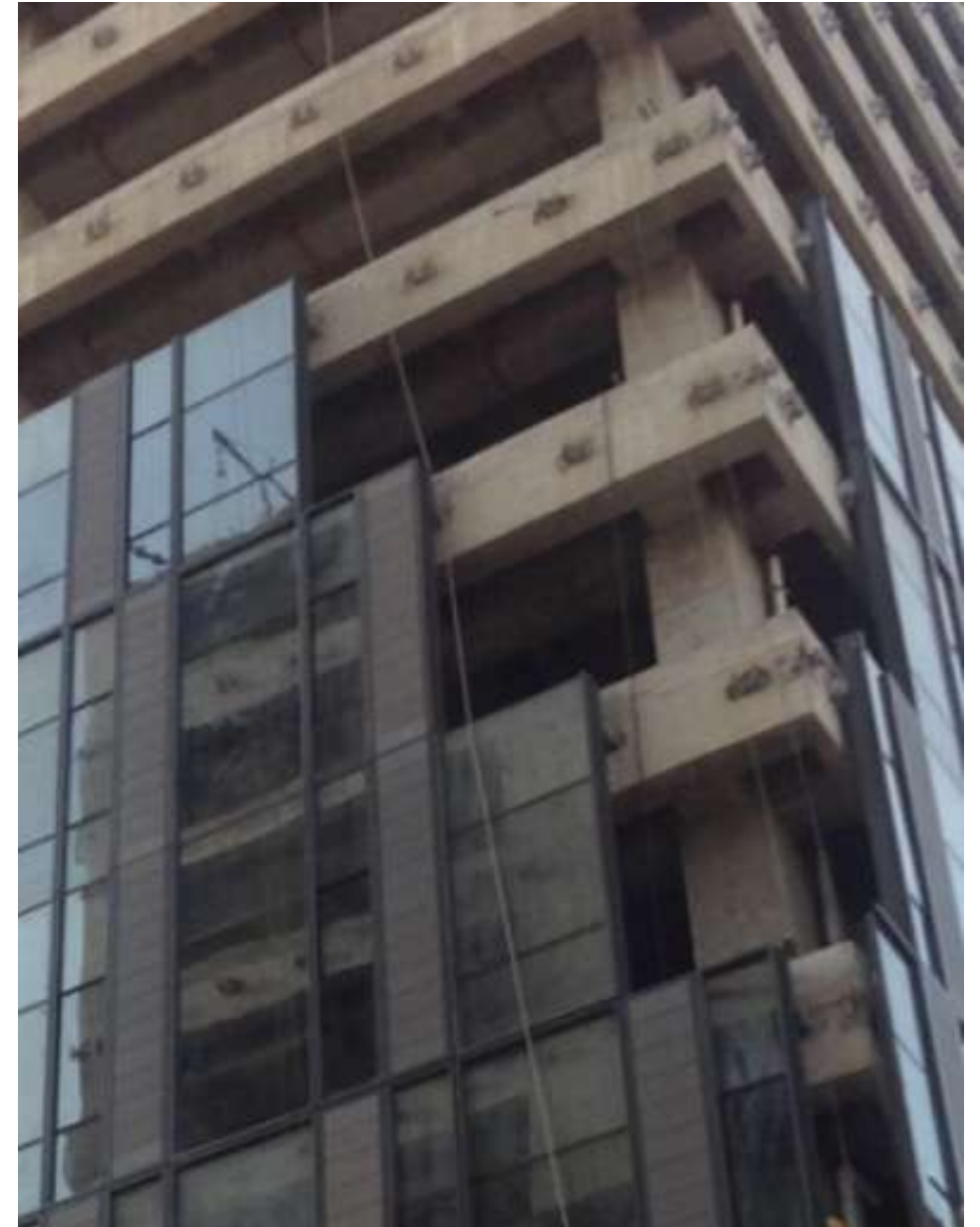




UNITIZED AND MODULAR  
PREFABRICATED PANELS



# MODULAR PREFABRICATED PANELS





# UNITIZED PANELS





# MODULAR PREFABRICATED PANELS





# MODULAR PREFABRICATED PANELS

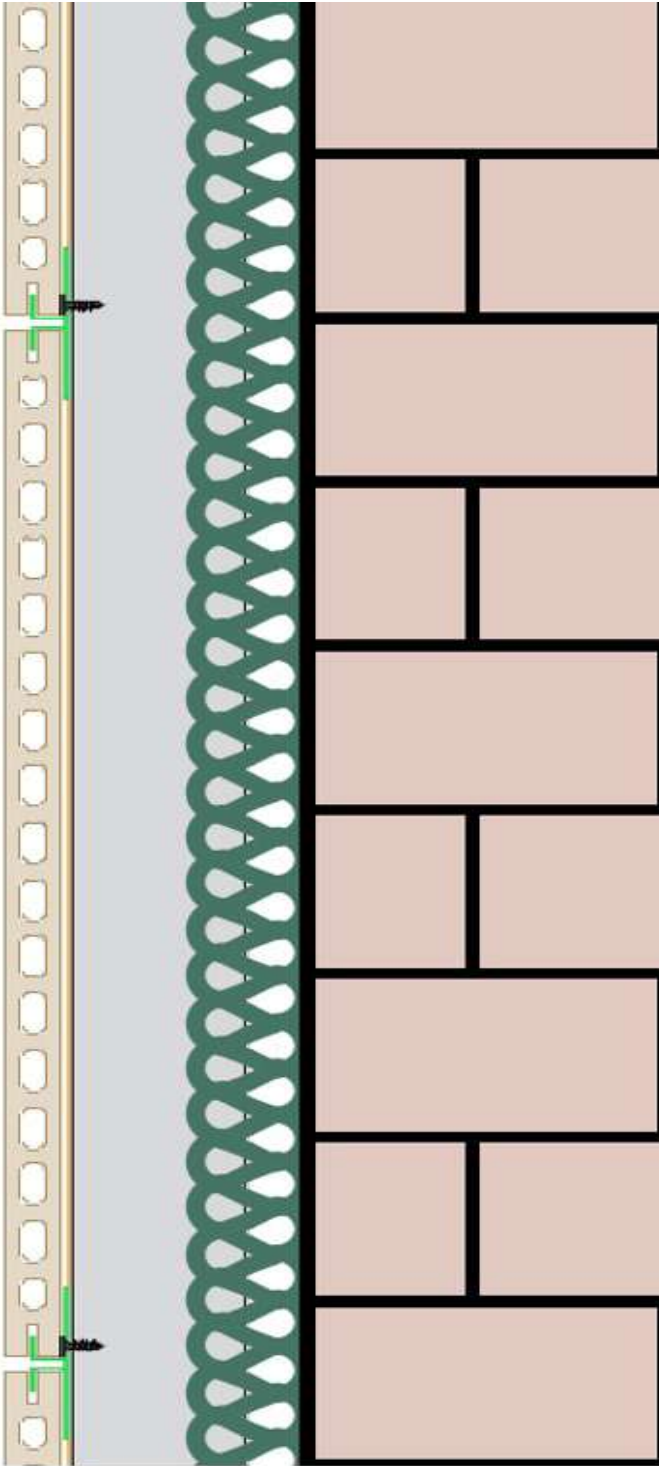






# ARCHITECTURAL DETAILS

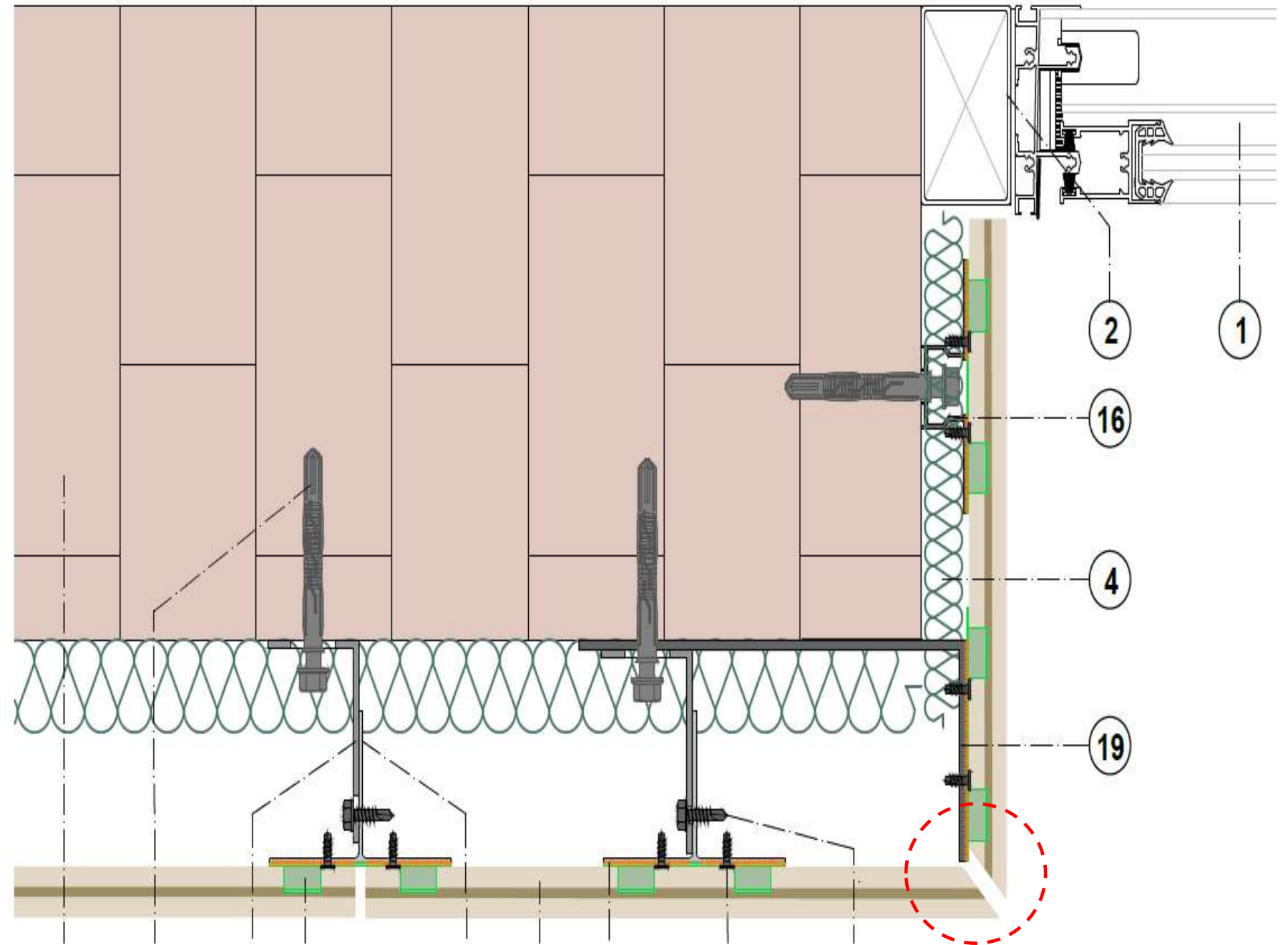
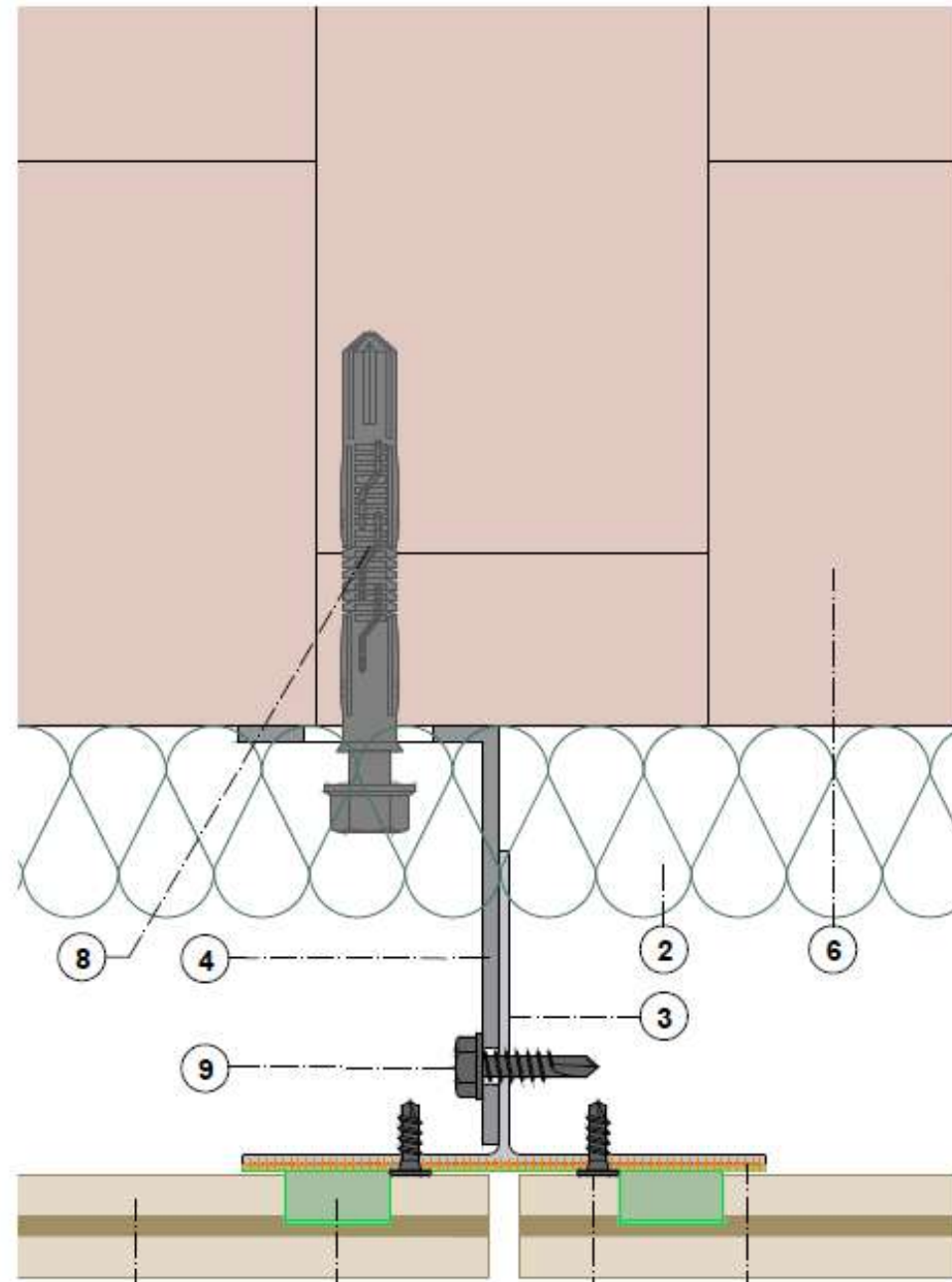
# WALL SECTION





# HORIZONTAL SECTION

Horizontal Section Scale: 1/2

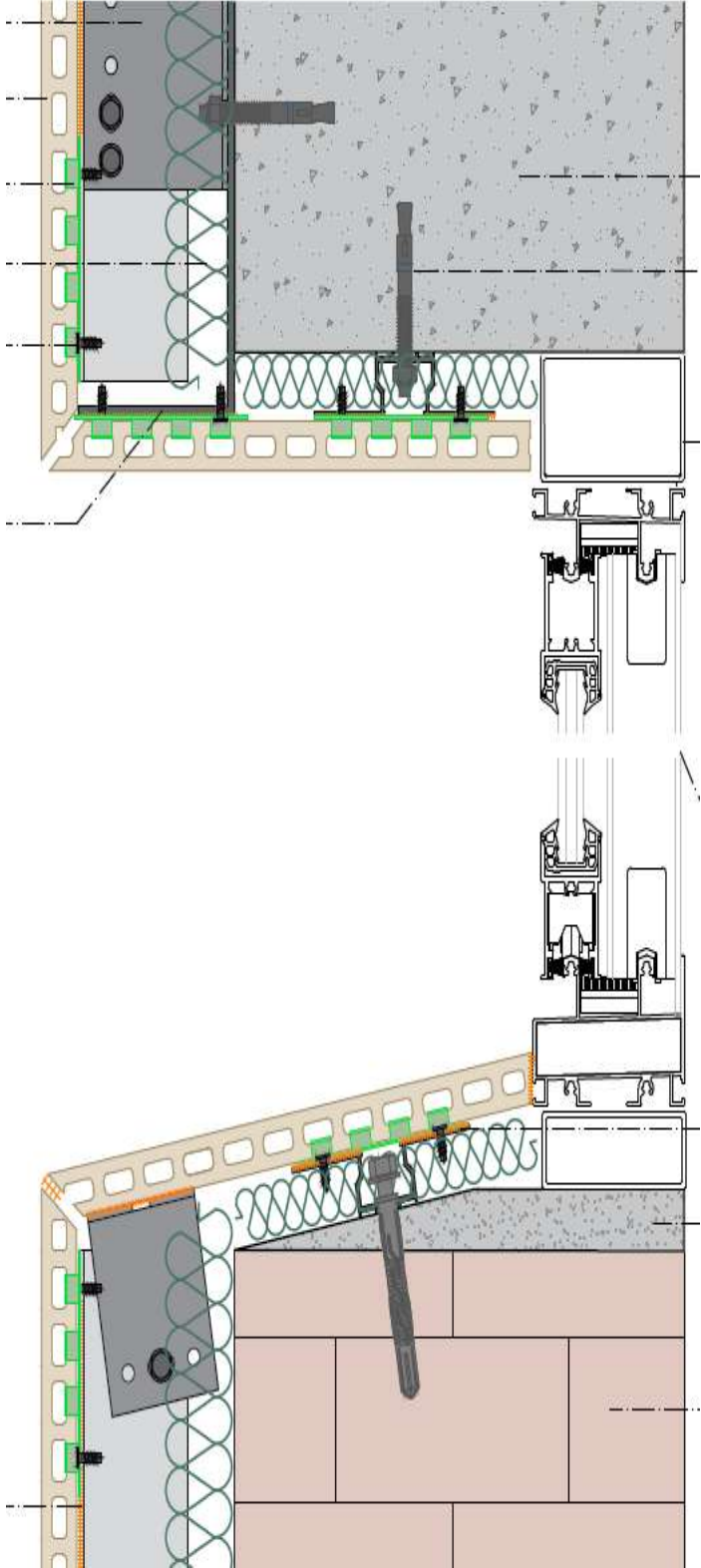
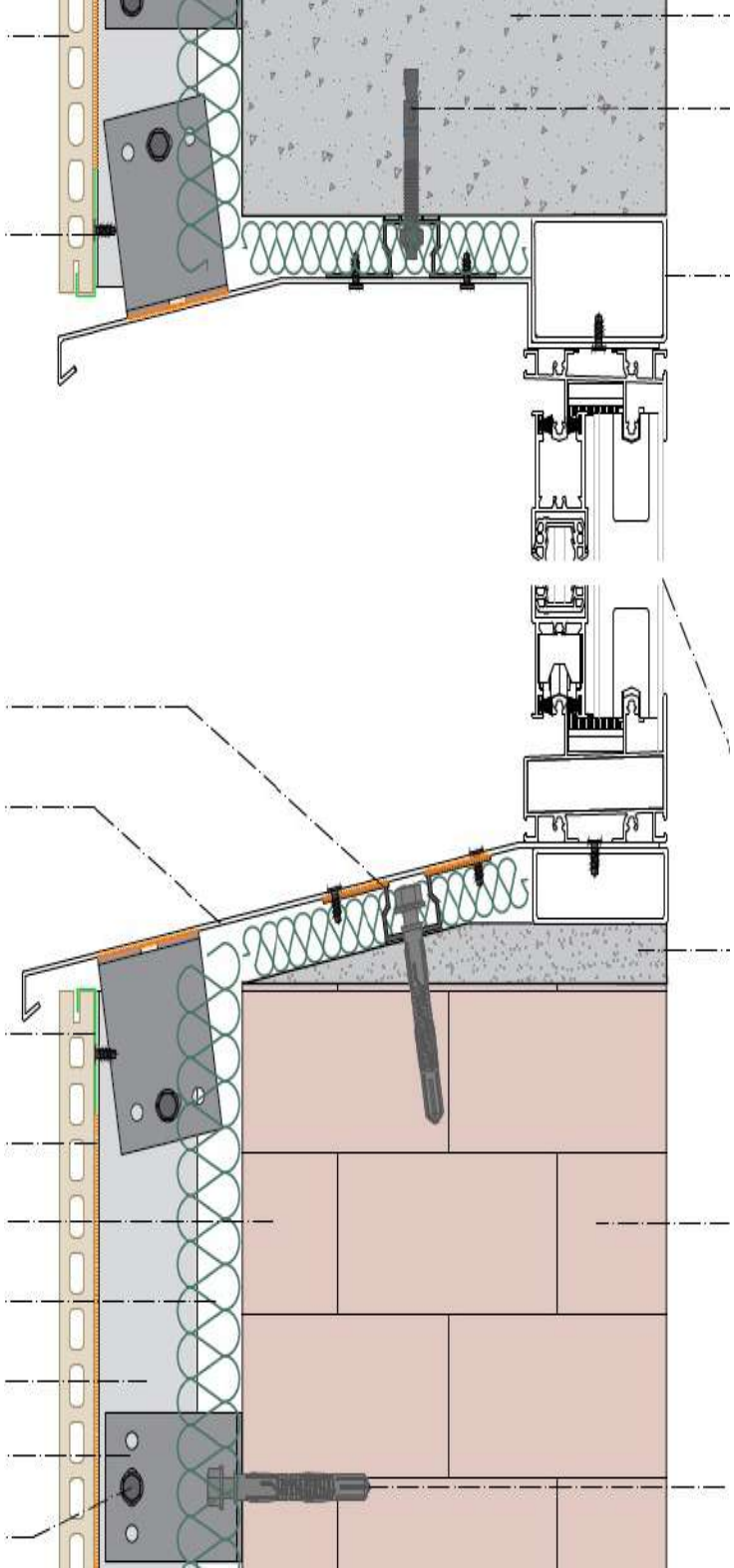


# JAMB DETAIL FOR WINDOW

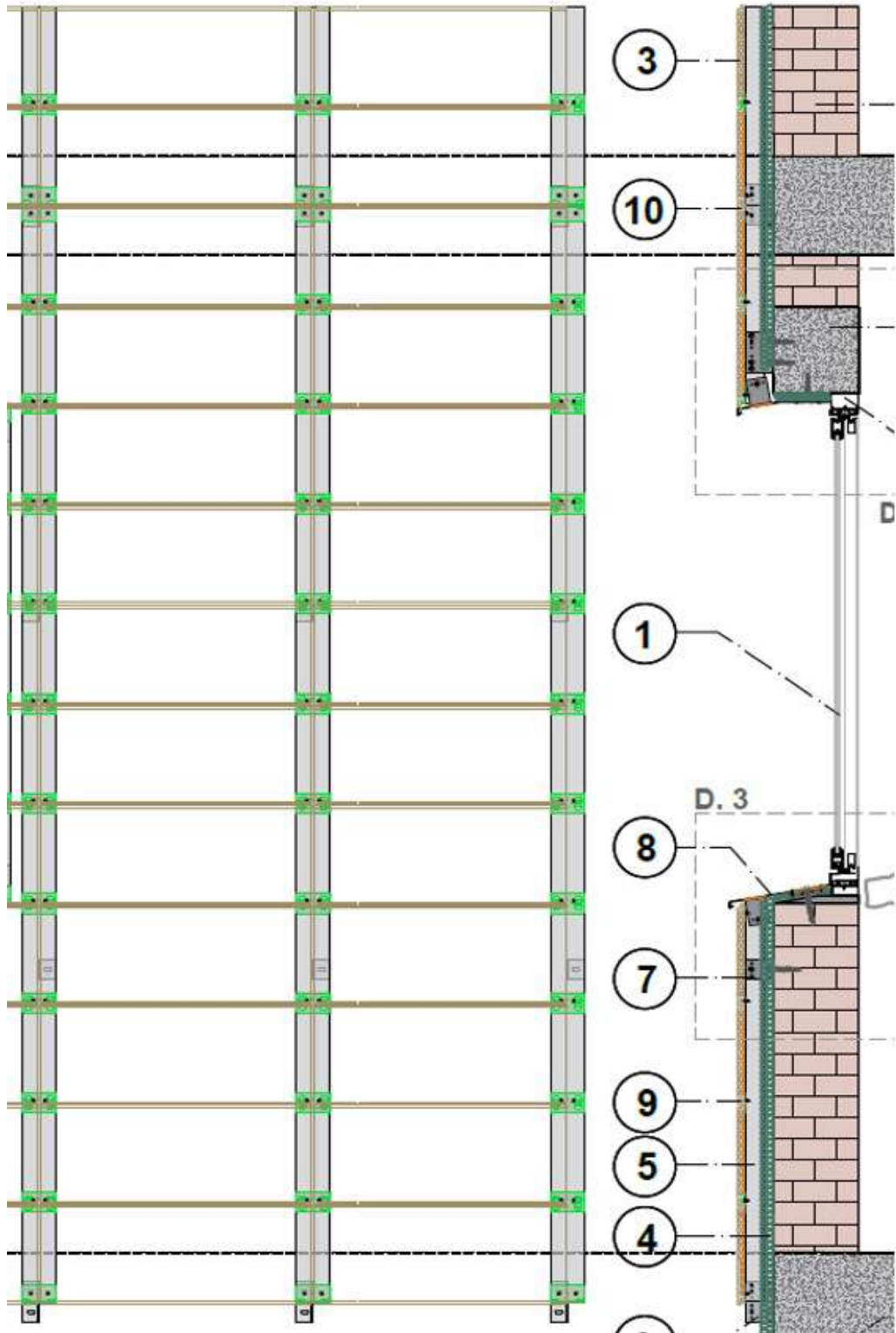




# VERTICAL WALL SECTIONS

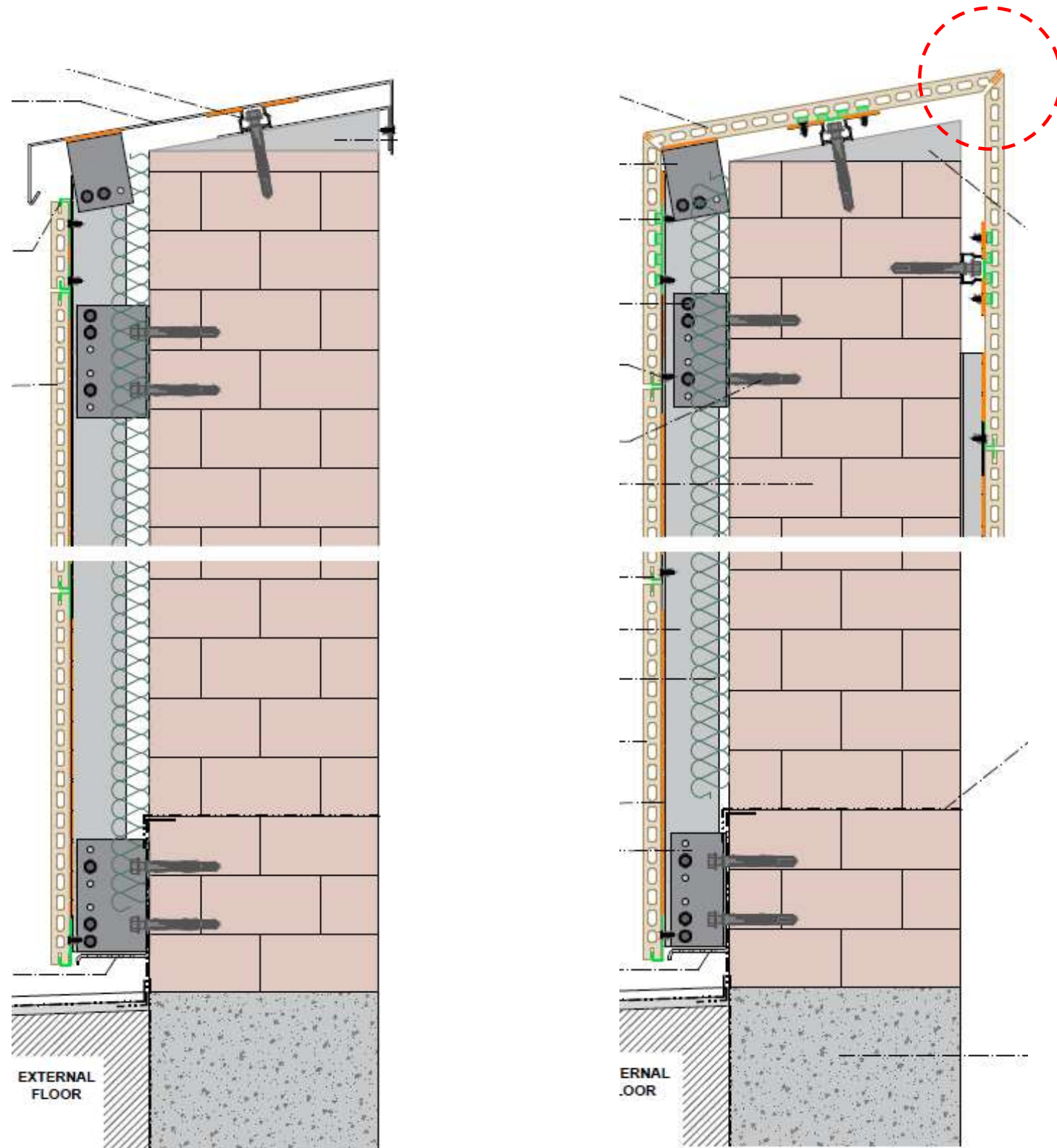


# VERTICAL WINDOW SECTIONS





# PARAPET DETAILS



A photograph of a modern building facade. The building features light-colored, horizontally-oriented panels. On the left, there are balconies with dark metal railings. Large windows with dark frames are visible. The text "TESTING, CODES, ICC, ASTM" is overlaid in white, sans-serif font in the center of the image.

TESTING, CODES,  
ICC, ASTM



# TESTING REPORTS

- ASTM C499 Nominal Size / Thickness
- ASTM C502 Warpage
- ICC-ES Report [ESR-4274]
- ASTM C373 Water Absorption
- ASTM C609 Color Uniformity
- ASTM C424 Crazing Resistance
- ASTM C648 Breaking Strength
- ASTM C1026 Freeze-Thaw Resistance

- ASTM C880 Flexural Strength
- AC504, Section 4.4 Temperature Cycling
- ASTM C1354 Anchorage Strength
- ASTM E136 Combustibility
- ASTM E84/UL-723 Surface Burning Characteristics
- ASTM e330 Transverse Load
- National Fire Protection Assoc [NFPA-285]

# NFPA 285



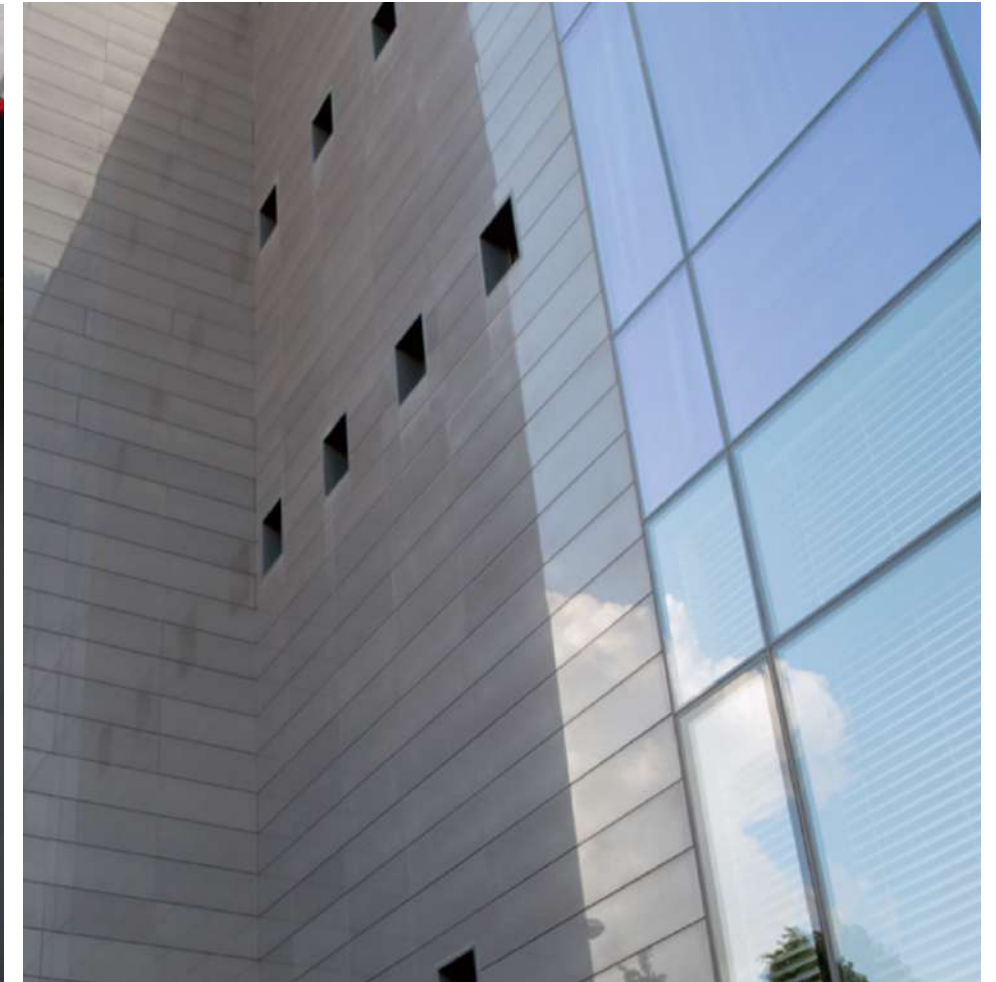
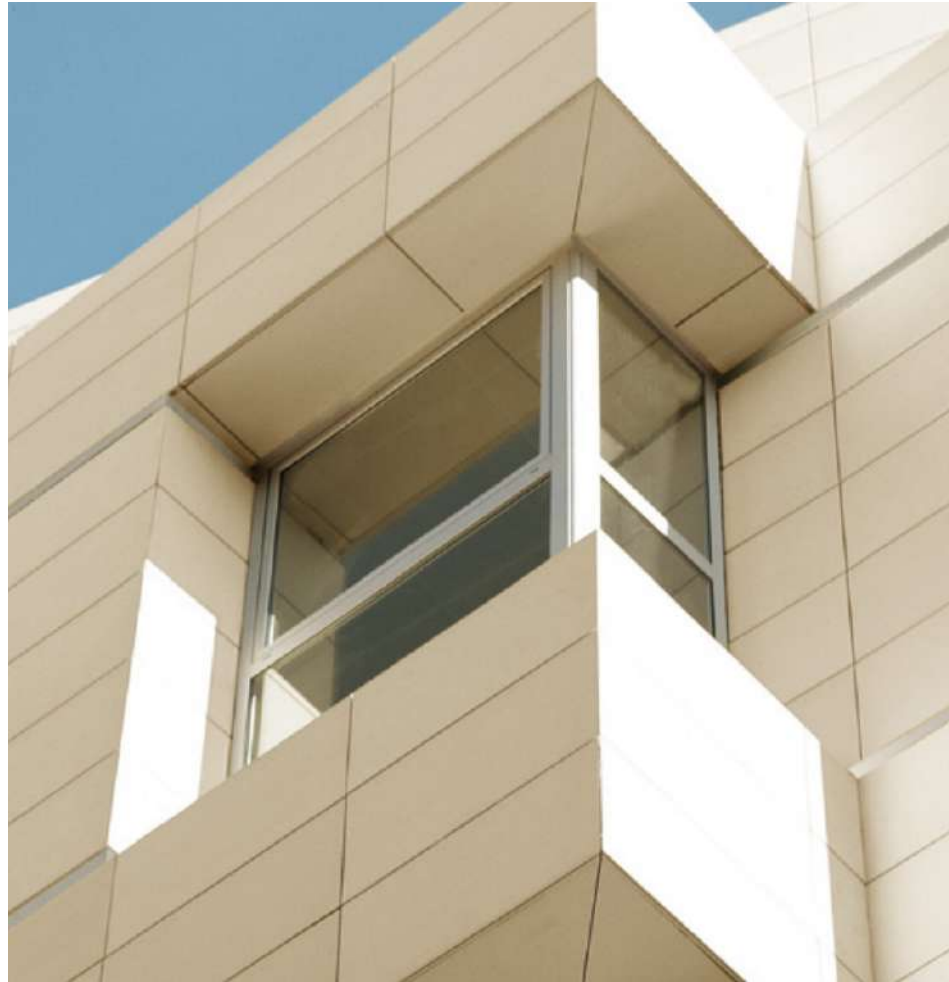


A photograph of a modern building facade featuring large glass windows and a balcony. The text "FLASHING AND DETAILS" is overlaid in white, bold, sans-serif font across the center of the image. The building has a light-colored stone or concrete finish. The glass windows reflect the surrounding environment, including other buildings and a clear sky. A balcony with a glass railing is visible on the upper level. The overall scene is brightly lit, suggesting a sunny day.

# FLASHING AND DETAILS



# METAL FLASHING AND DETAILS





# CORNER DETAIL OPTIONS + PANEL CONFIGURATIONS



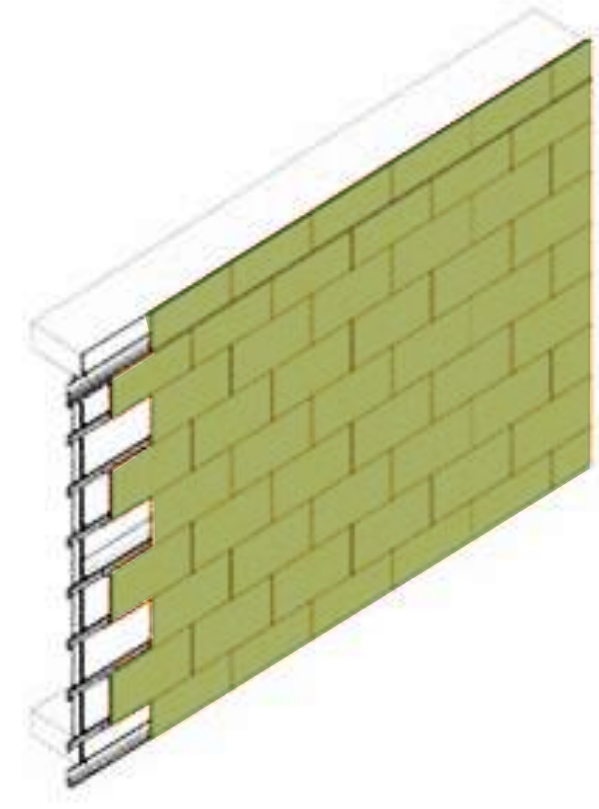
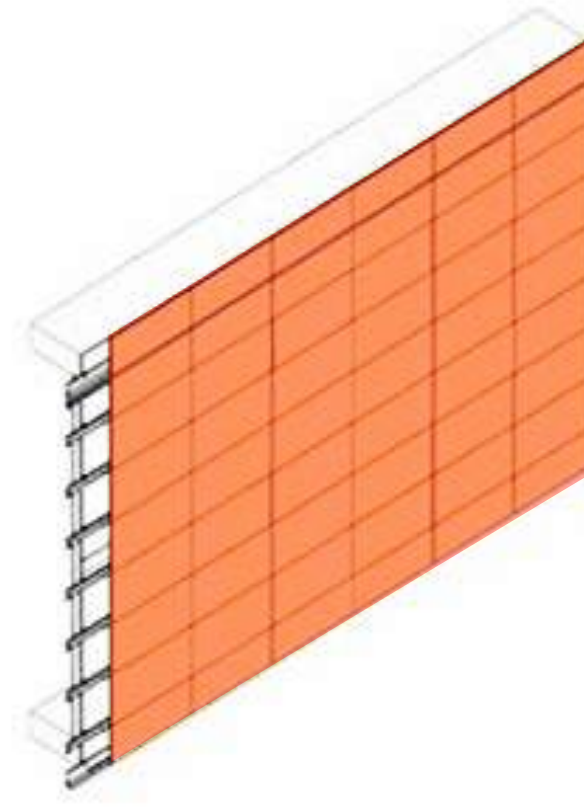
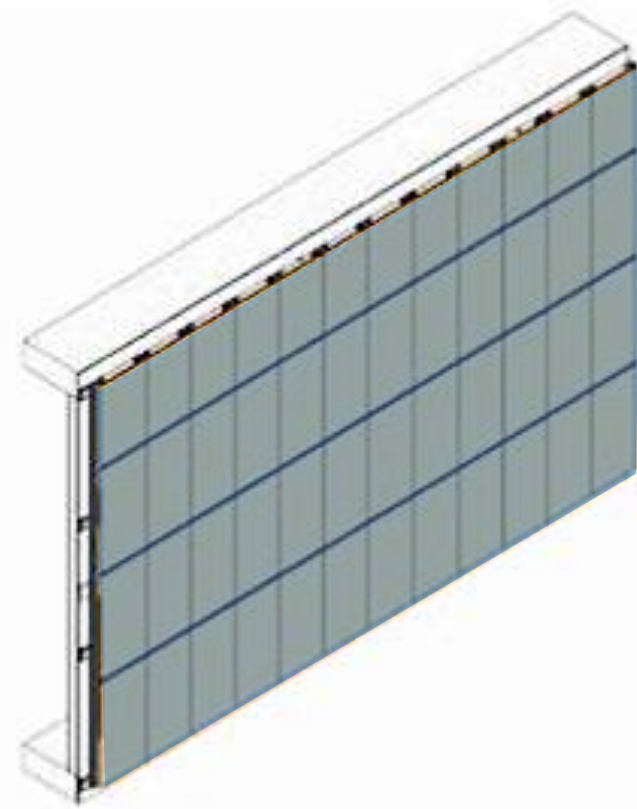
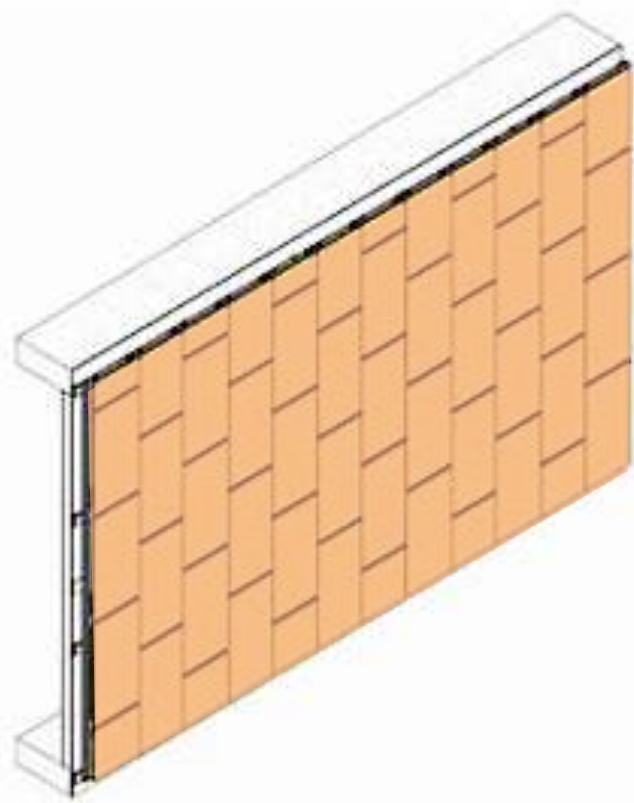
Mitered Corner



Open Corner



External Profile Corner







INNOVATIVE  
PORCELAIN  
GLOBAL DESIGN

+

TRENDS



Seeing the grain of wood reminds us of natural habitats and supports Biophilic Design Principles.

The appearance of nature reduces stress and promotes a calming environment.

Facades + Pavers

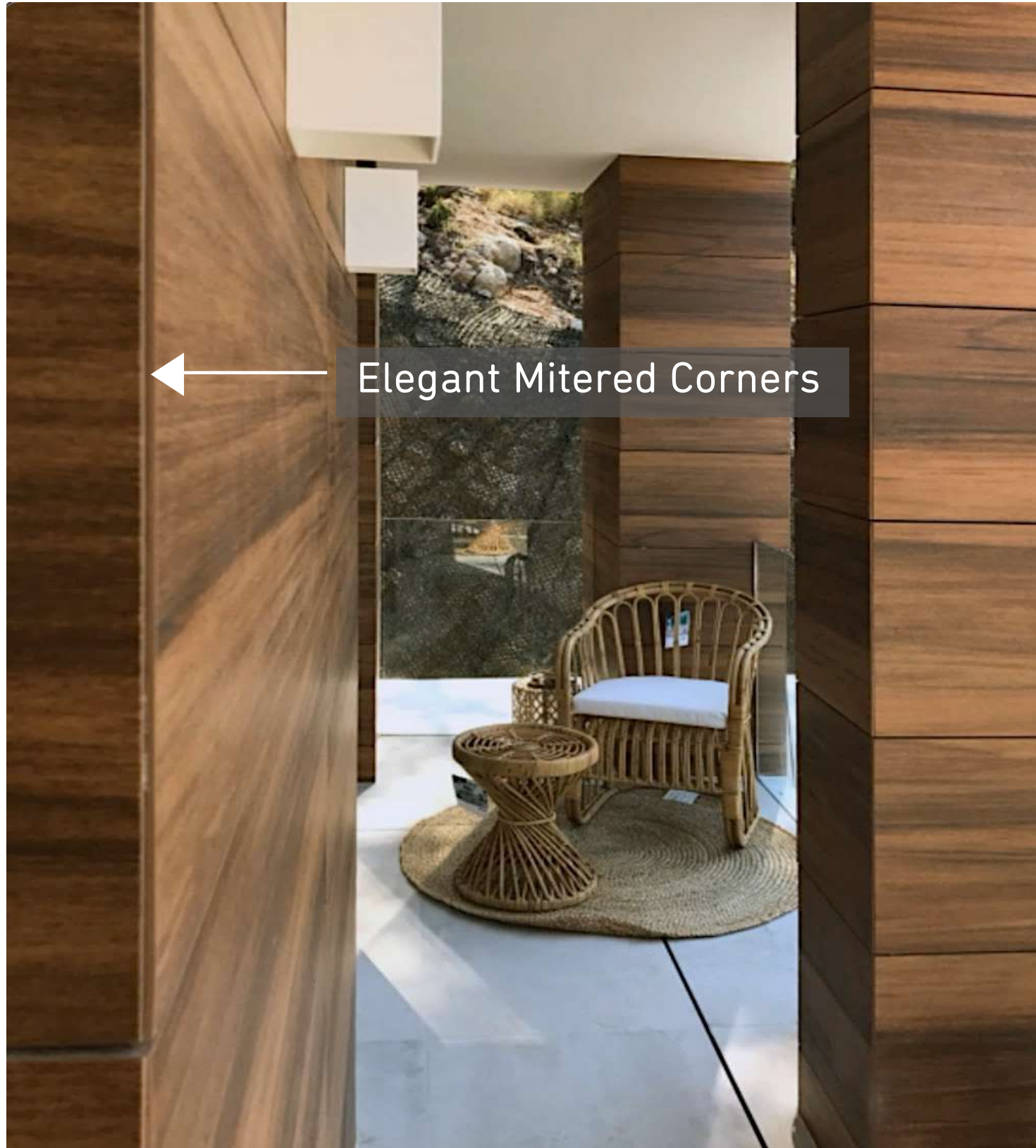
Elegant Wood Look



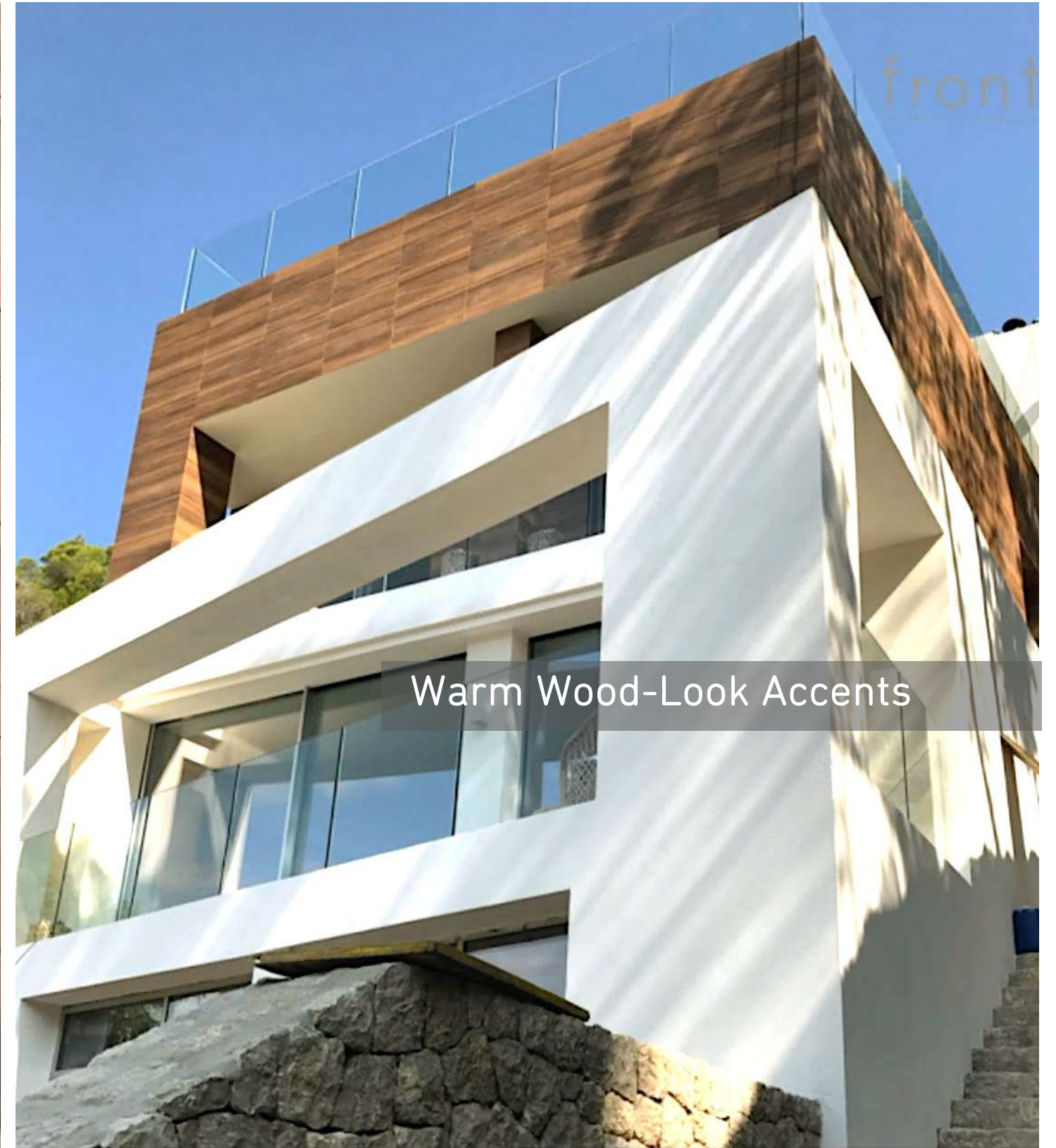
INNOVATIVE DIGITAL PRINTING ON PORCELAIN – WOOD LOOK  
INNOVATIVE DESIGN WITH PORCELAIN







← Elegant Mitered Corners



Warm Wood-Look Accents

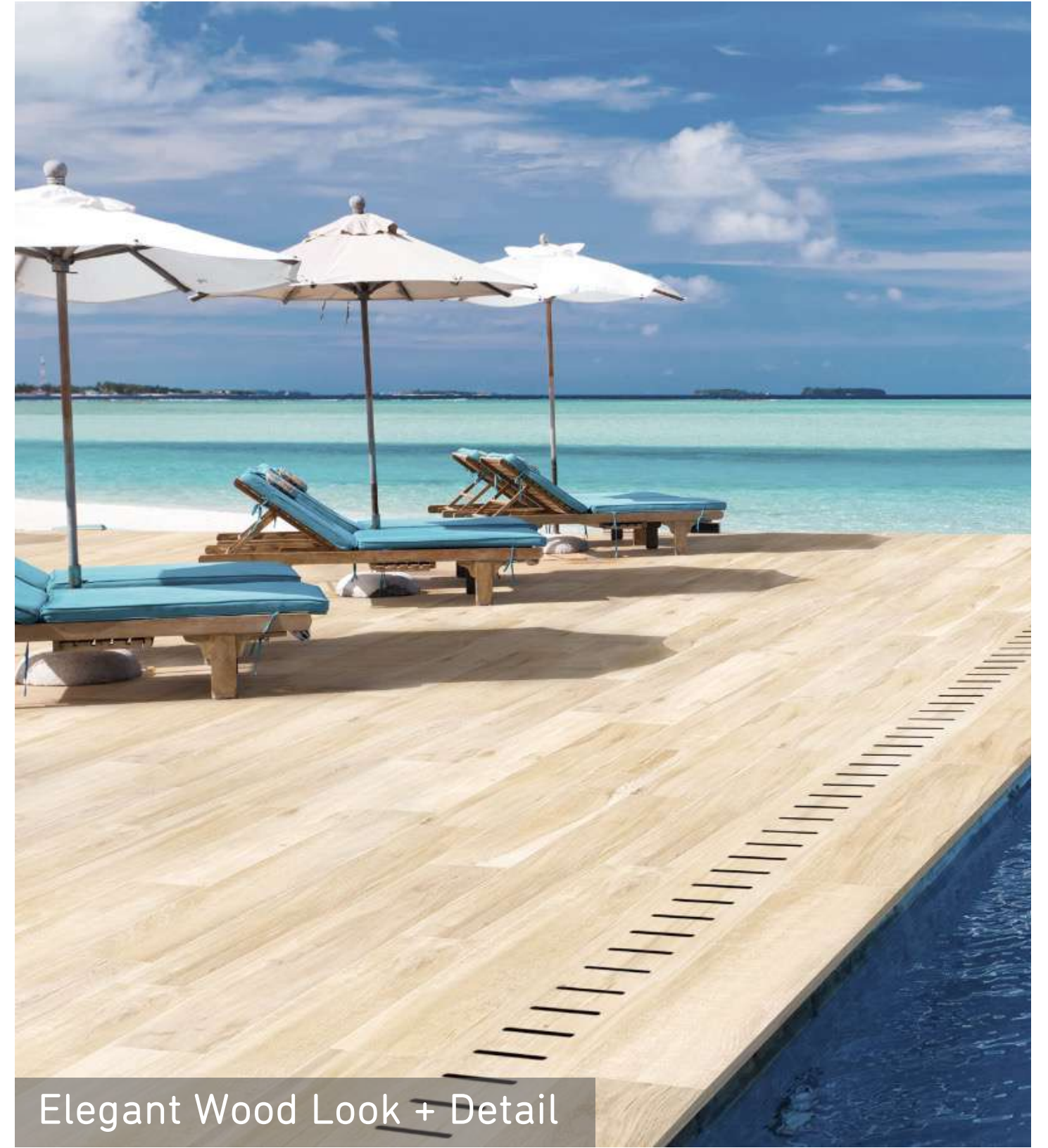
WARM WOOD-LIKE ACCENTS  
INNOVATIVE DESIGN WITH PORCELAIN





Elegant Wood Look + Textures

Mix of Grains + Finishes

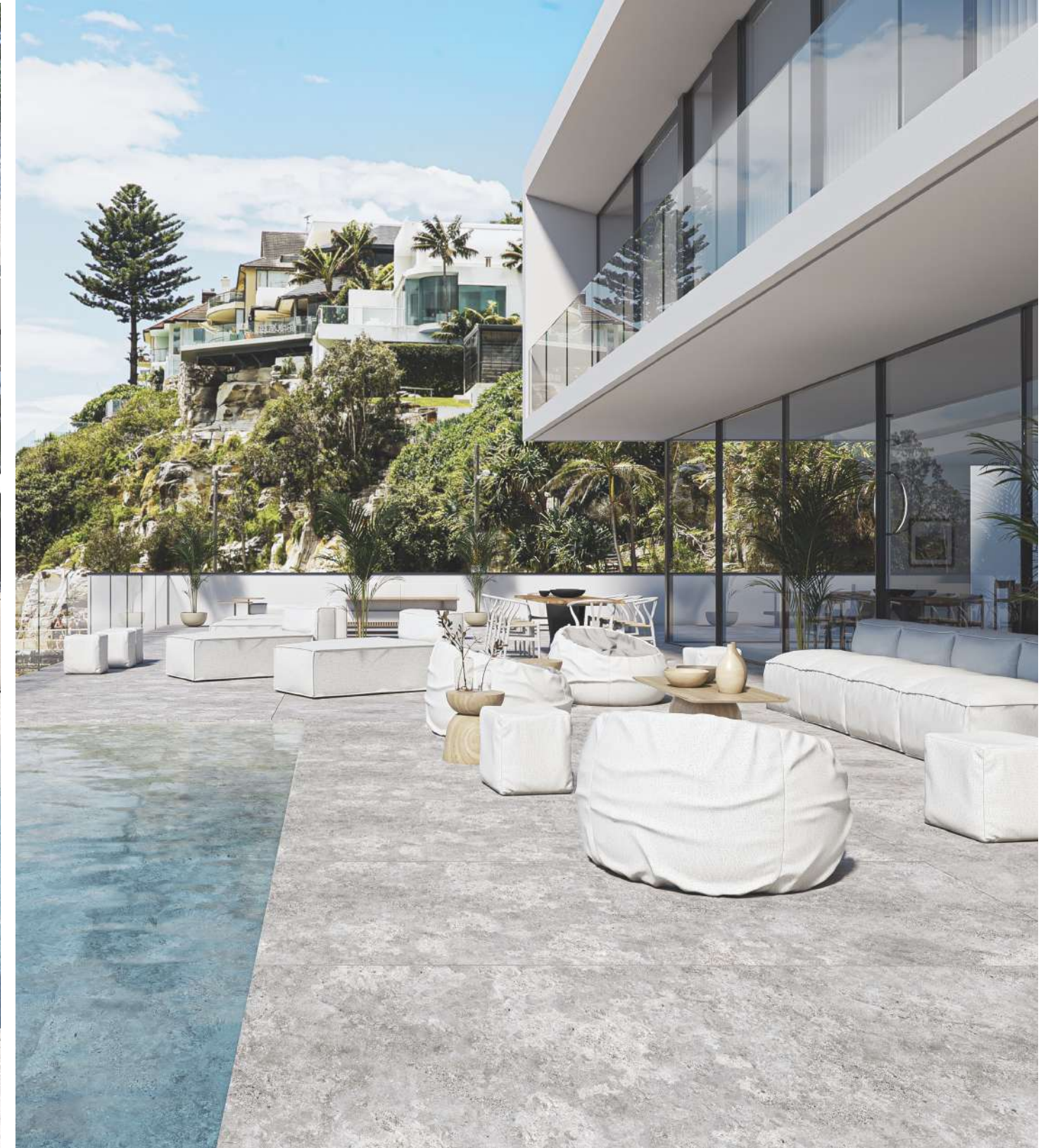


Elegant Wood Look + Detail

INTRIGUING COLOR MIX – VARYING DEPTHS  
INNOVATIVE DESIGN WITH PORCELAIN







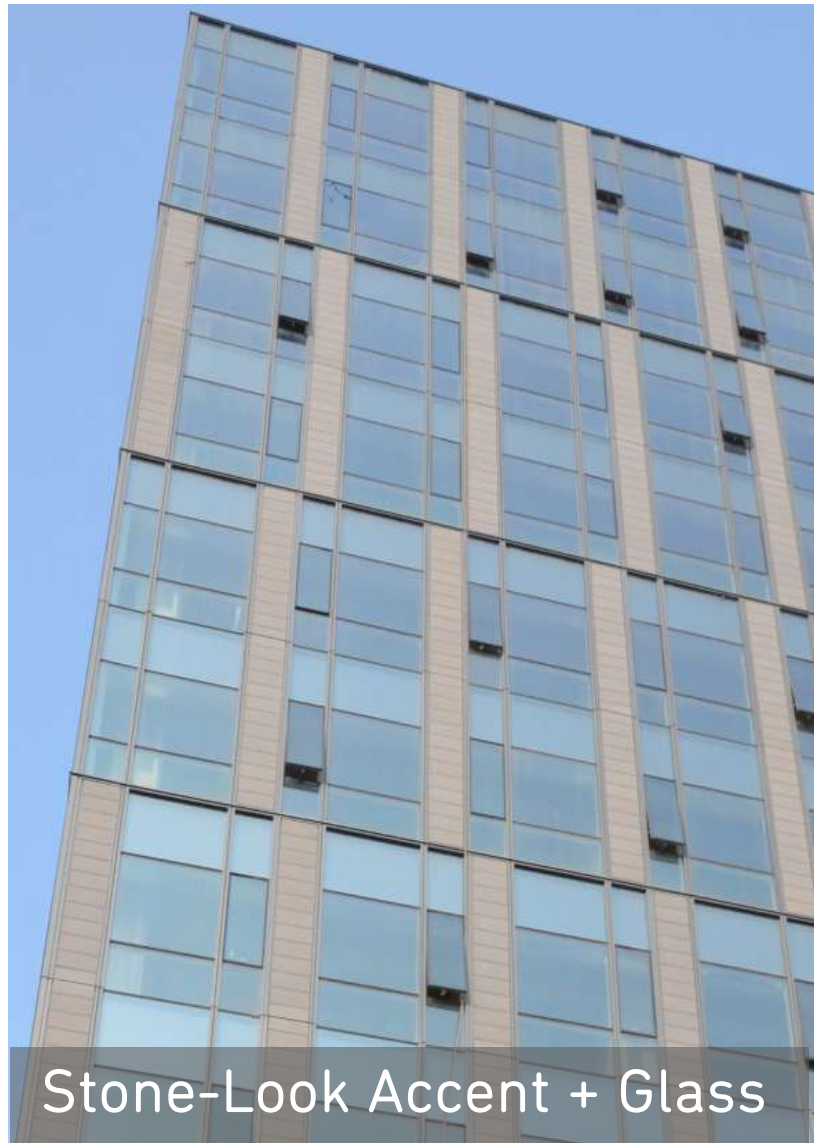
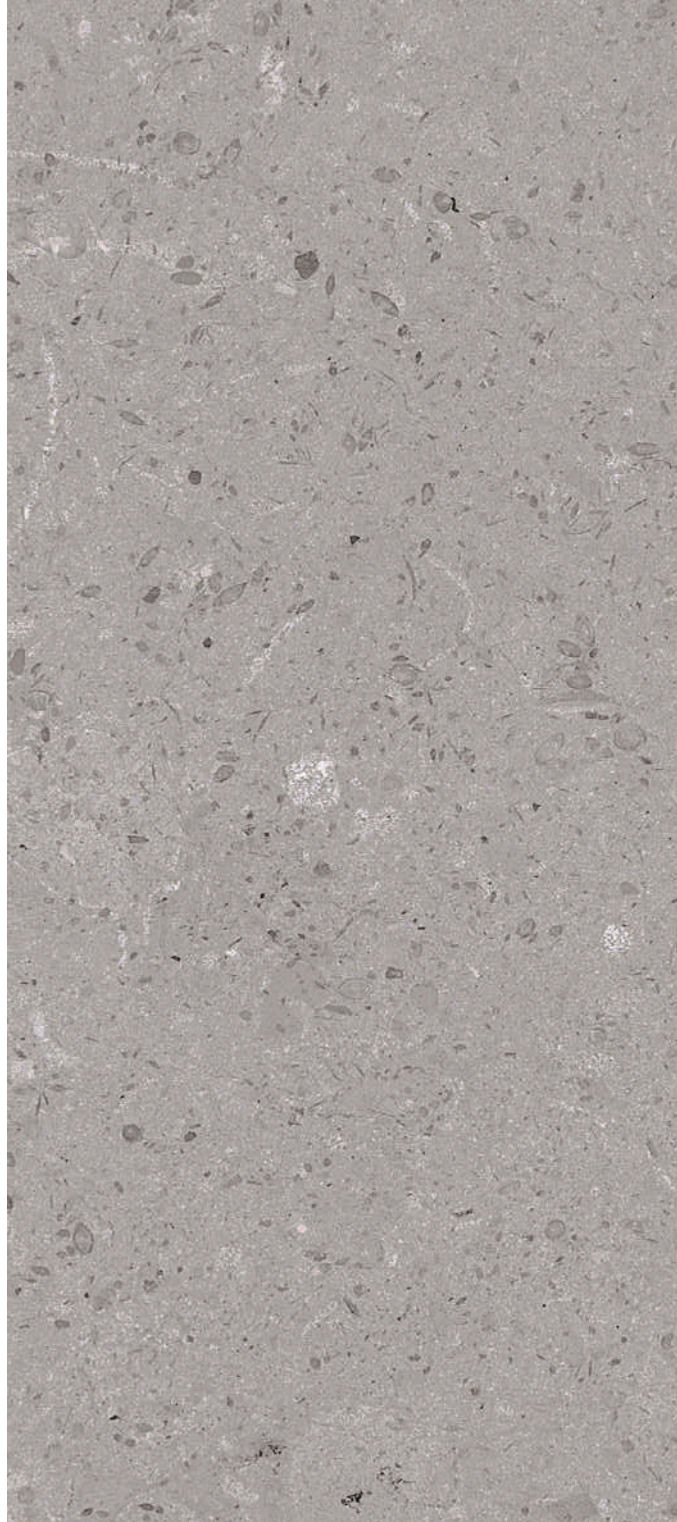
ELEGANT WRAPPED FAÇADE + COLUMNS + COORDINATING PAVERS  
INNOVATIVE DESIGN WITH PORCELAIN



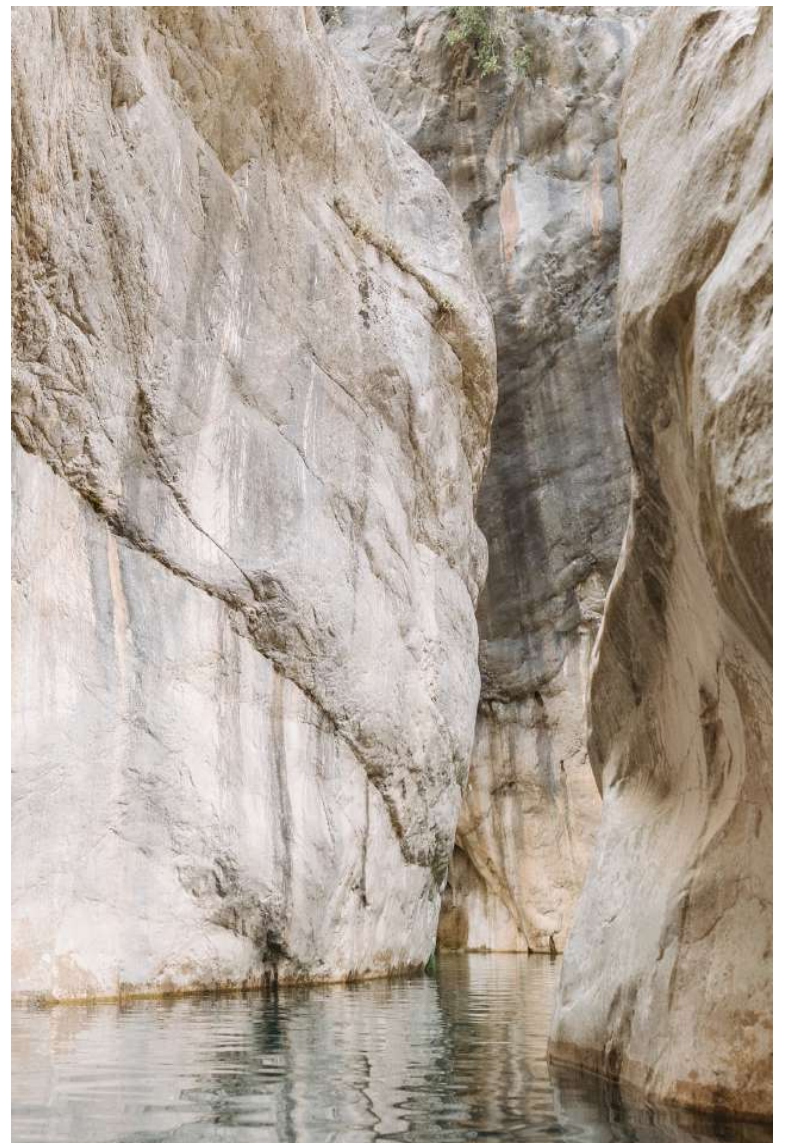




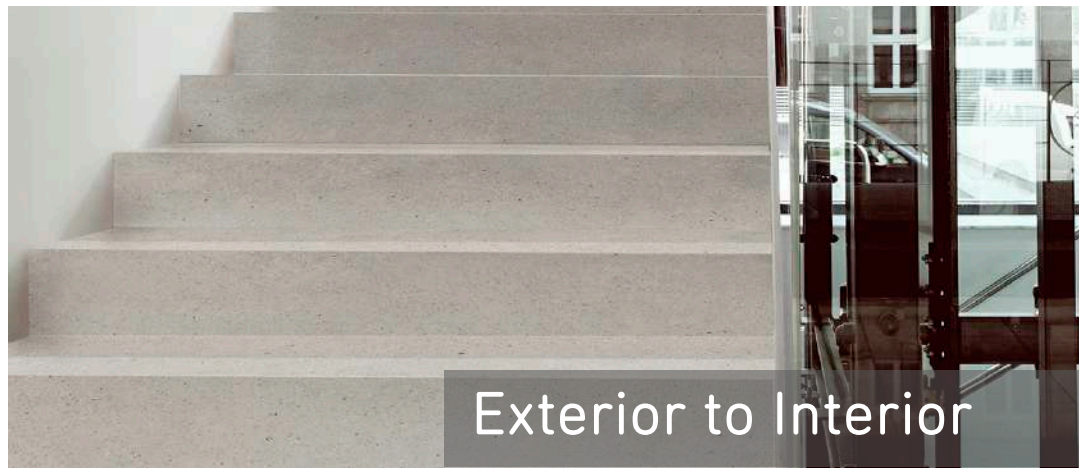
Stone + Concrete Look



Stone-Look Accent + Glass



Classic + Calming



Exterior to Interior



INNOVATIVE DIGITAL PRINTING ON PORCELAIN – STONE + CONCRETE LOOK  
INNOVATIVE DESIGN WITH PORCELAIN

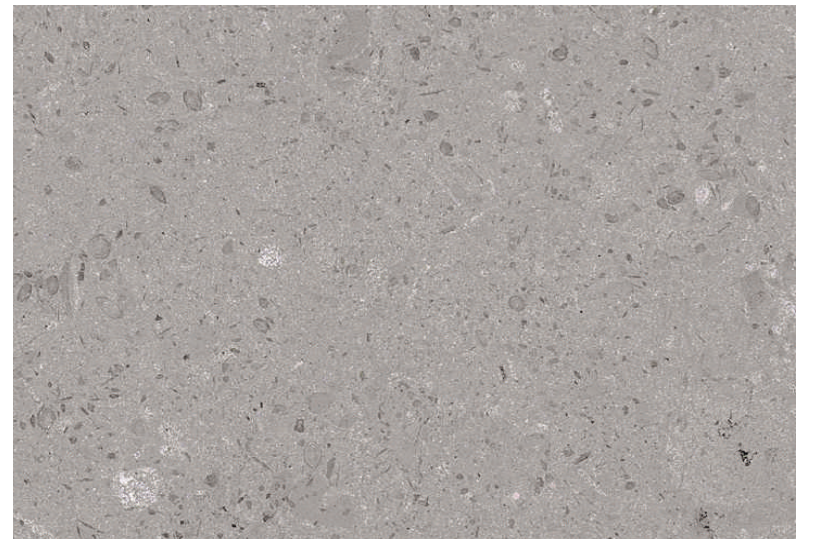






Classic Cool Stone Look

Classic Warm Stone Look

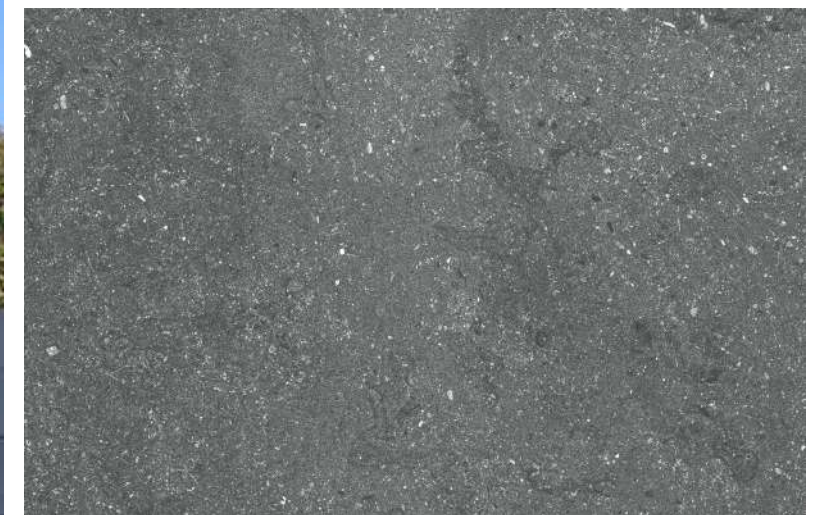


MIX OF CLASSIC STONE-LOOK TEXTURES  
INNOVATIVE DESIGN WITH PORCELAIN





Beautiful Wrap Around Glass



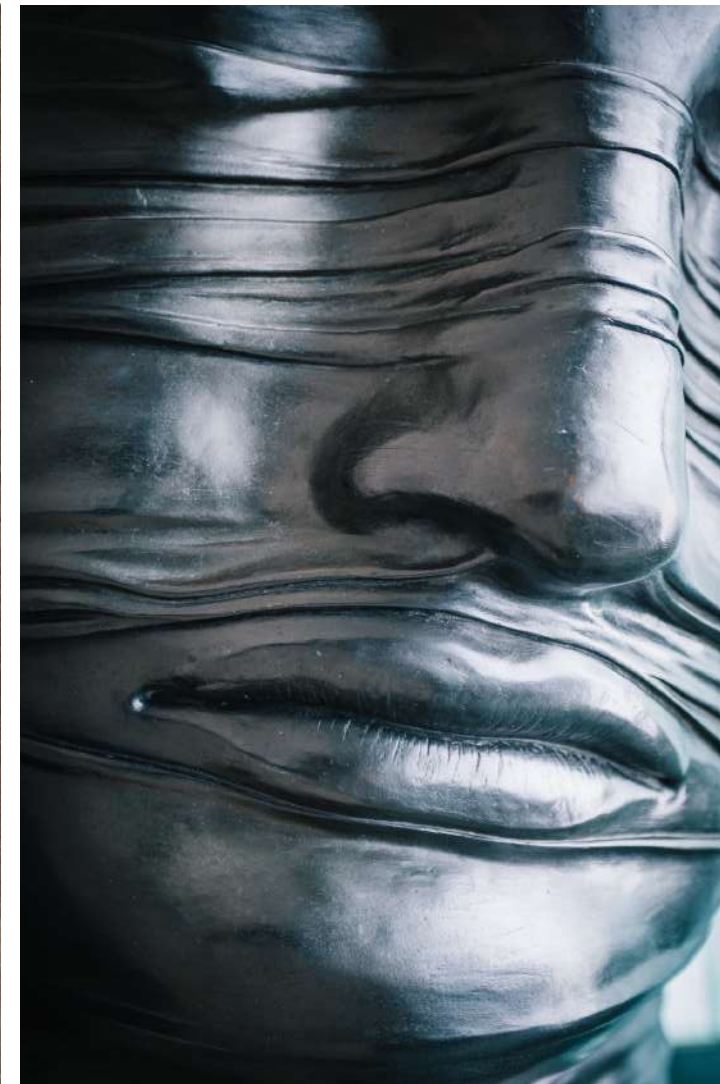
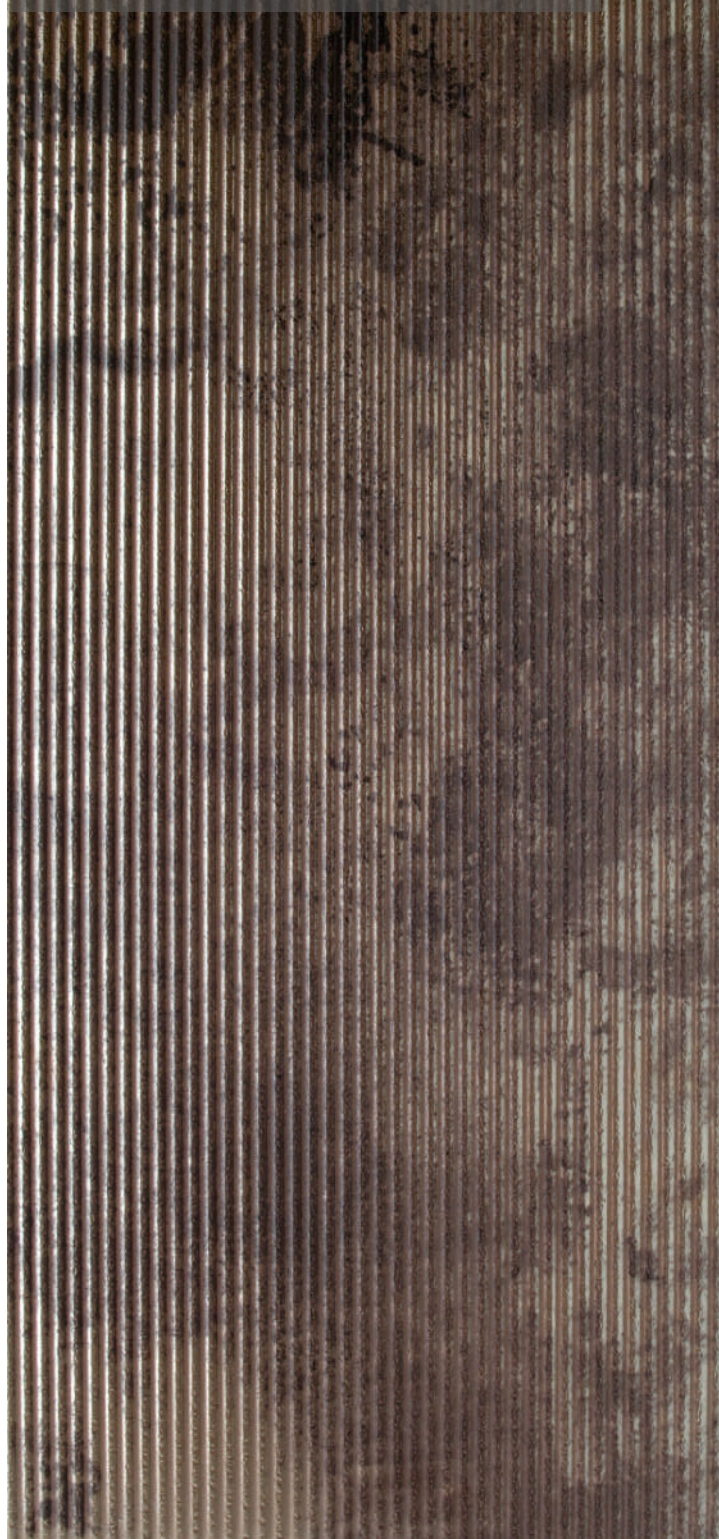
ELEGANT WRAPPED FAÇADE - BLENDED INTO LANDSCAPE  
INNOVATIVE DESIGN WITH PORCELAIN



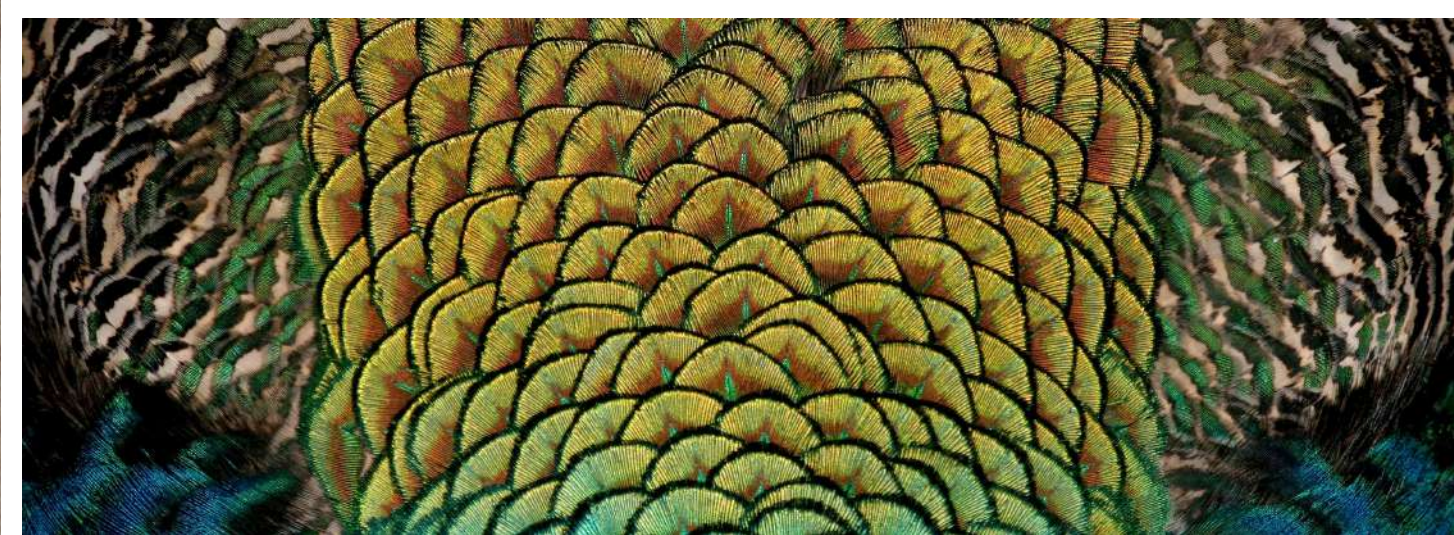
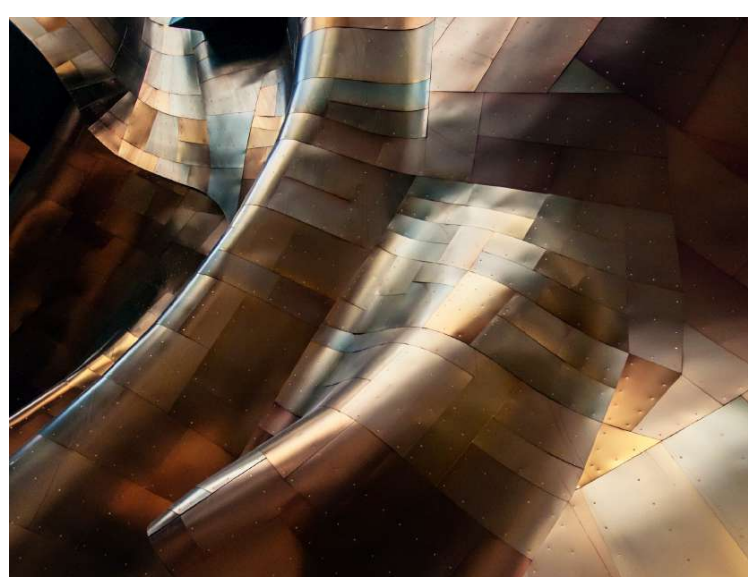
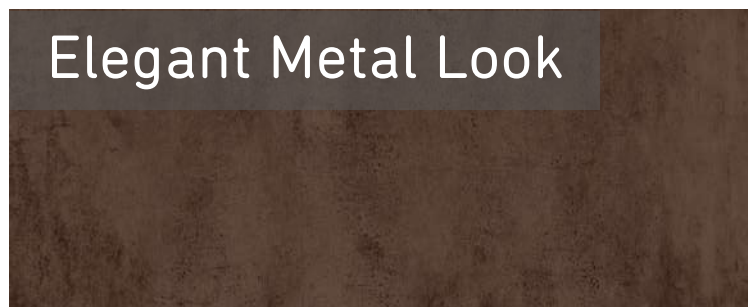




Elegant Metal Look



Elegant Metal Look



INNOVATIVE DIGITAL PRINTING ON PORCELAIN - METALS  
INNOVATIVE DESIGN WITH PORCELAIN







Exterior Facade



Ceiling + Wall Panel



Metal Look



Metal Look

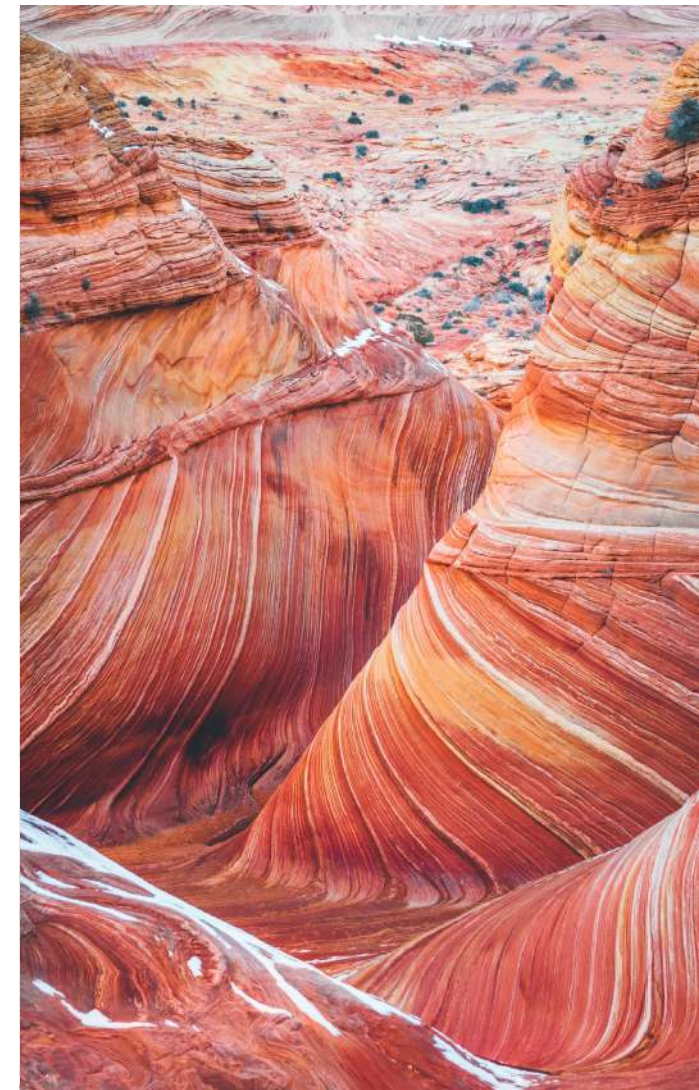
METALLICS CREATE DRAMA AND ELEGANCE – EXTERIOR TO INTERIOR  
INNOVATIVE DESIGN WITH PORCELAIN



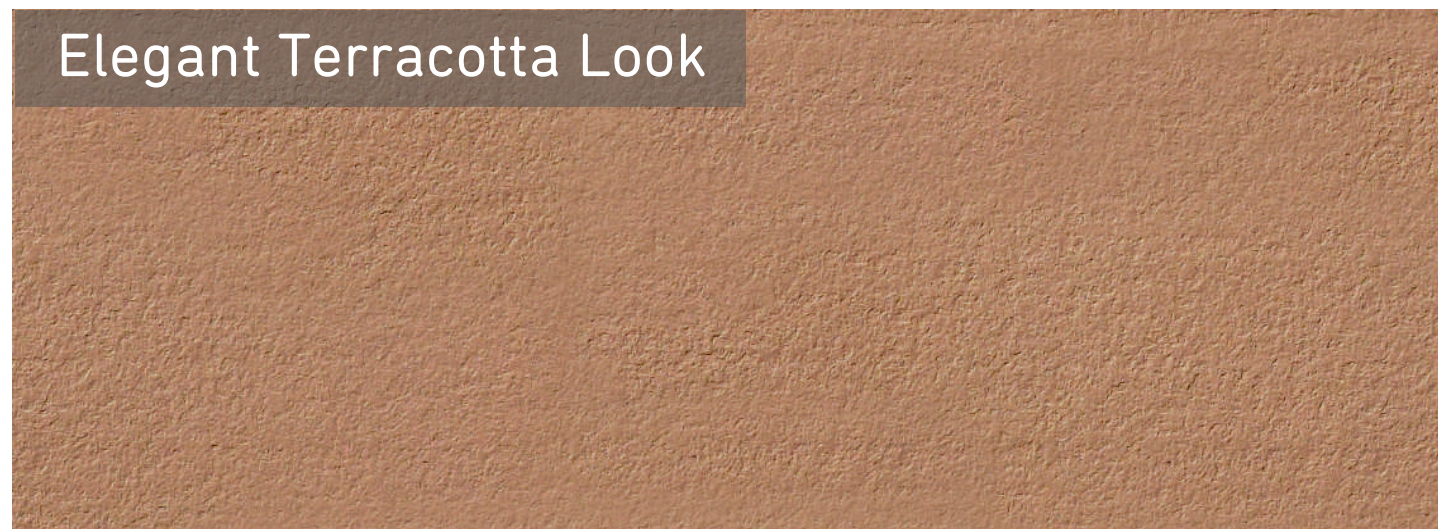




Elegant Terracotta Look



Elegant Terracotta Look



# INNOVATIVE DIGITAL PRINTING ON PORCELAIN – TERRACOTTA LOOK + TEXTURES

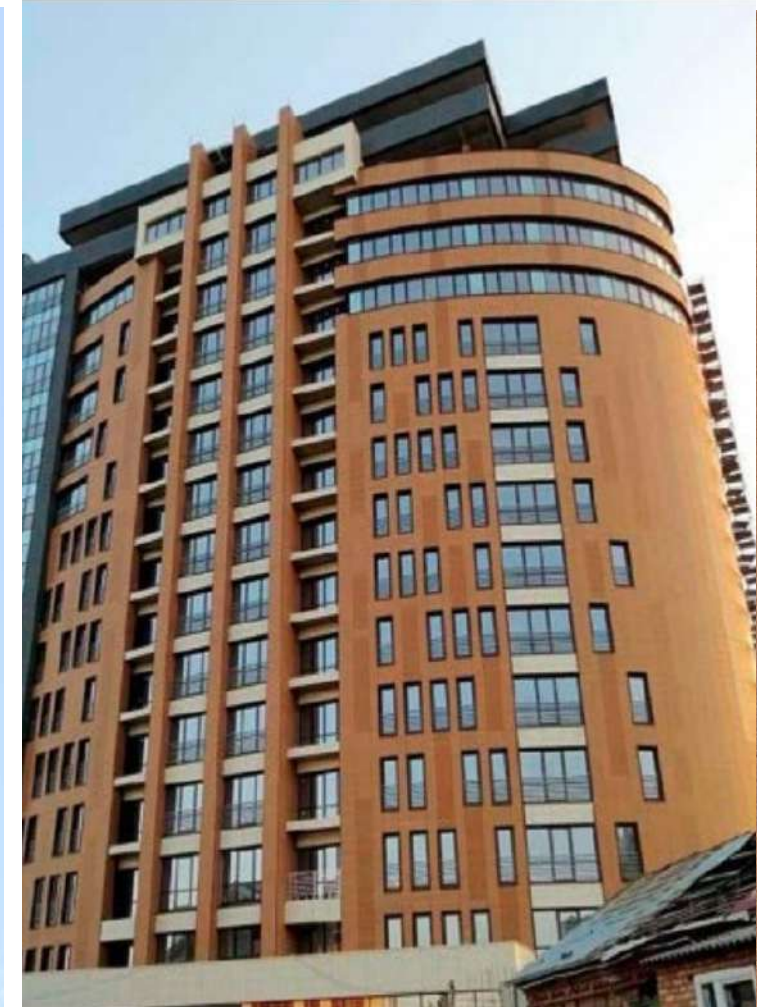
INNOVATIVE DESIGN WITH PORCELAIN





Elegant Terracotta Look

Natural Look of Clay with Glass



COLORS OF NATURE – STRENGTH of PORCELAIN, LOOK OF TERRACOTTA  
INNOVATIVE DESIGN WITH PORCELAIN

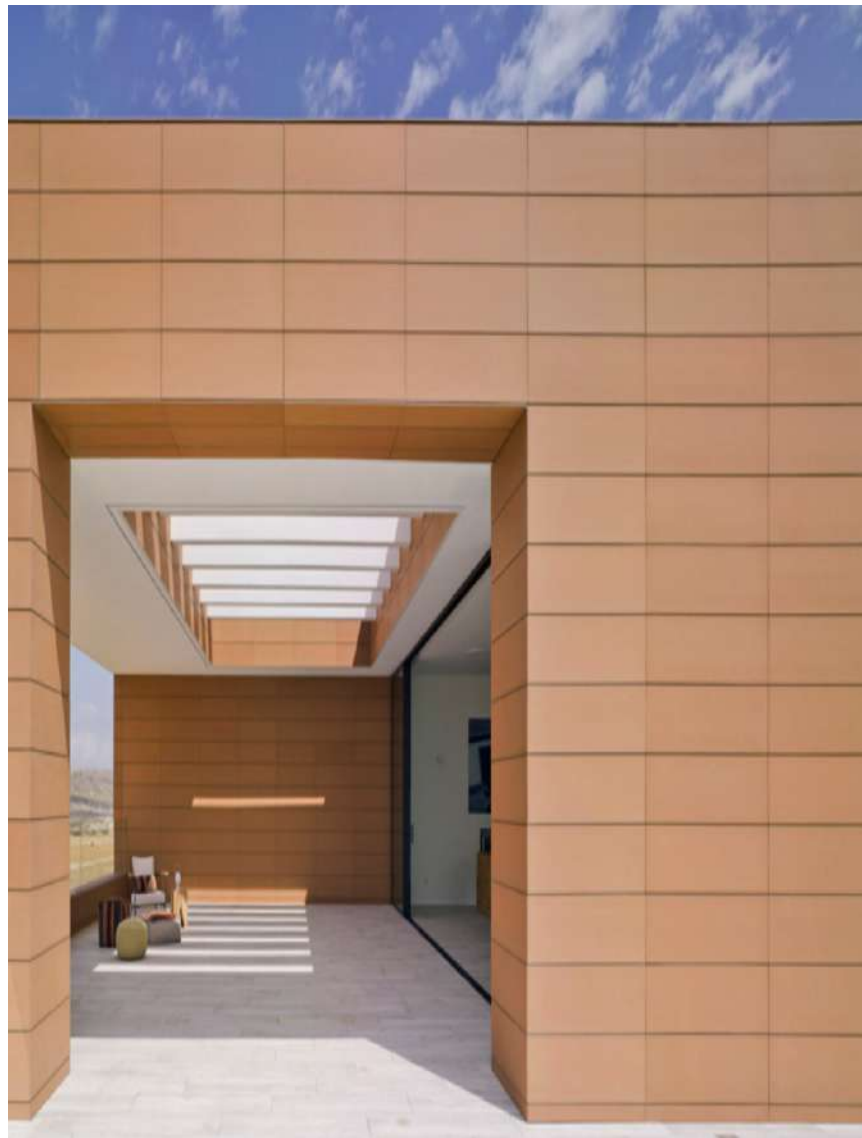
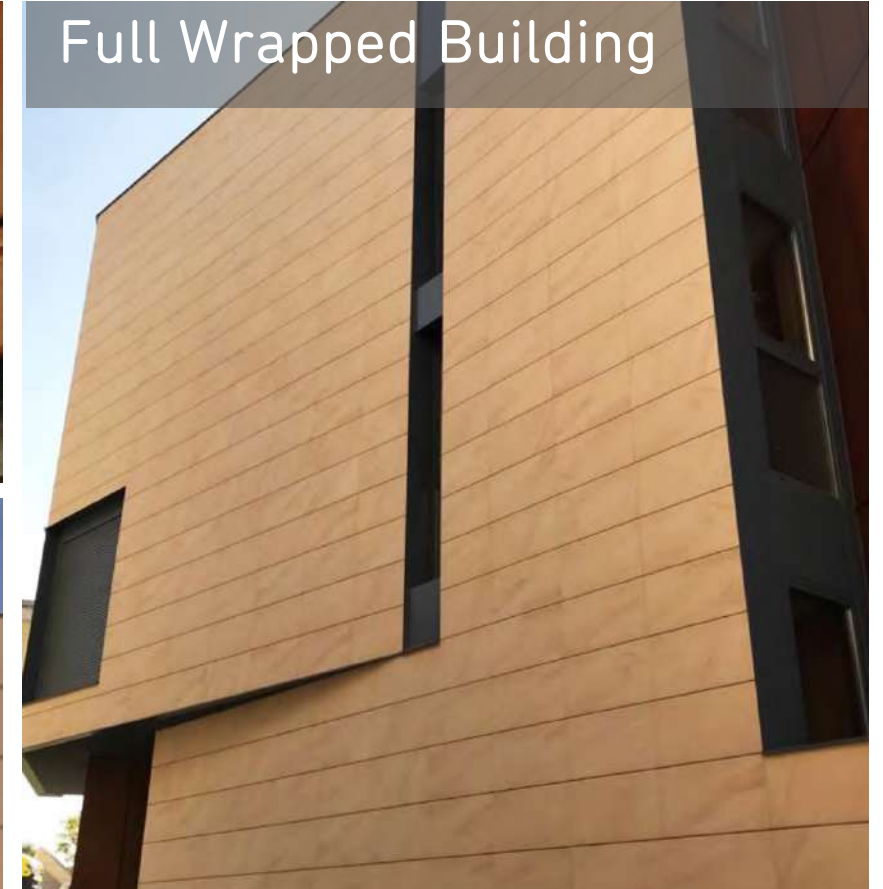




Warm Accents of Terracotta Look



Full Wrapped Building



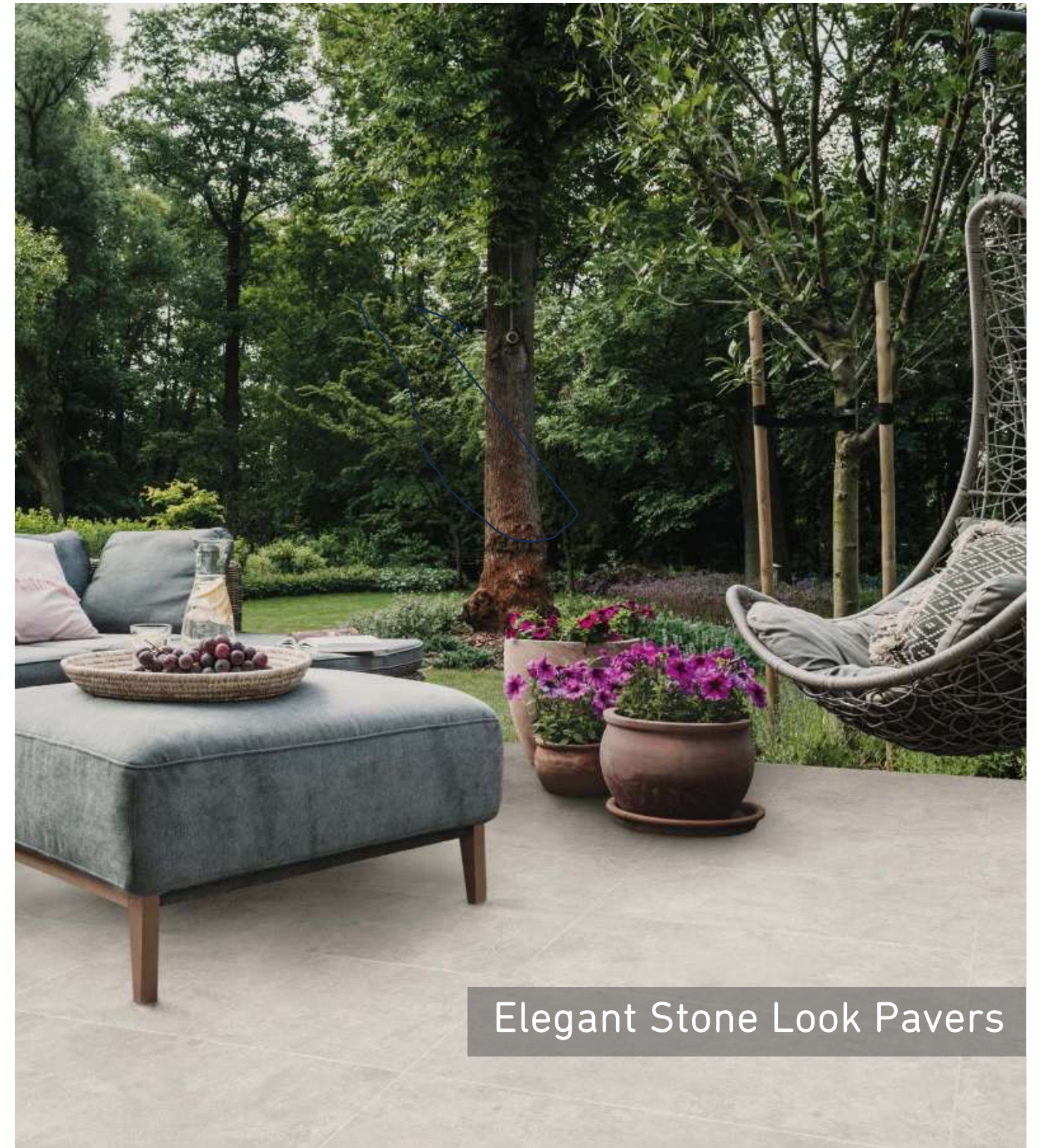
COLORS OF NATURE – STRENGTH of PORCELAIN, LOOK OF NATURAL CLAYS  
INNOVATIVE DESIGN WITH PORCELAIN





Varying Levels of Texture + Sheen

Soft Porcelain Textures

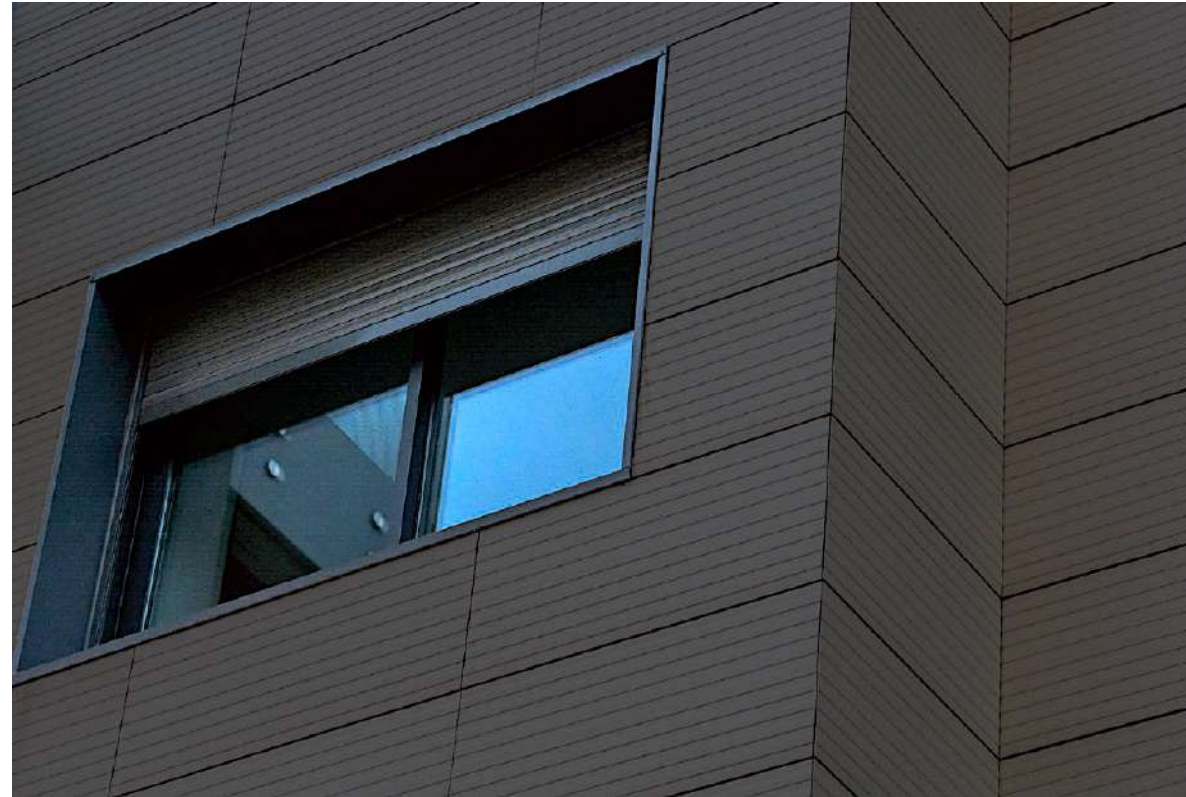


Elegant Stone Look Pavers

PORCELAIN with GLASS + METAL [TEXTURE+ REFLECTIVITY]  
INNOVATIVE DESIGN WITH PORCELAIN



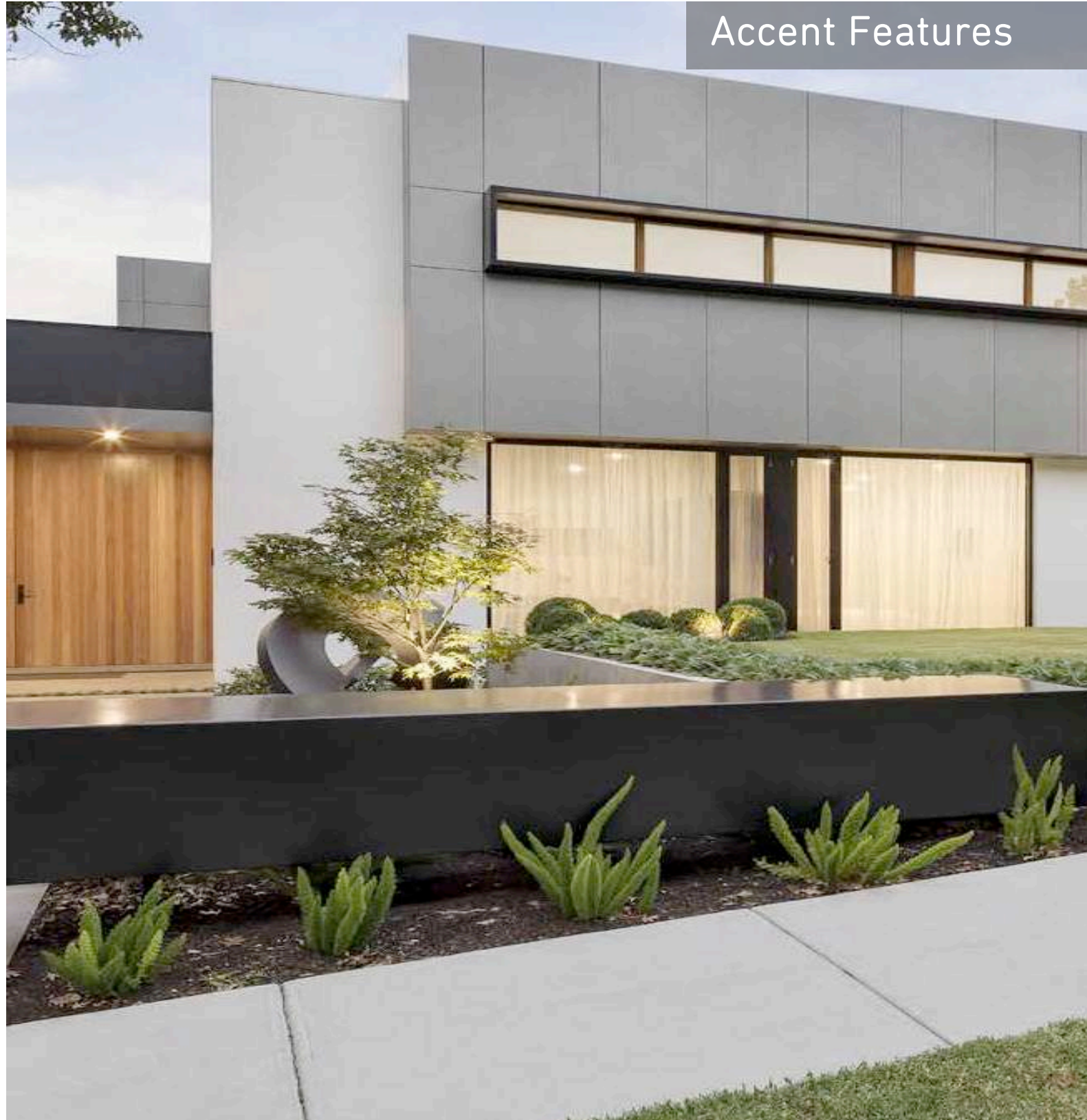




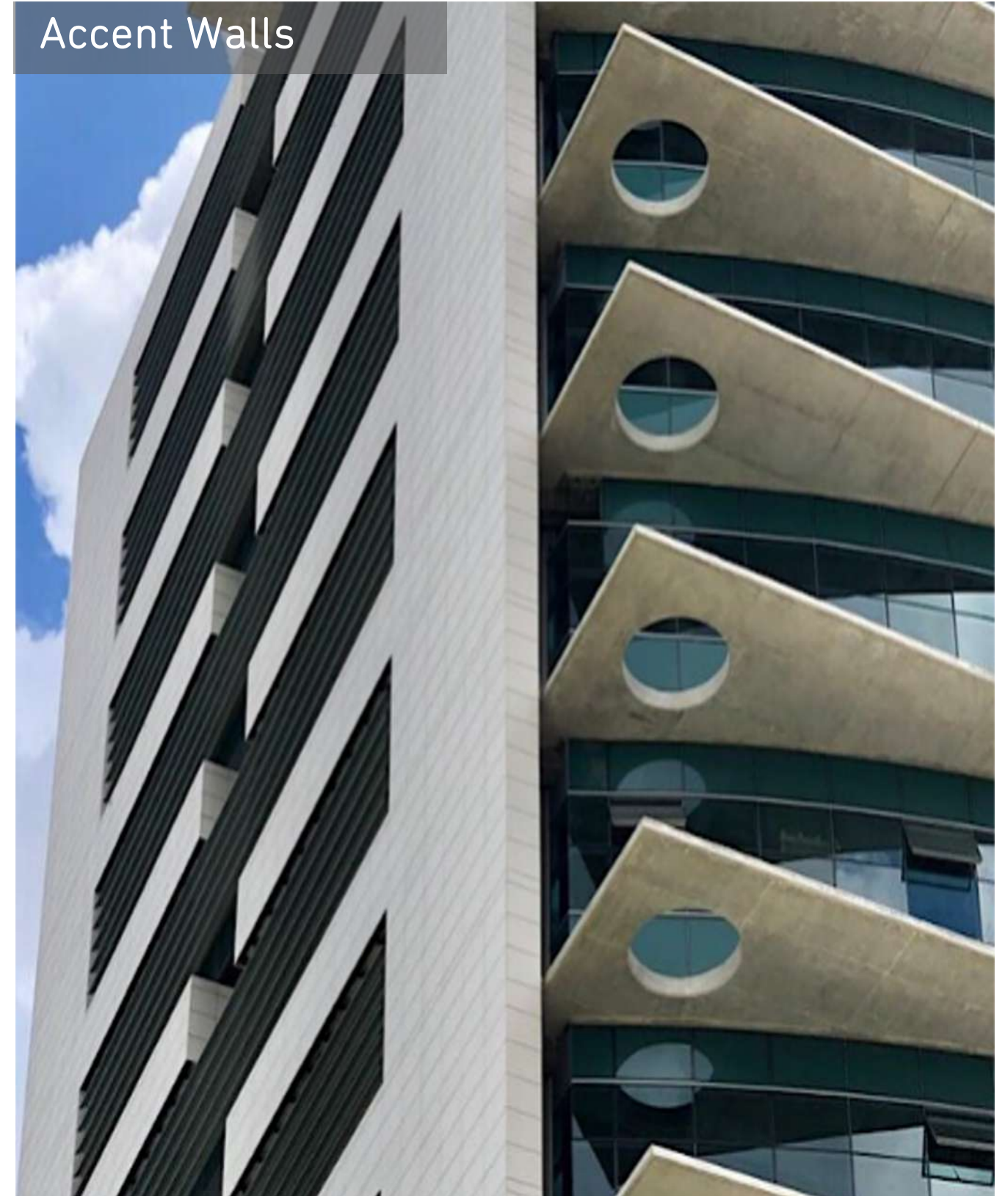
PORCELAIN with TEXTURE + VOLUME  
INNOVATIVE DESIGN WITH PORCELAIN



Accent Features



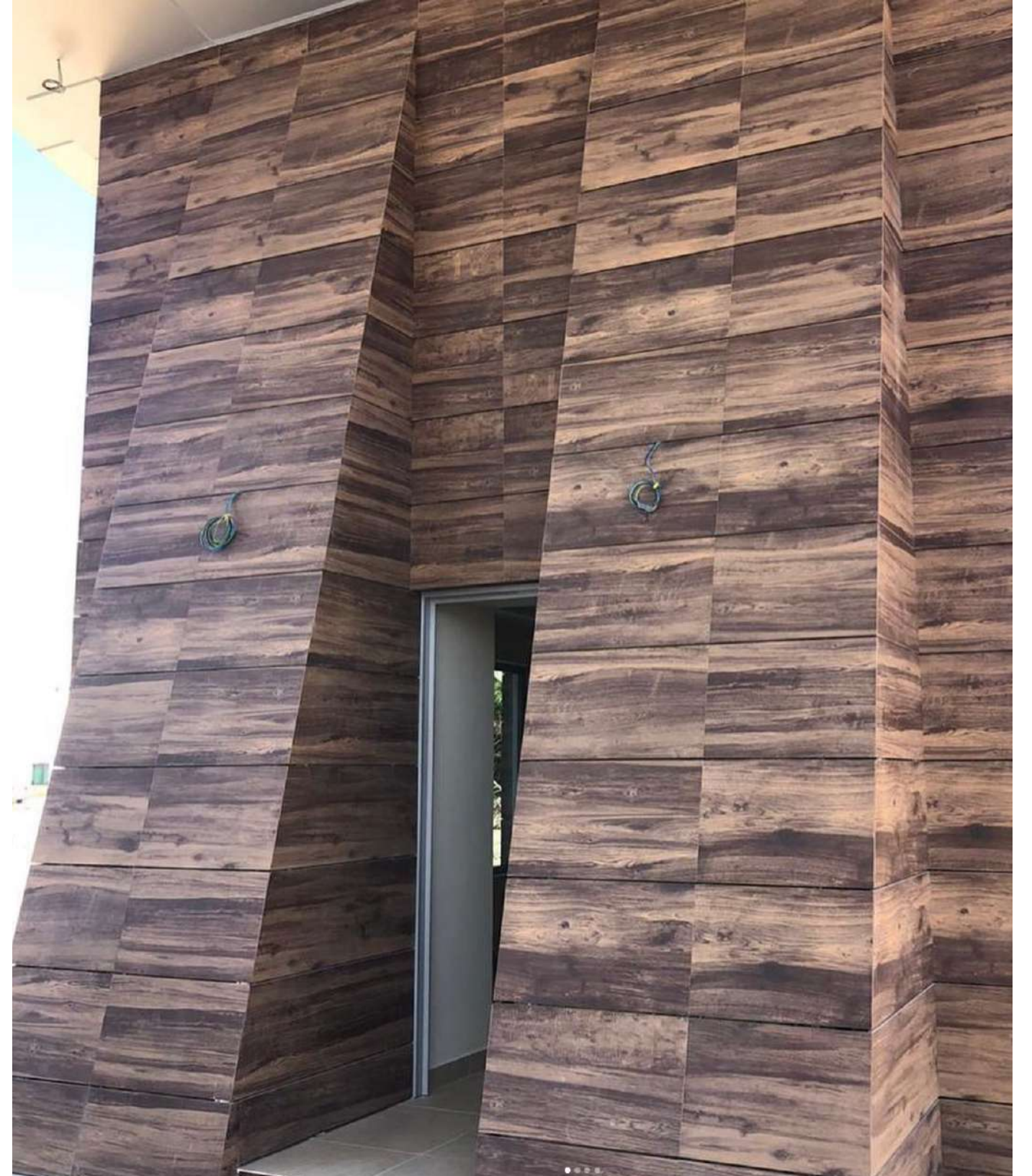
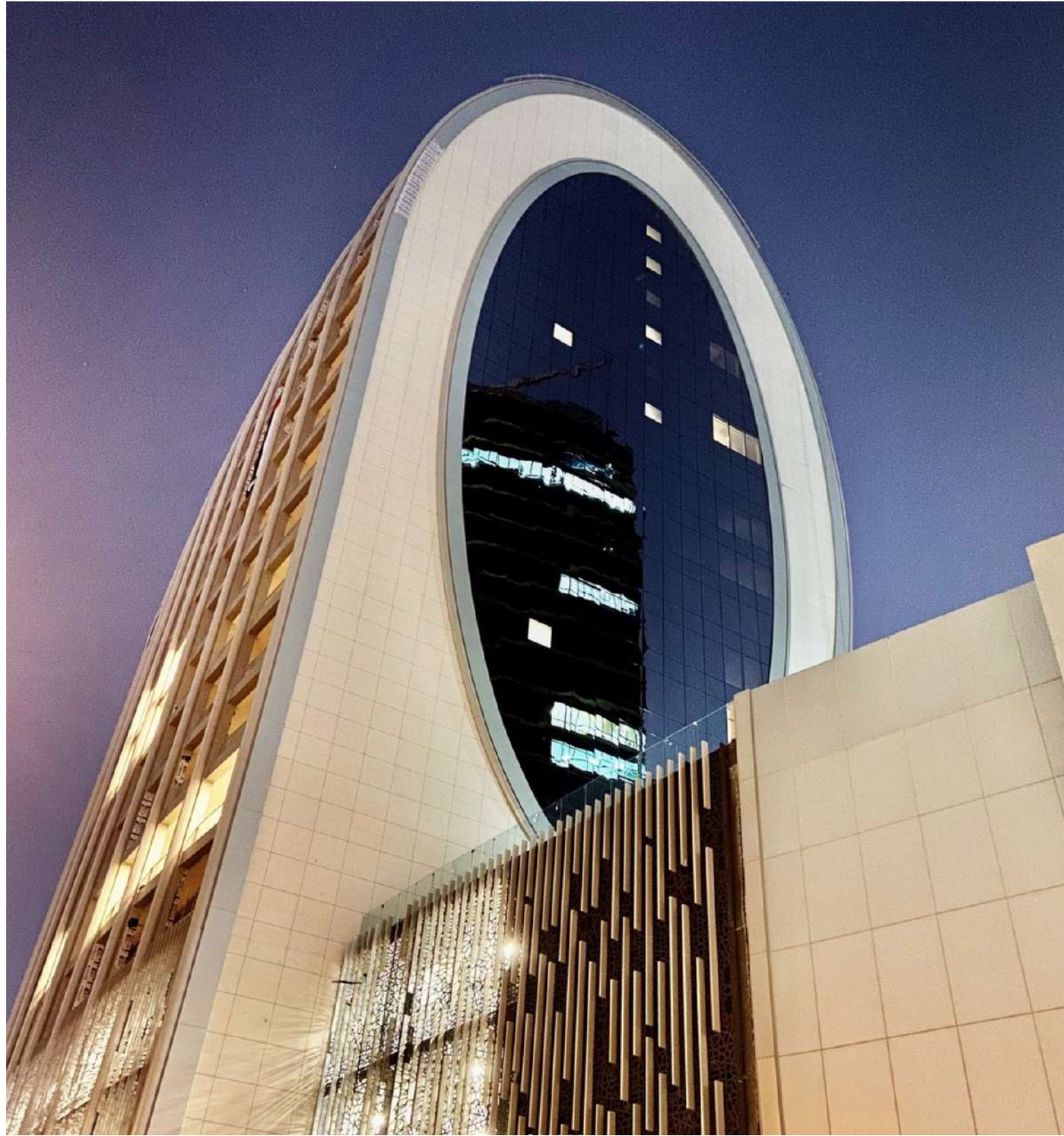
Accent Walls



ARCHITECTURAL ELEMENTS + SHAPES + ACCENT FEATURES  
INNOVATIVE DESIGN WITH PORCELAIN

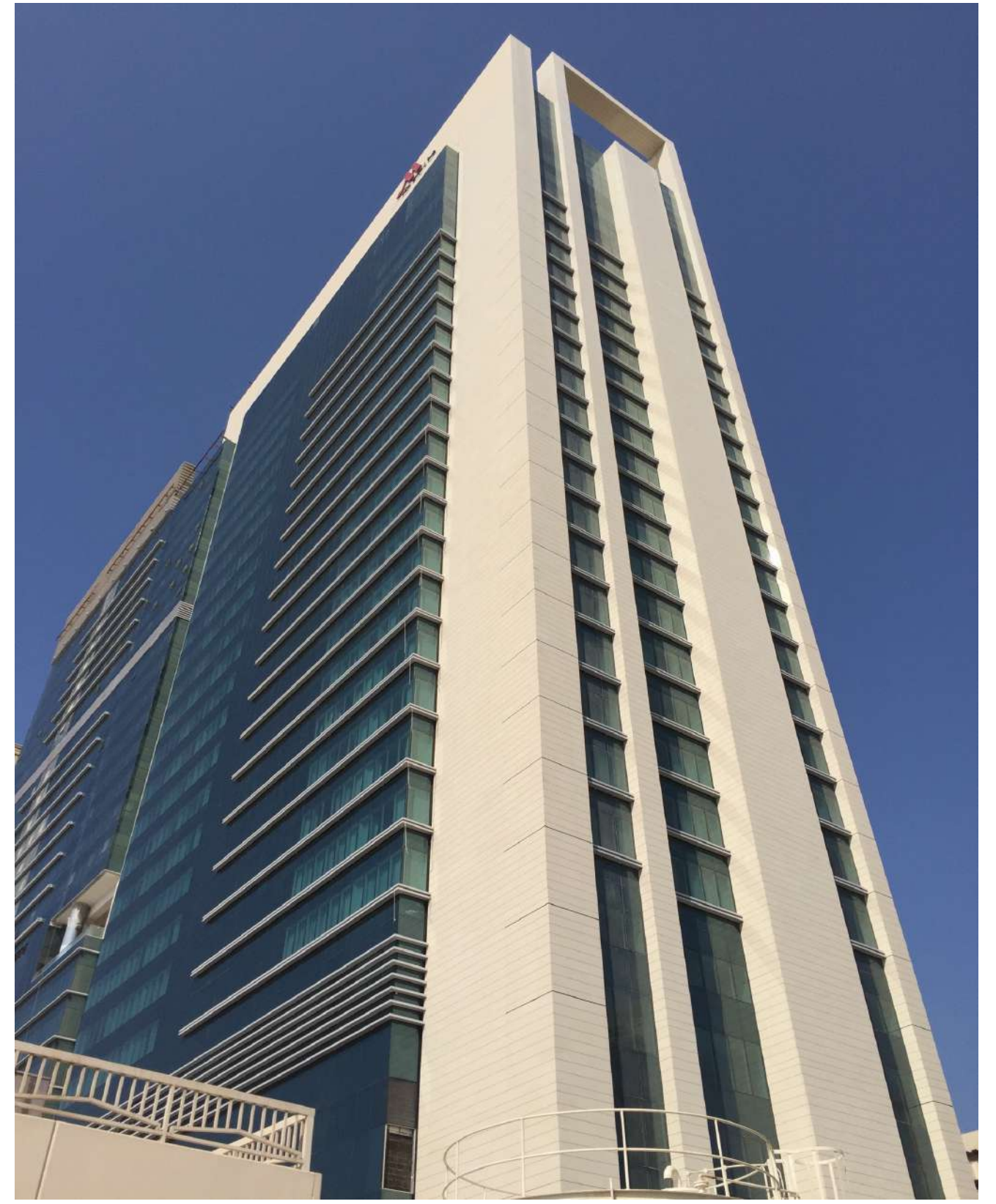






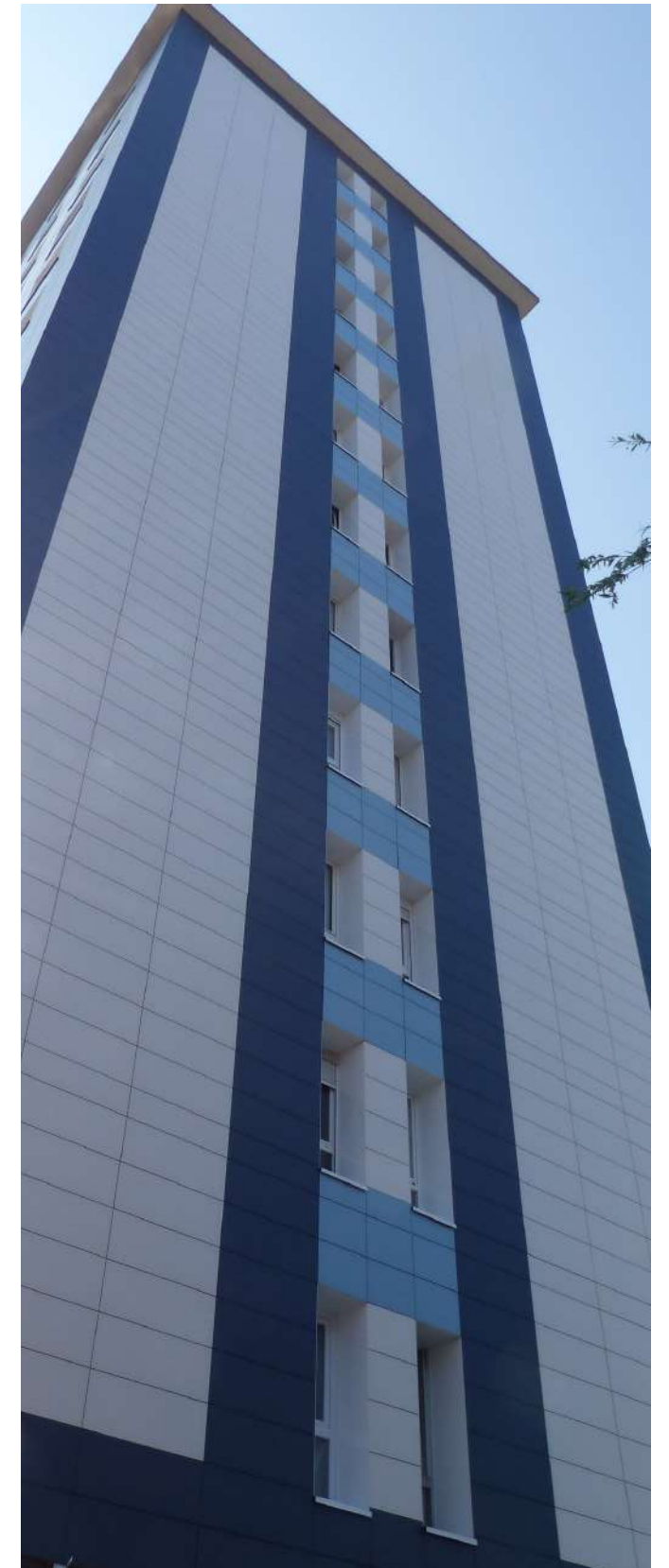
ARCHITECTURAL ELEMENTS + SHAPES + ACCENT FEATURES  
INNOVATIVE DESIGN WITH PORCELAIN





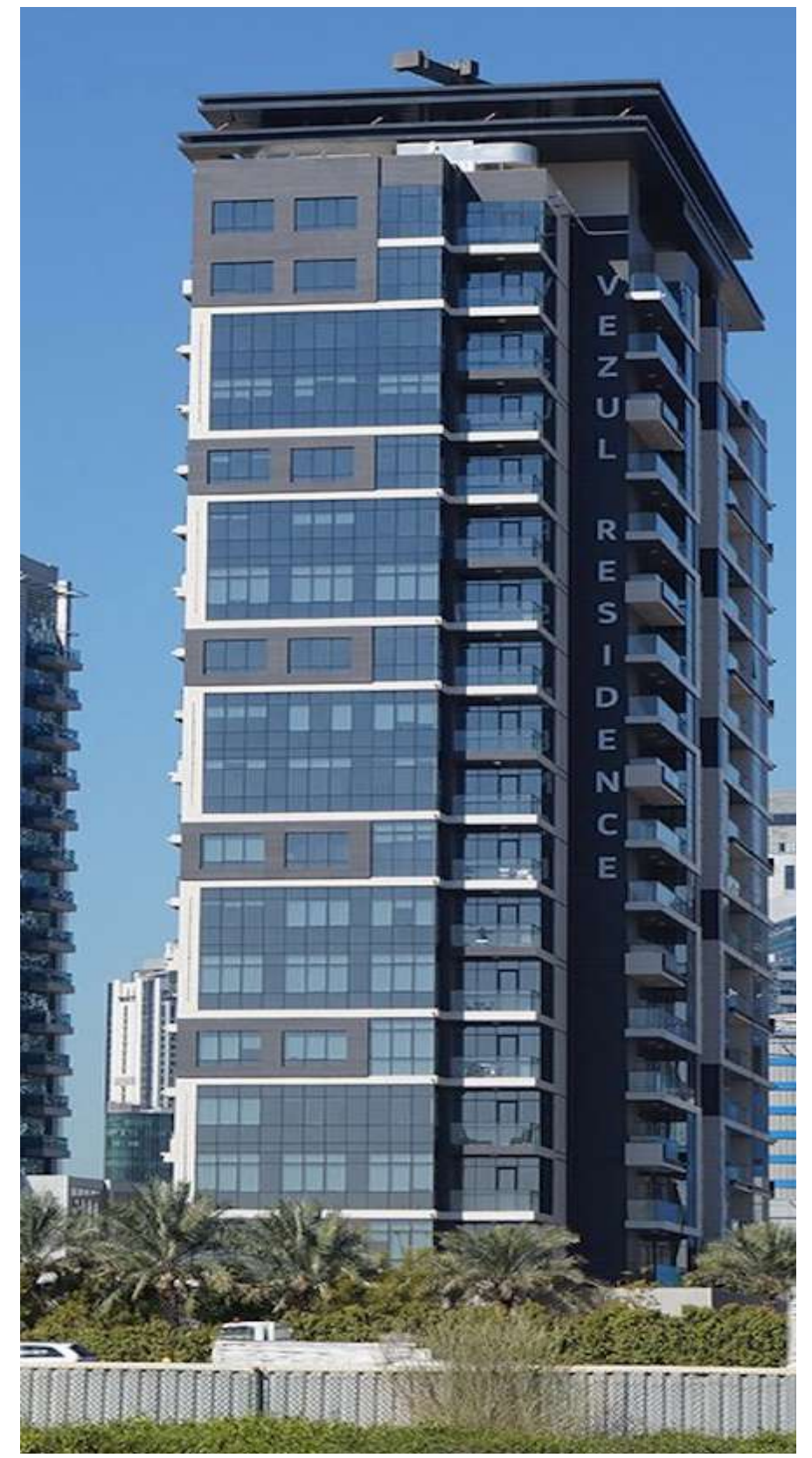
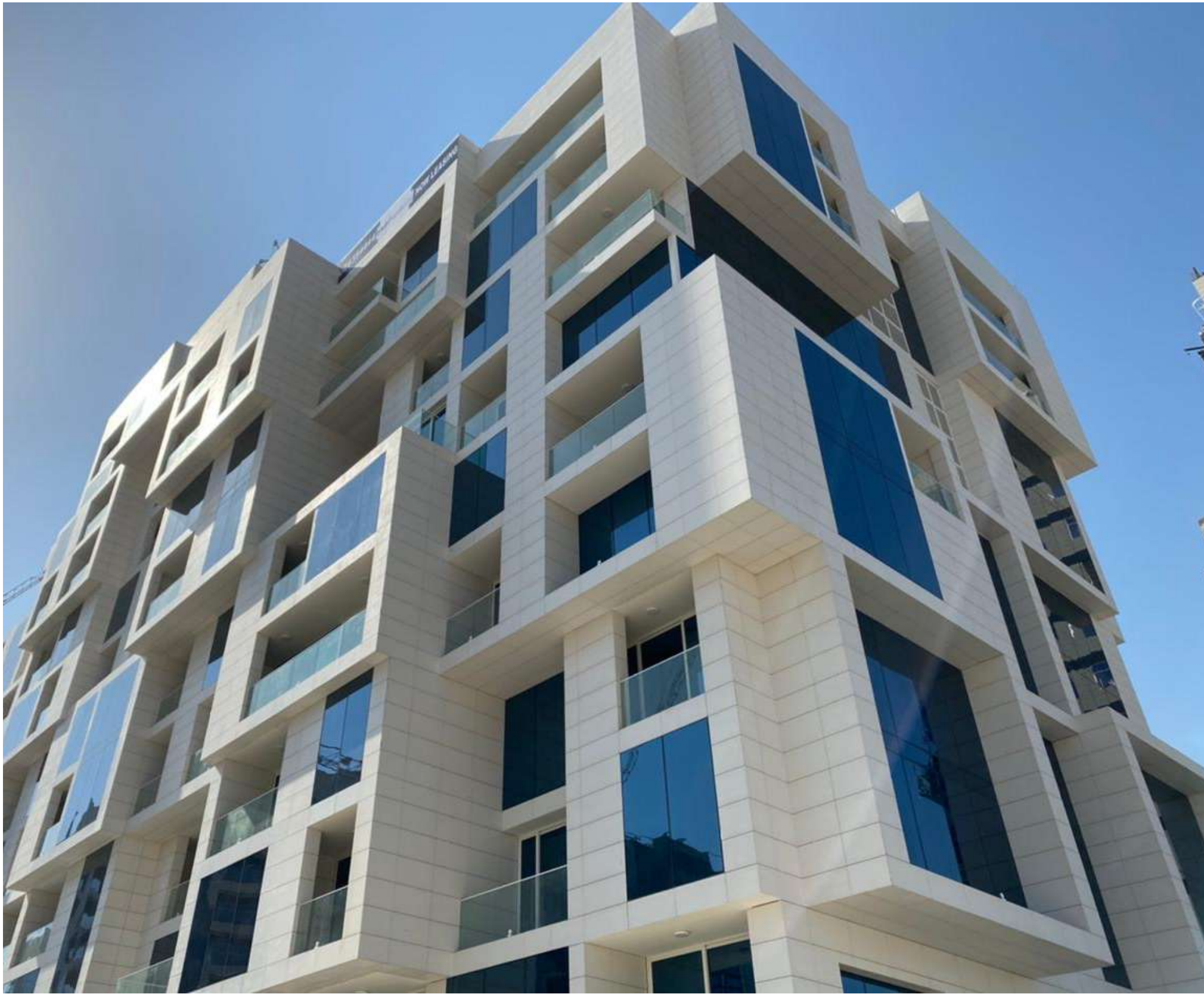
ARCHITECTURAL ELEMENTS + SHAPES + ACCENT FEATURES  
INNOVATIVE DESIGN WITH PORCELAIN





ARCHITECTURAL ELEMENTS + SHAPES + ACCENT FEATURES  
INNOVATIVE DESIGN WITH PORCELAIN





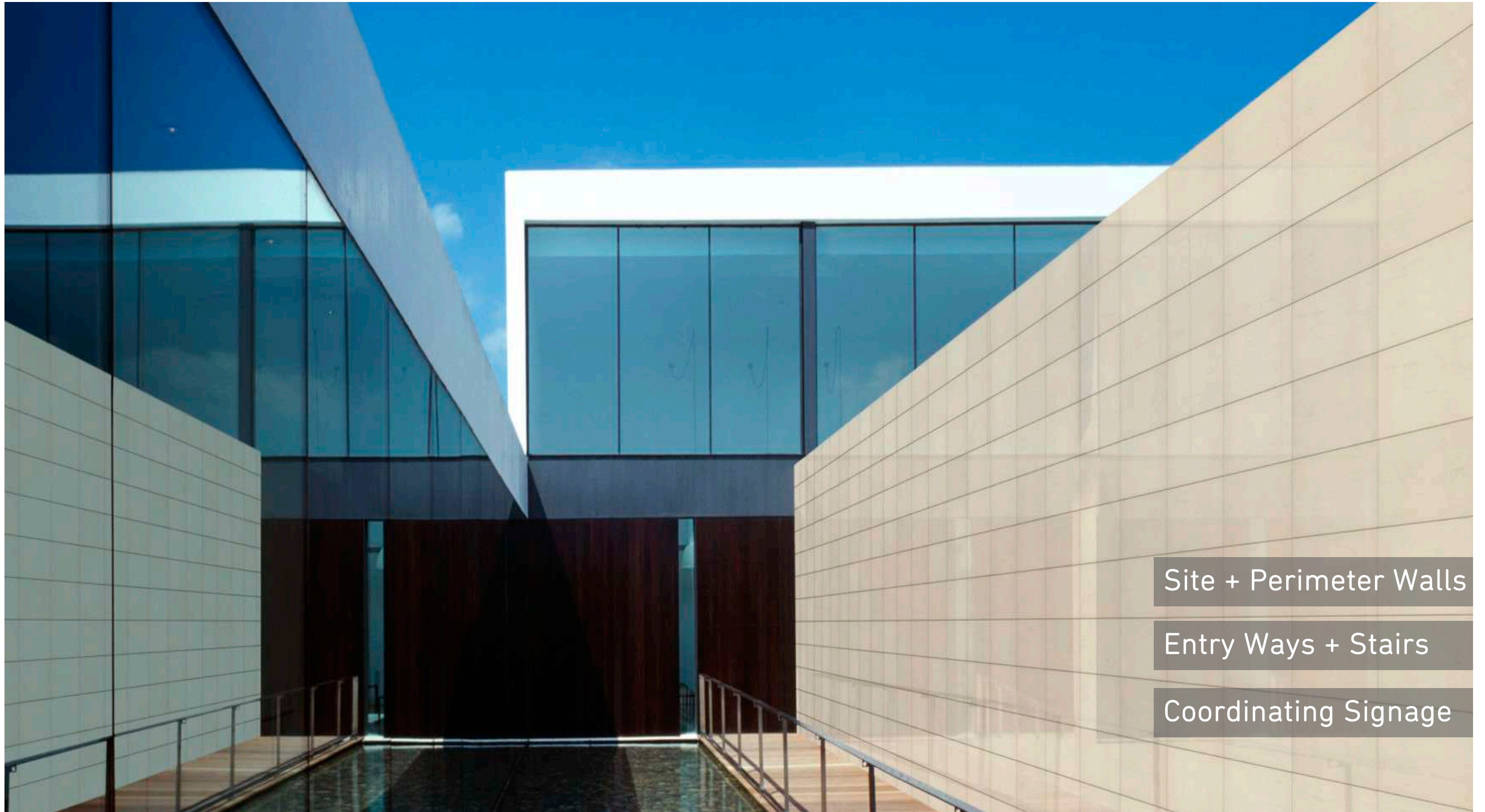
ARCHITECTURAL ELEMENTS + SHAPES + ACCENT FEATURES  
INNOVATIVE DESIGN WITH PORCELAIN





ARCHITECTURAL ELEMENTS + SHAPES + ACCENT FEATURES  
INNOVATIVE DESIGN WITH PORCELAIN





Site + Perimeter Walls

Entry Ways + Stairs

Coordinating Signage

## MASTER PLANNING - PORCELAIN PERIMETER WALLS, SIGNAGE

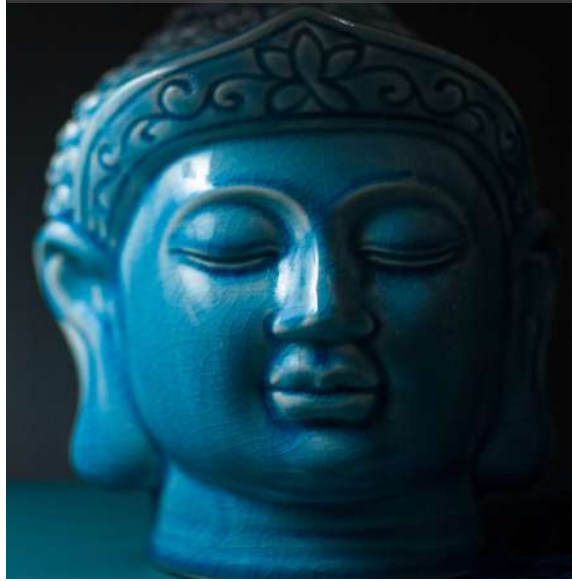
INNOVATIVE DESIGN WITH PORCELAIN



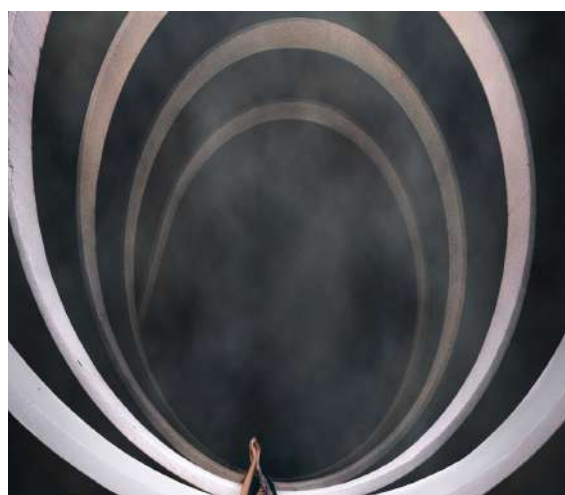




Eye Catching Color



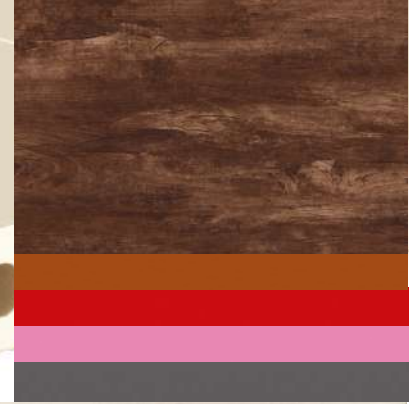
Shape + Volume



Shape + Volume



Pattern



INNOVATIVE DIGITAL PRINTING ON PORCELAIN – COLORS, SHAPES, TEXTURES, PATTERNS  
INNOVATIVE DESIGN WITH PORCELAIN





Eye Catching Color



Wrap Balconies

INNOVATIVE DIGITAL PRINTING ON PORCELAIN – COLORS + SHAPE  
INNOVATIVE DESIGN WITH PORCELAIN





Colorful Panels

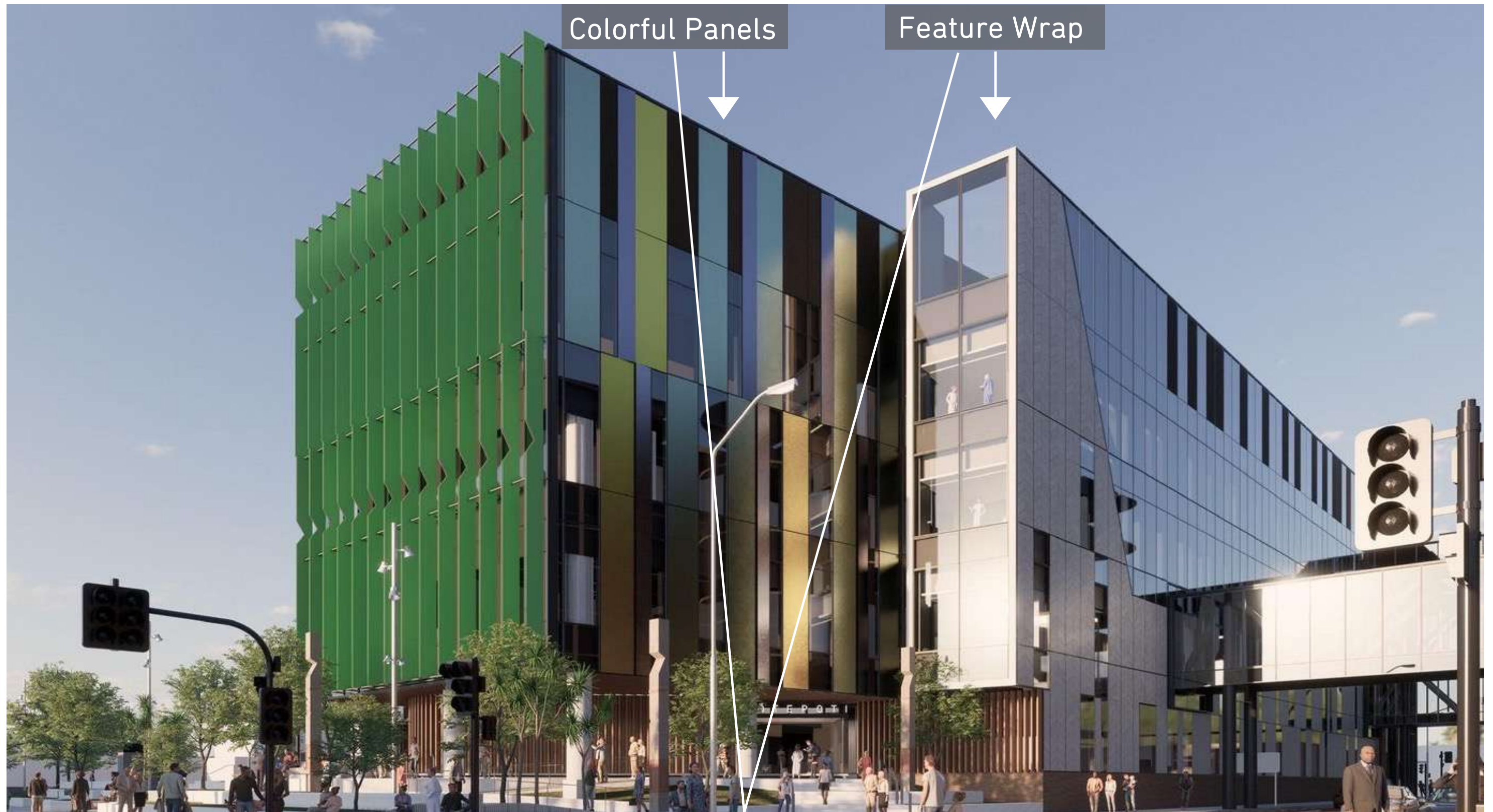
Healthcare Bldg, Australia  
RENDERING



INNOVATIVE DIGITAL PRINTING ON PORCELAIN – COLORS + SHAPE  
INNOVATIVE DESIGN WITH PORCELAIN







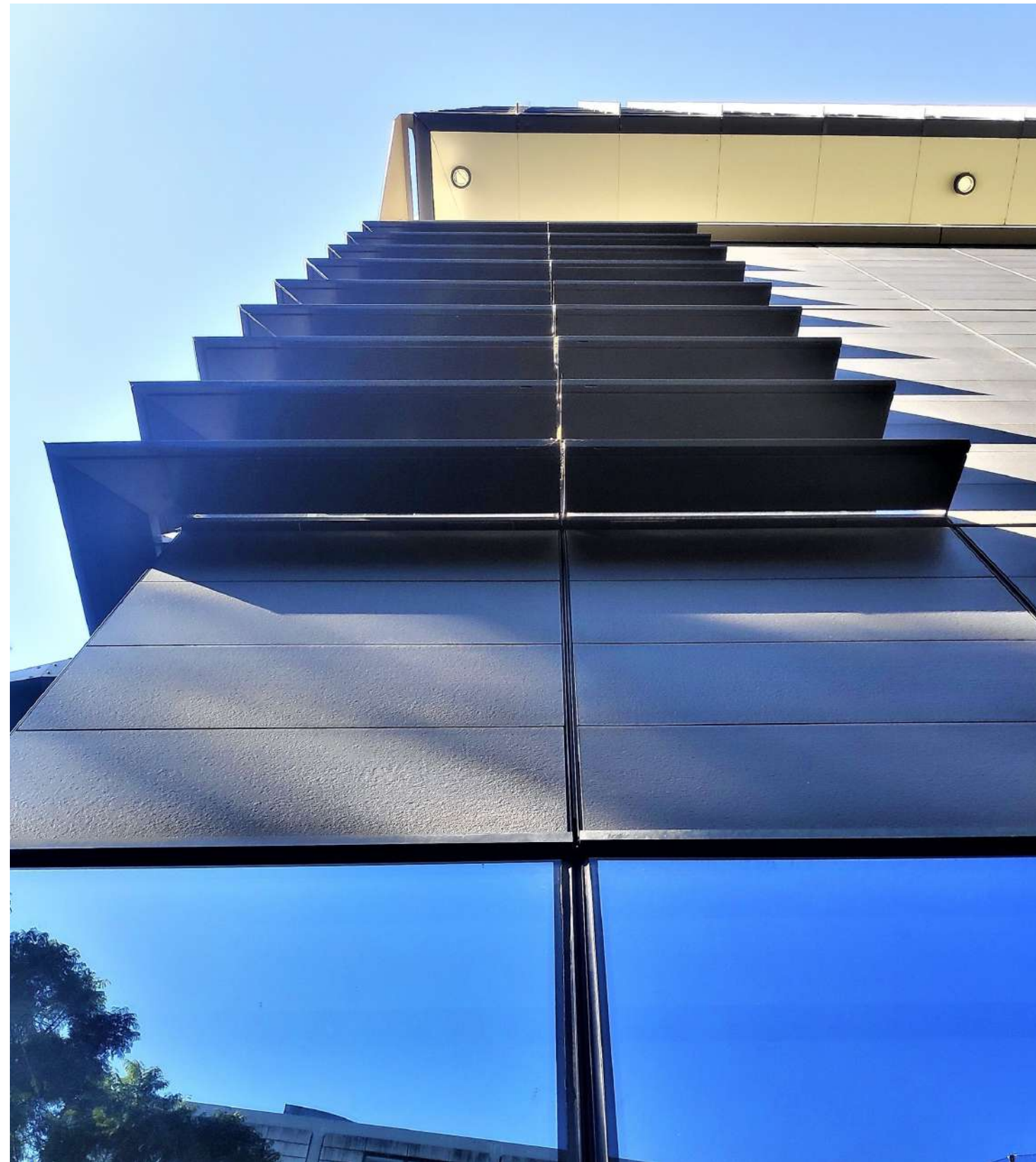
INNOVATIVE DIGITAL PRINTING ON PORCELAIN – COLORS + SHAPE  
INNOVATIVE DESIGN WITH PORCELAIN





Eye Catching Color

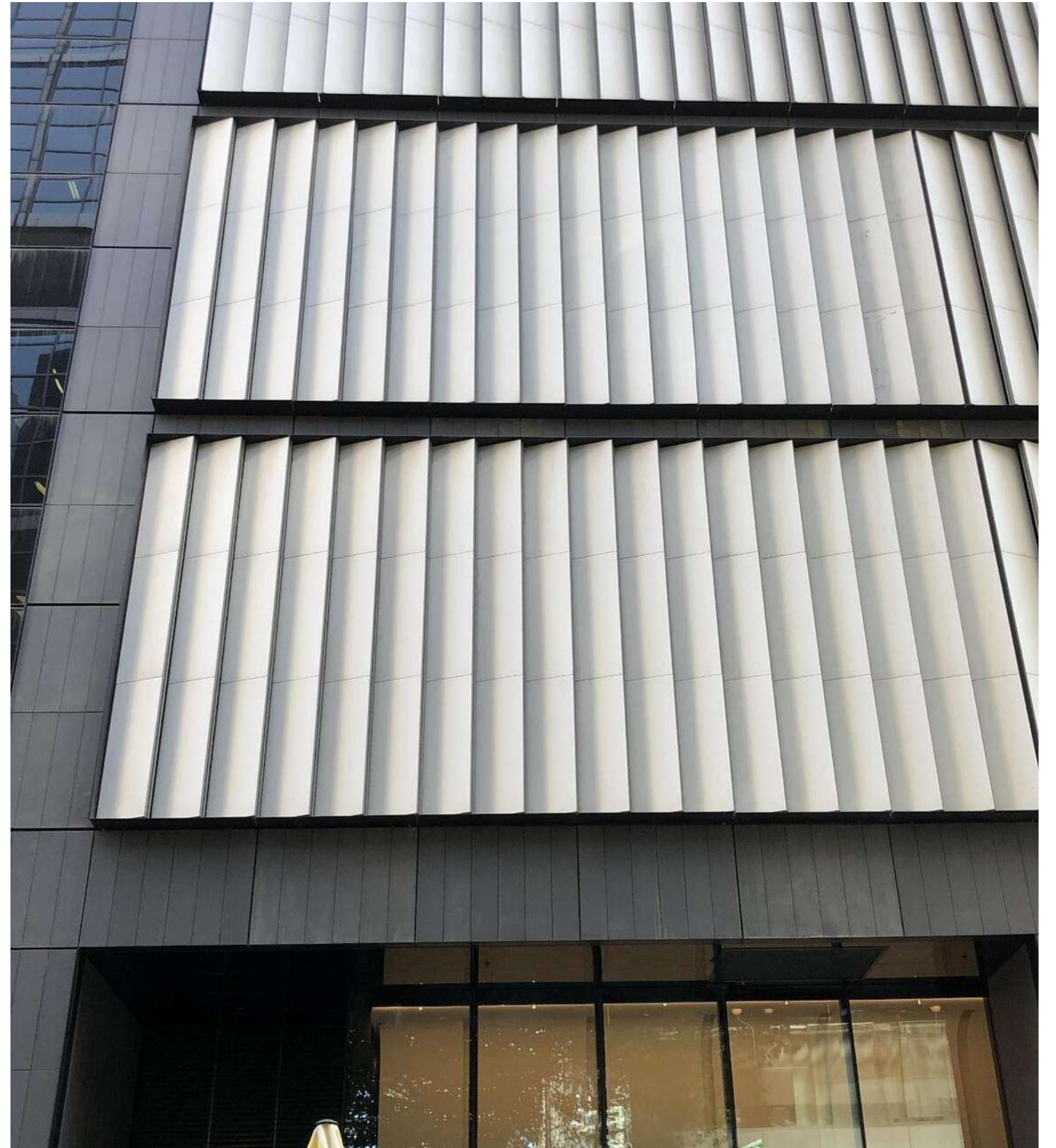
Deep Textures



PORCELAIN + ELEGANT LOUVER DETAILS  
INNOVATIVE DESIGN WITH PORCELAIN







PORCELAIN VERTICAL MECHANICAL LOUVERS  
INNOVATIVE DESIGN WITH PORCELAIN

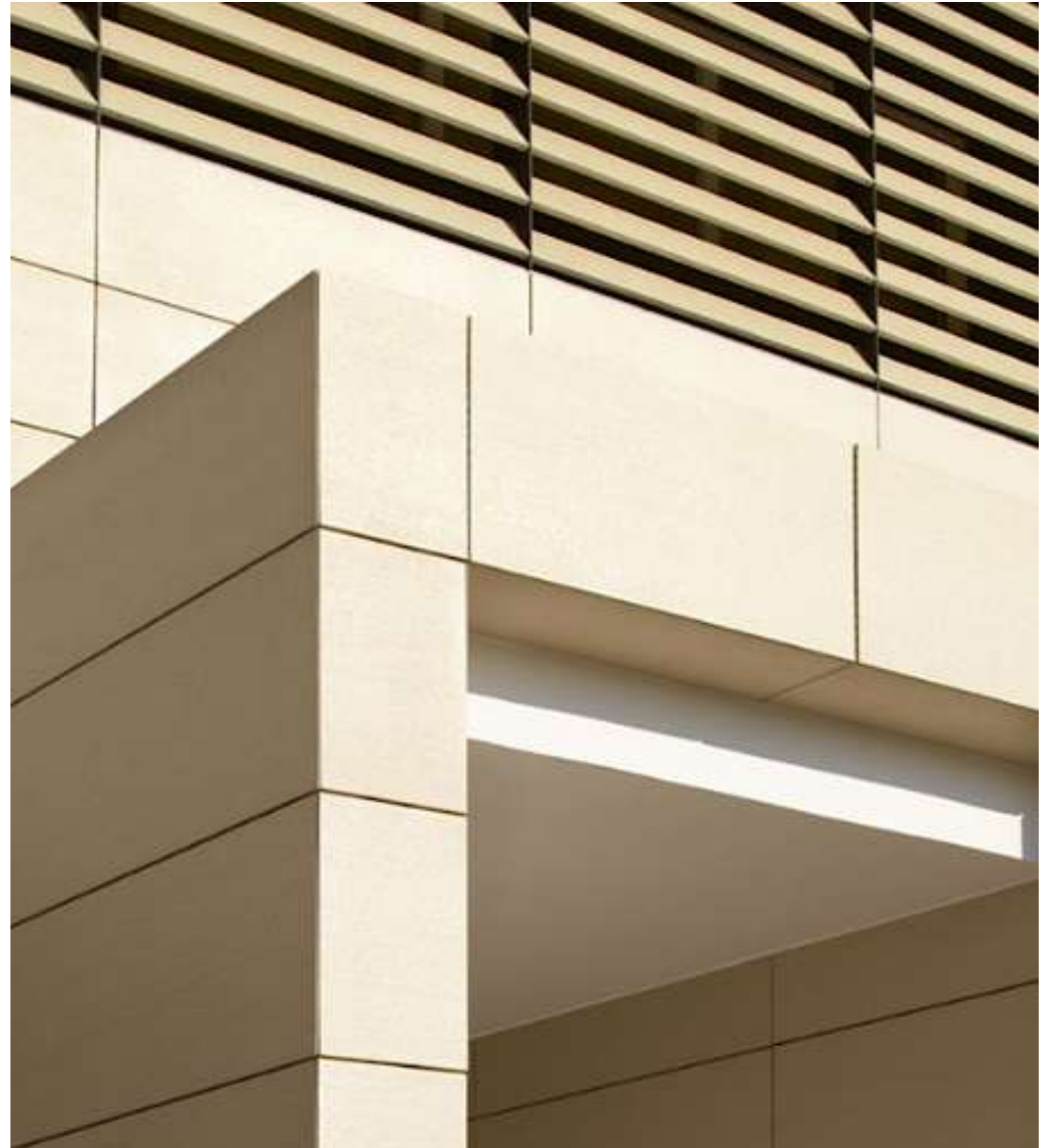




PORCELAIN VERTICAL MECHANICAL LOUVERS  
INNOVATIVE DESIGN WITH PORCELAIN







VENTS AND LOUVERS  
INNOVATIVE DESIGN WITH PORCELAIN





XXL SIZE PANELS  
INNOVATIVE DESIGN WITH PORCELAIN






Before



EXTERIOR FAÇADE REFURBISHMENT with PORCELAIN  
INNOVATIVE DESIGN WITH PORCELAIN







THIS CONCLUDES THE  
AIA CEU  
PRESENTATION

SPECIFYING EXTRUDED PORCELAIN RAINSCREEN SYSTEMS

COURSE #A1001 PROVIDER #404109551 CREDIT 1 LU/HSW

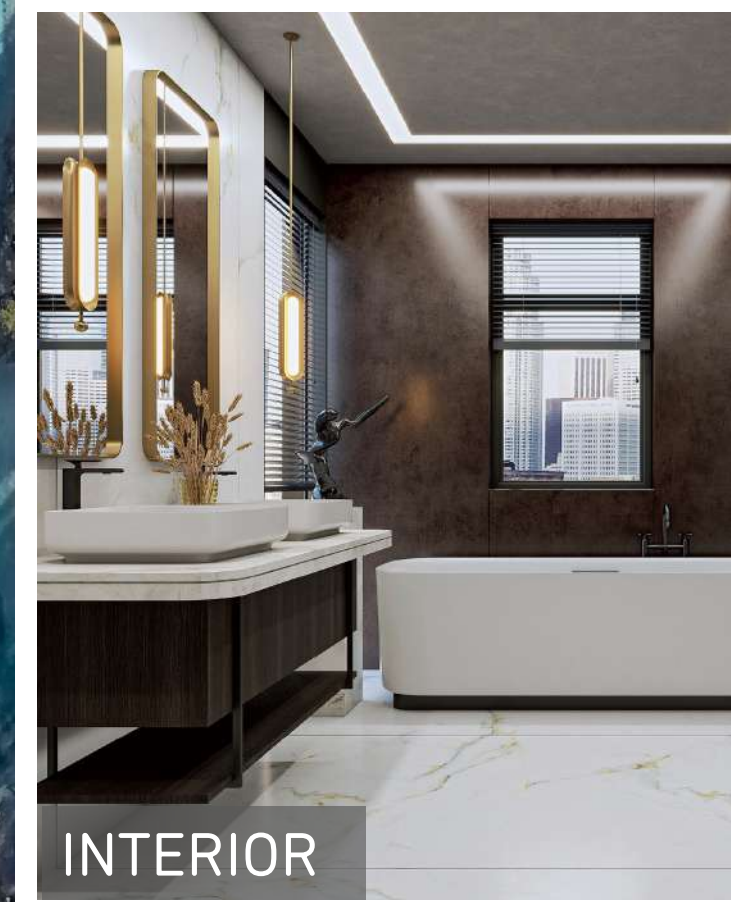




WHY Frontek ?







Single Source Partner for Superior Porcelain Systems - 80 Years  
FACADE SYSTEMS . PAVERS . STAIRS . INTERIOR PANELS . COUNTERTOPS . XXL





# FRONTEK SYSTEM COMPARISON



## OMEGA SYSTEM [Optimal 1-4 Stories] \$\$

Cutting-edge Trans-Ventilated system with singular point solutions and cladding of areas that do not require the advantages of a double-ventilated system, but with still have great thermal protection. Omega shaped vertical profile and different clamps facilitate the horizontal and vertical placement of the panel.

### TRANS-VENTILATED

Greater thermal and acoustic protection than traditional cladding.



## PLUS SYSTEM \$\$\$

Frontek's most widely used Double-Ventilated rainscreen system that offers singular point solutions with vertical profiles and clamps, allowing the panel to be anchored in various ways and meets any need that may arise during assembly.

### DOUBLE VENTILATED

Energy savings averages 35%.



## SUPER PLUS SYSTEM \$\$\$\$

Double-ventilated system whose main characteristic is its firmness. It has vertical and horizontal profiles anchoring the panels and allows the combination of different piece lengths, counterbalanced designs and multiple rigging.

### DOUBLE VENTILATED

Energy savings averages 35%.





FRONTEK INNOVATION STUDIO – 600,000 STOCKED COLORS READY TO SHIP  
INNOVATIVE DESIGN WITH PORCELAIN





# Sizes

23.62 in - 118.11 in



- Max Standard Width 39.37in  
[100 cm]  
Max Standard Length 118.11"  
[300 cm]
- Piece width sizes 30,40,50 and 60cm, up to MAX length of 300cm
- Standard sized in stock are 40x80,40,100 and 60x120cm.
- XXL Sizes in stock are 80x160cm and 100x300cm.
- Custom Sizes Available
- Mix + Match Colors, Textures and Shapes





# STRATEGIZE TO MAXIMIZE SAVINGS



---

▪ Complete System  
[Structure + Panel]

---

▪ Fabrication

---

▪ Substructure

---

▪ Waste Yield

---

▪ Window Returns + Detailing

---

▪ Complexity

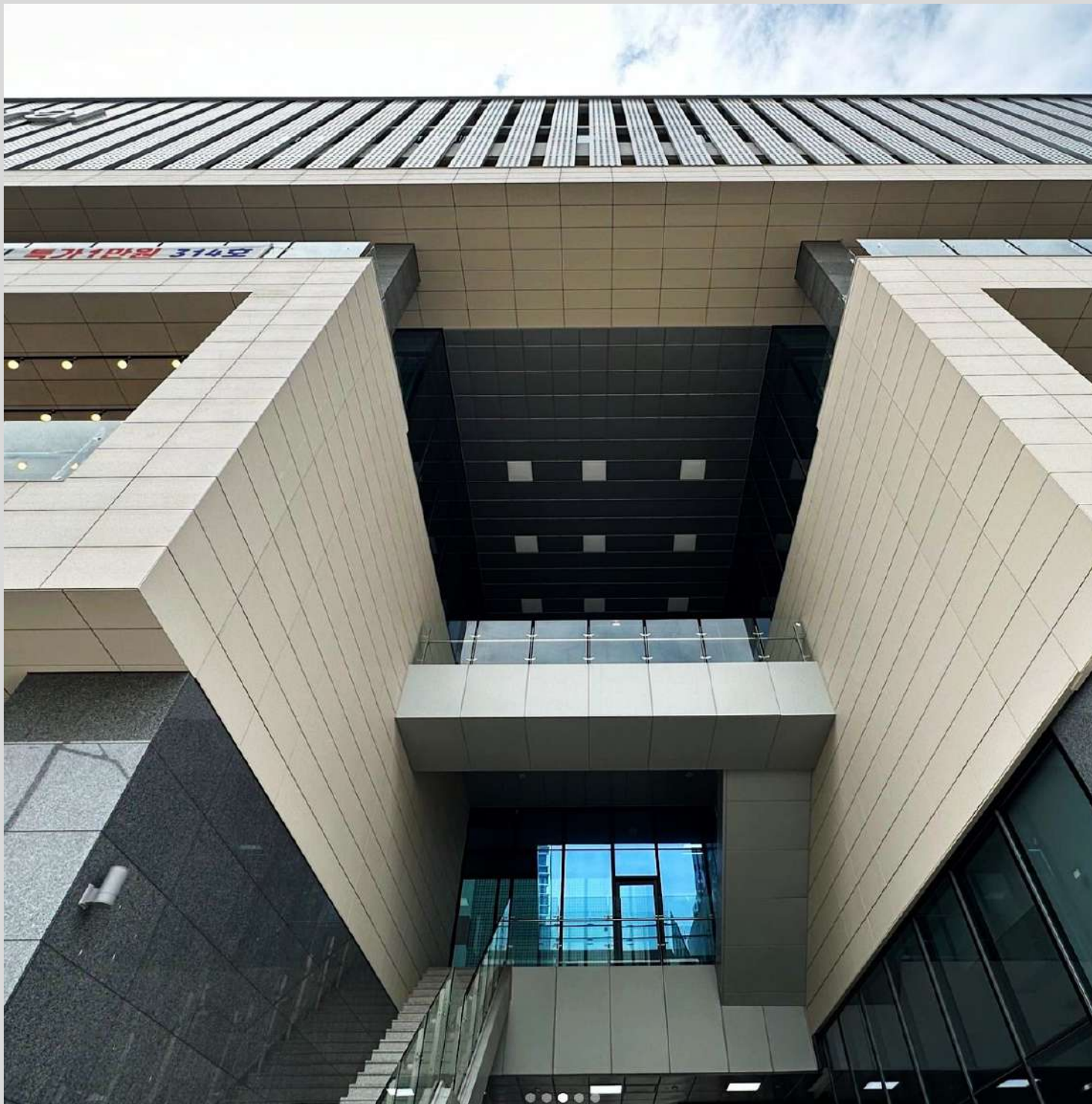
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▪ Installation Time





# STRATEGIZE TO MAXIMIZE SAVINGS



- Product Information + Guidance
- Std Samples + Bespoke Designs
- Engineering Review
- CAD Details, Technical Data
- Shop Drawings + Calculations
- Spec 3=Part CSI Format
- Quotations
- Installation Time





# Frontek GALLERY





# Macquarie University Student Housing

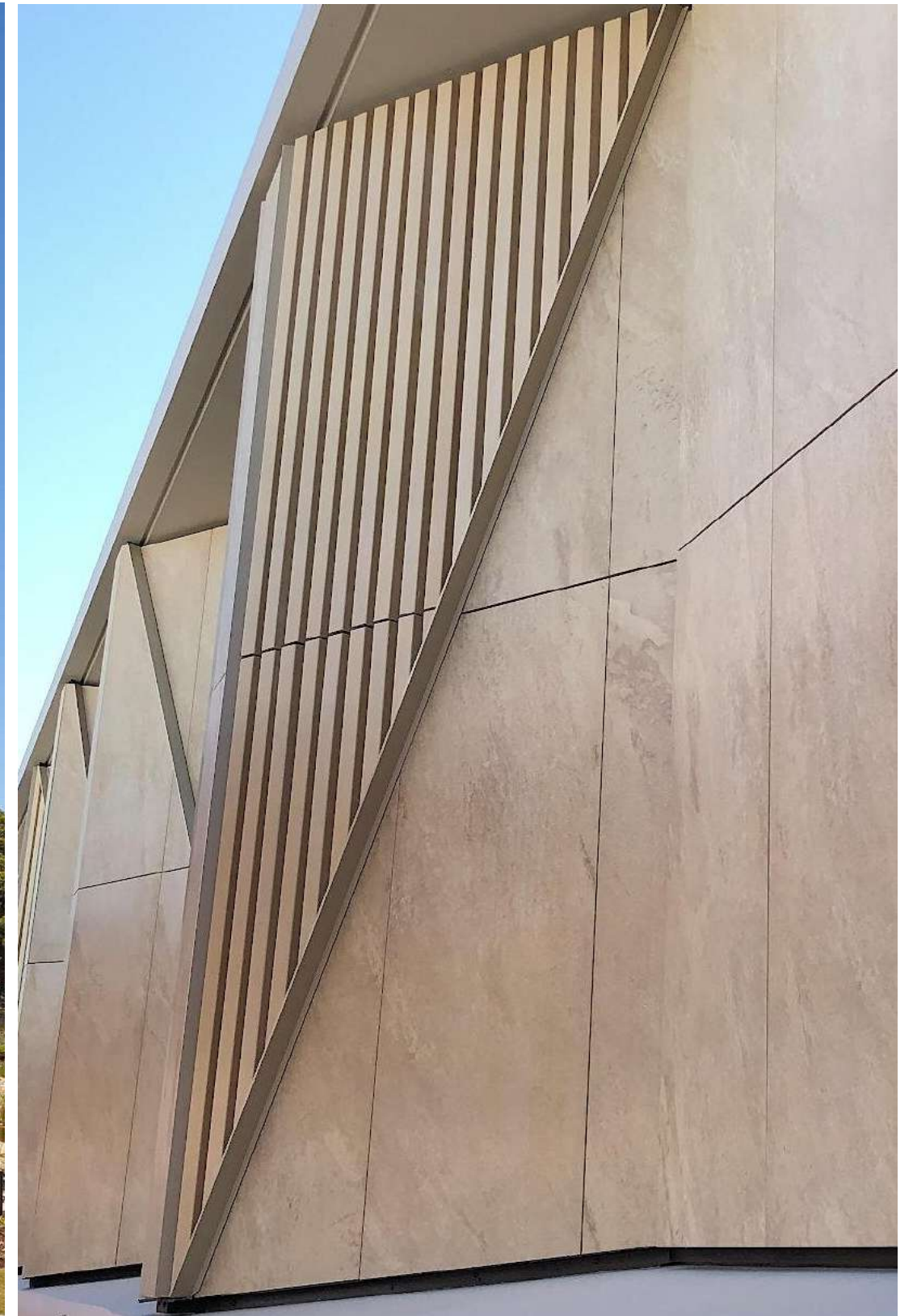


MASTER PLANNING - BESPOKE PANELS – SYDNEY, AUSTRALIA  
INNOVATIVE DESIGN WITH PORCELAIN





Macquarie University Student Housing



MASTER PLANNING - BESPOKE PANELS – SYDNEY, AUSTRALIA  
INNOVATIVE DESIGN WITH PORCELAIN





## BM8 Apartment Campus - Spain

Divided into two volumes marked by the orientation and the interior functionality.



MASTER PLANNING - EXTERIOR TO INTERIOR – BM8 APARTMENTS, SPAIN  
INNOVATIVE DESIGN WITH PORCELAIN





Framed Accent Porcelain Bands

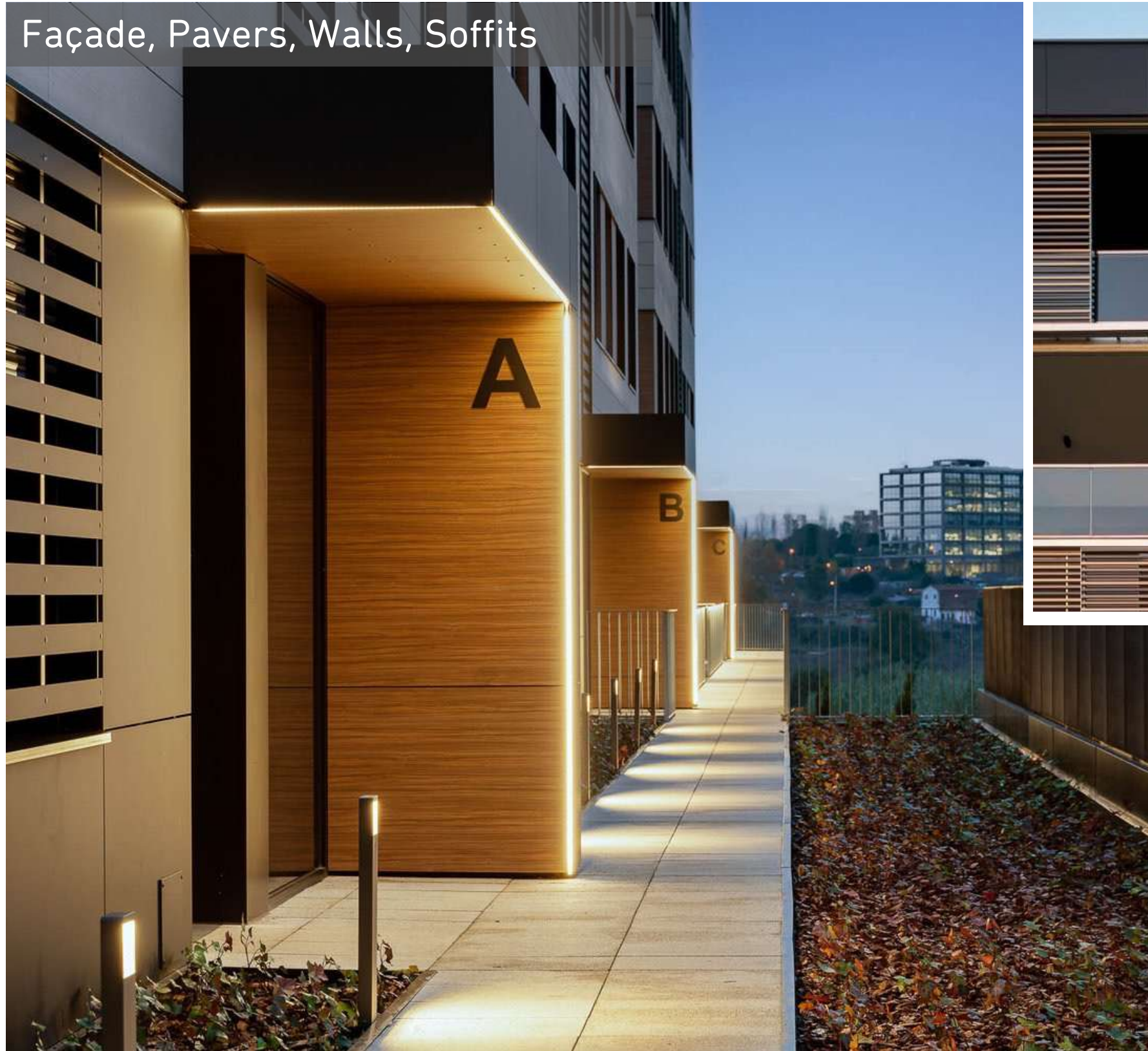


MASTER PLANNING - EXTERIOR TO INTERIOR – BM8 APARTMENTS, SPAIN  
INNOVATIVE DESIGN WITH PORCELAIN





Façade, Pavers, Walls, Soffits



MASTER PLANNING - EXTERIOR TO INTERIOR – BM8 APARTMENTS, SPAIN  
INNOVATIVE DESIGN WITH PORCELAIN





Residential Campus – Nove Mansion  
Located in financial CITIC Pacific Hub



MASTER PLANNING – 9 MULTI-RESIDENTIAL TOWERS, SHANGHAI, CHINA  
INNOVATIVE DESIGN WITH PORCELAIN





Residential Campus – Nove Mansion

Located in financial CITIC Pacific Hub



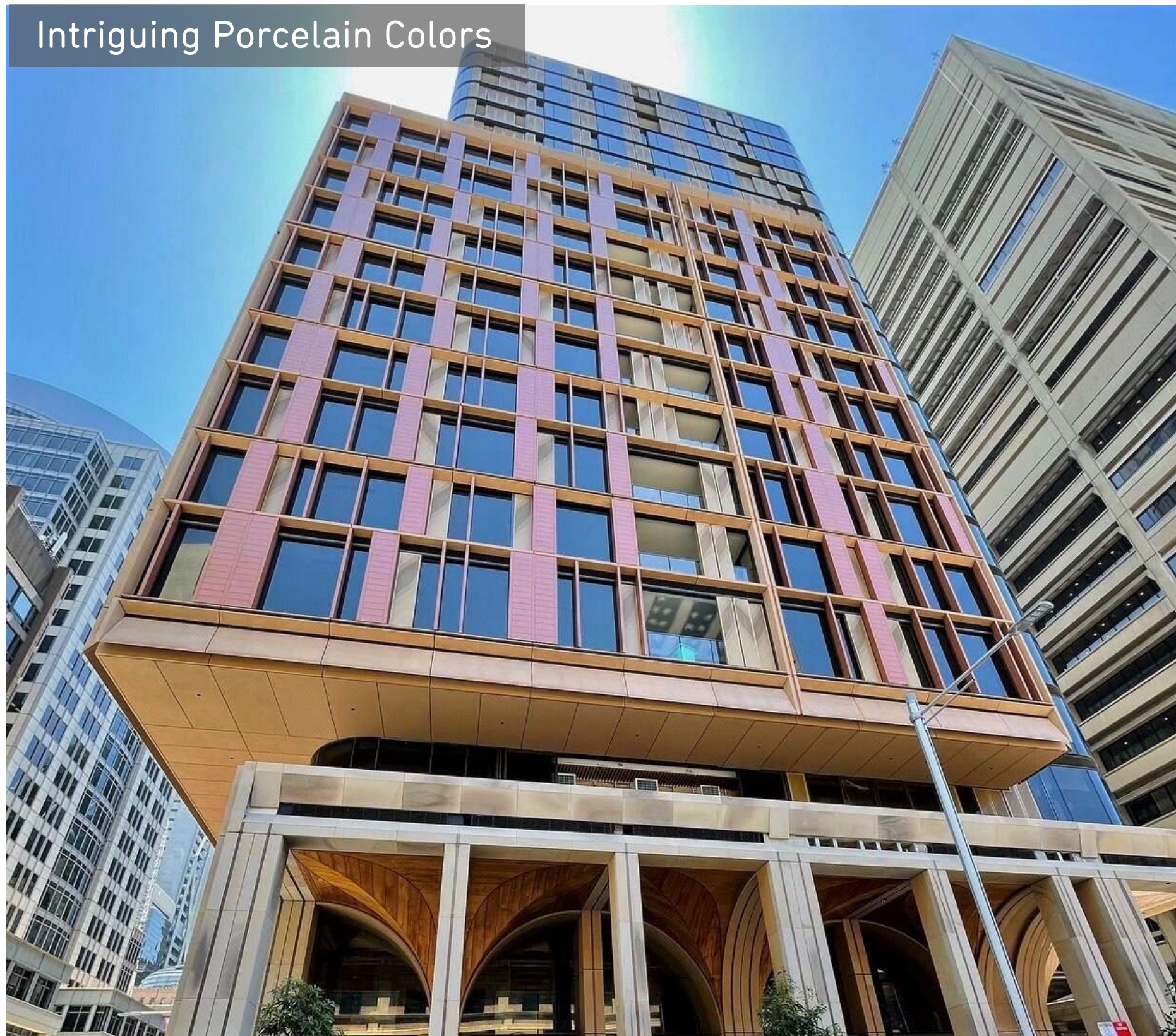
Porcelain Panels – Clean Lines

MASTER PLANNING – 9 MULTI-RESIDENTIAL TOWERS, SHANGHAI, CHINA  
INNOVATIVE DESIGN WITH PORCELAIN

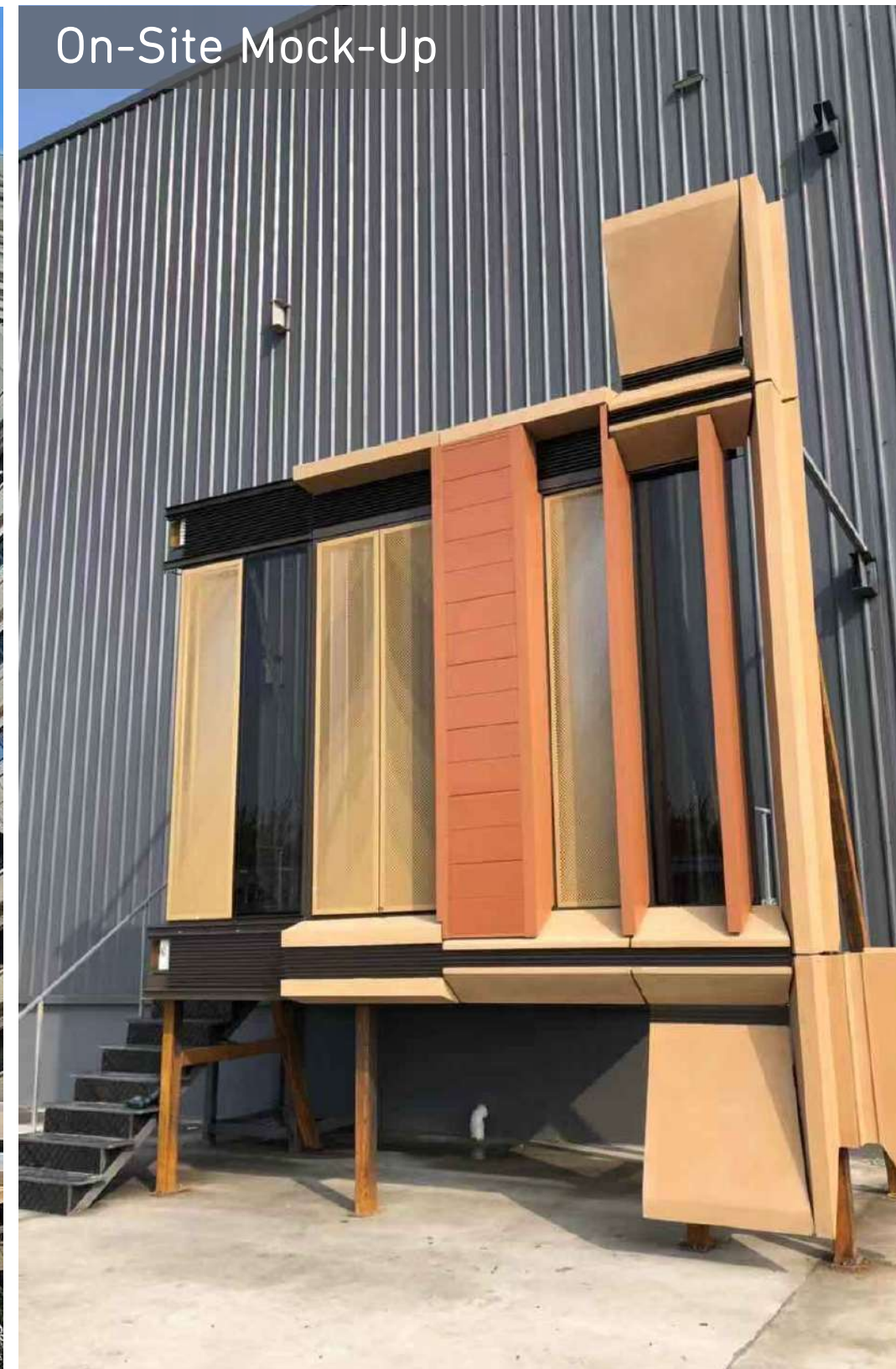




Intriguing Porcelain Colors



On-Site Mock-Up



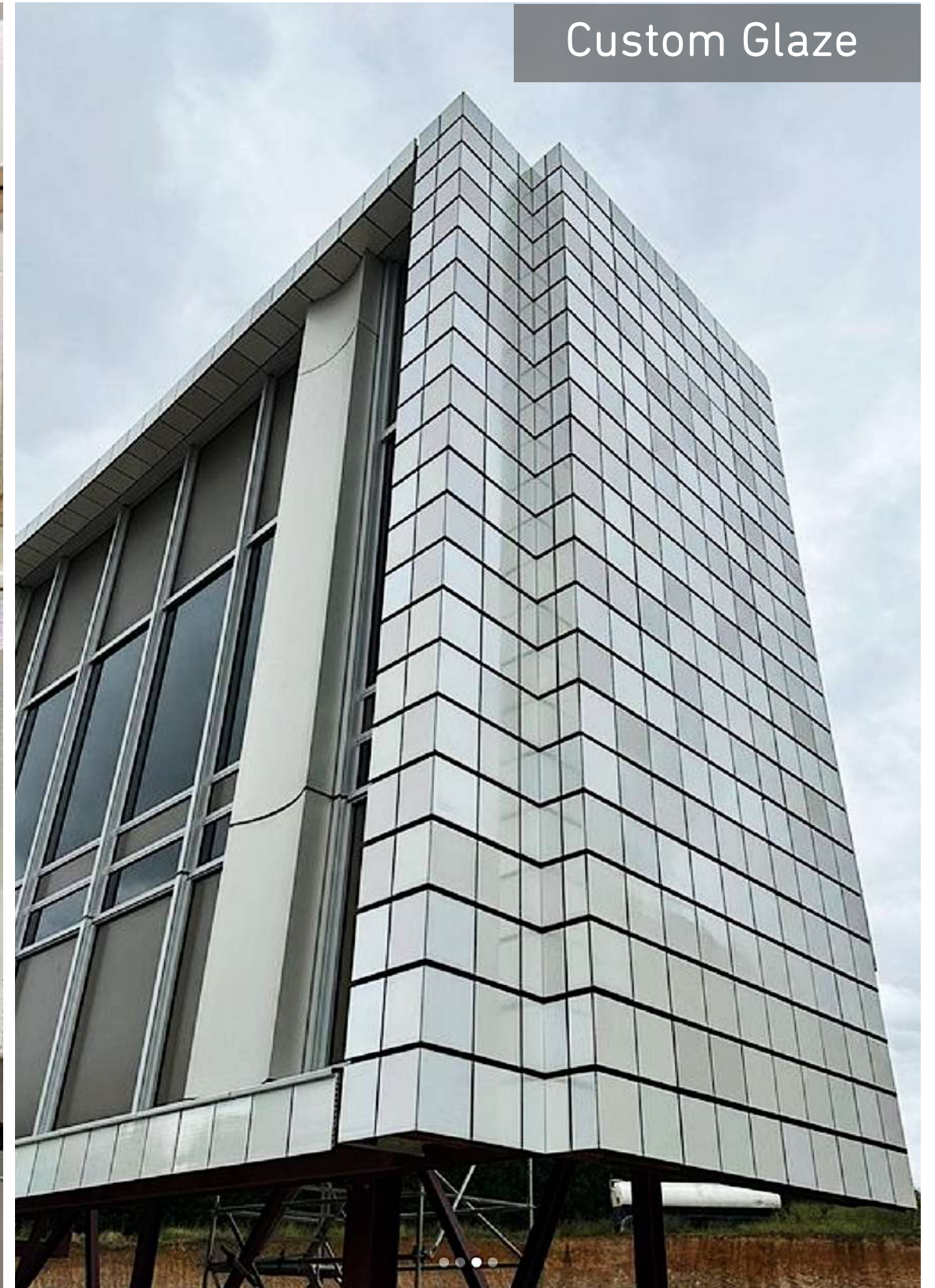
KING PHILLIPS RESIDENCE TOWER – SYDNEY, AUSTRALIA  
INNOVATIVE DESIGN WITH PORCELAIN





## 33 ALFRED STREET SKYSCRAPER

Custom glaze to maintain the Building heritage characteristics + reinstate lost building features.



Custom Glaze

COMPREHENSIVE REDEVELOPMENT + **REFURBISHMENT** – SYDNEY, AUSTRALIA

INNOVATIVE DESIGN WITH PORCELAIN





Building Surround + Perimeter Wall

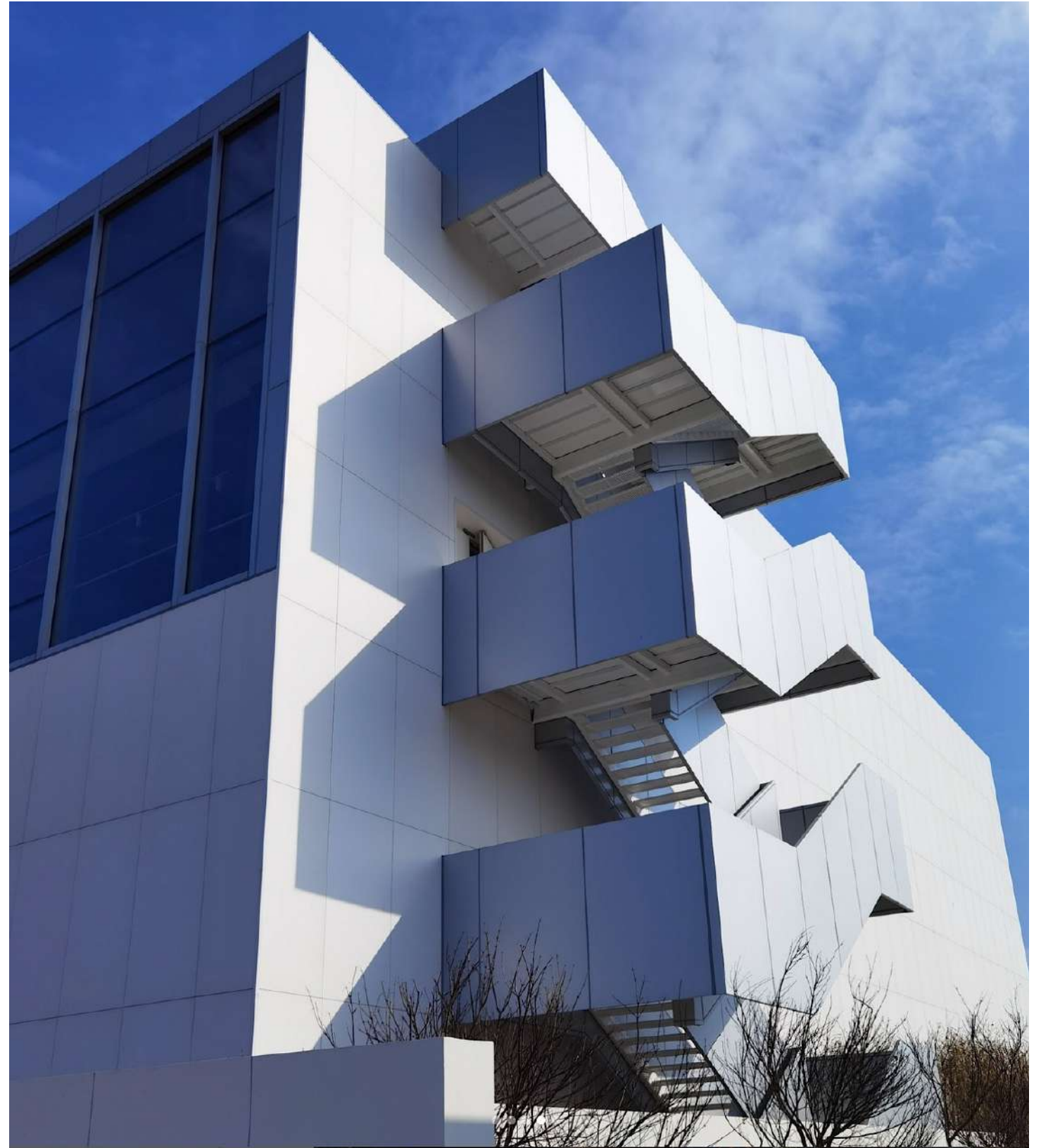


MASTER PLANNING – VOLVO STUDIO – SHANGHAI, CHINA  
INNOVATIVE DESIGN WITH PORCELAIN





Wrap Stair Walls



MASTER PLANNING – VOLVO STUDIO – SHANGHAI, CHINA  
INNOVATIVE DESIGN WITH PORCELAIN





Sleek + Elegant Lines



Stocked  
Azabache

Stocked  
ST5006

- Market: Education  
275,000 sf over 4 Buildings  
20-Acre Site, 150M Budget  
**30,000 SF of Frontek**

- Architect: TSK, Henderson, NV  
GC: Core Construction  
Sub/Installer/Purchasing:  
Southwest Specialty Contractors

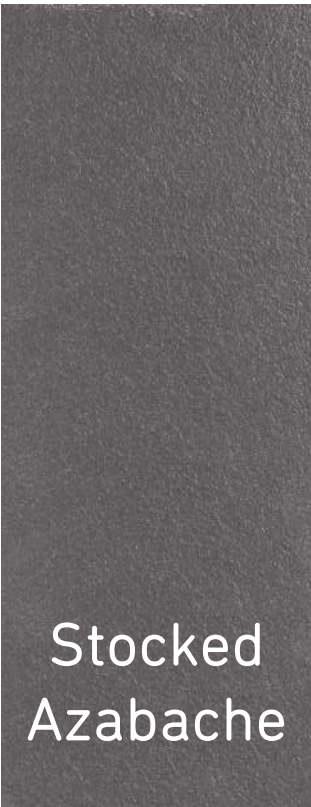
- Description: 3-Story, Classrooms  
Science + Education Labs,  
Commons, Administrative,  
Gymnasium, MP + Central Plant

- Customized Panel: Supplied  
special size panels so all  
vertical and horizontal joints  
lined up continuously.

NORTHEAST CAREER AND TECHNICAL ACADEMY, NORTH LAS VEGAS, NV  
INNOVATIVE DESIGN WITH PORCELAIN







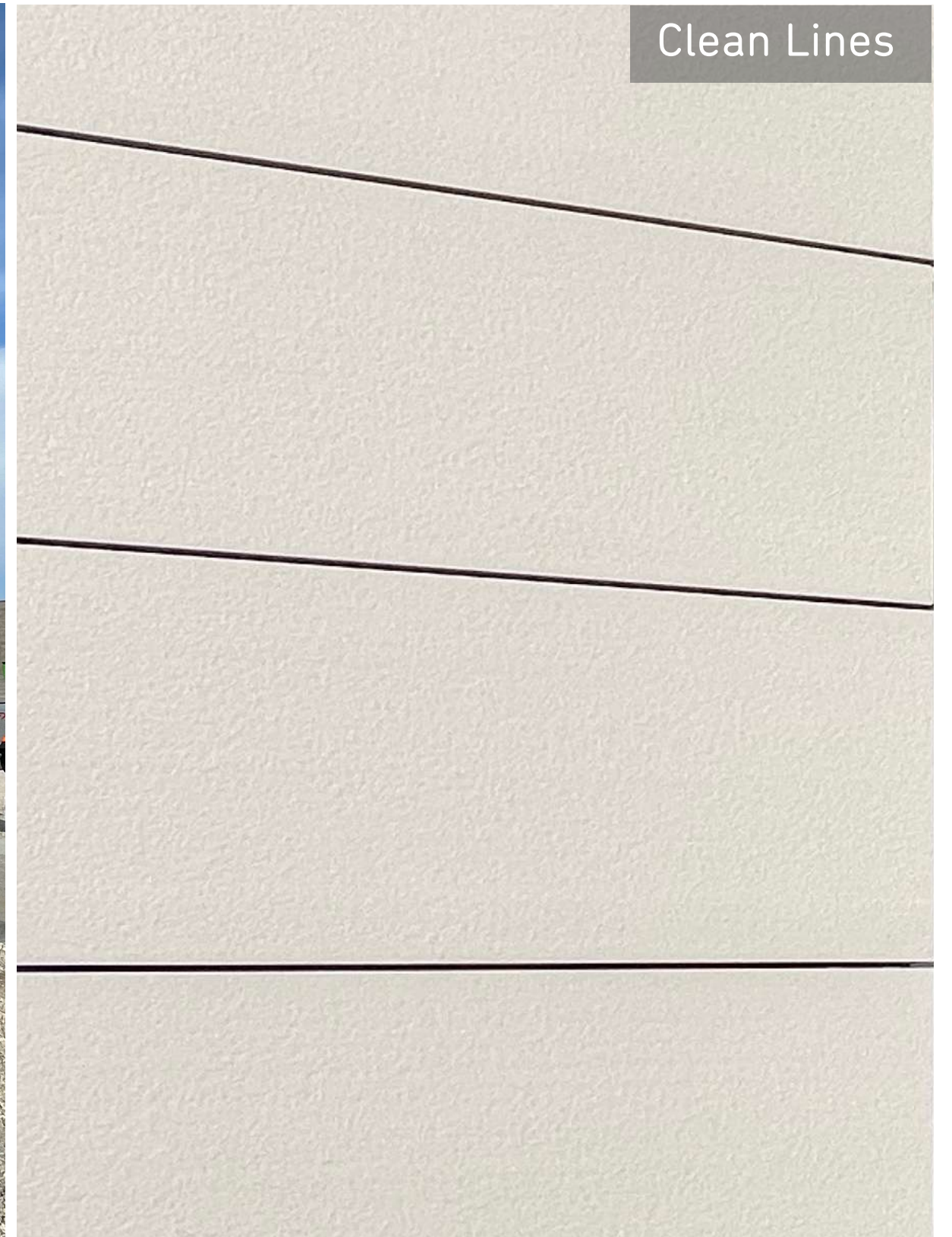
NORTHEAST CAREER AND TECHNICAL ACADEMY, NORTH LAS VEGAS, NV  
INNOVATIVE DESIGN WITH PORCELAIN







On-Site Mock-Up



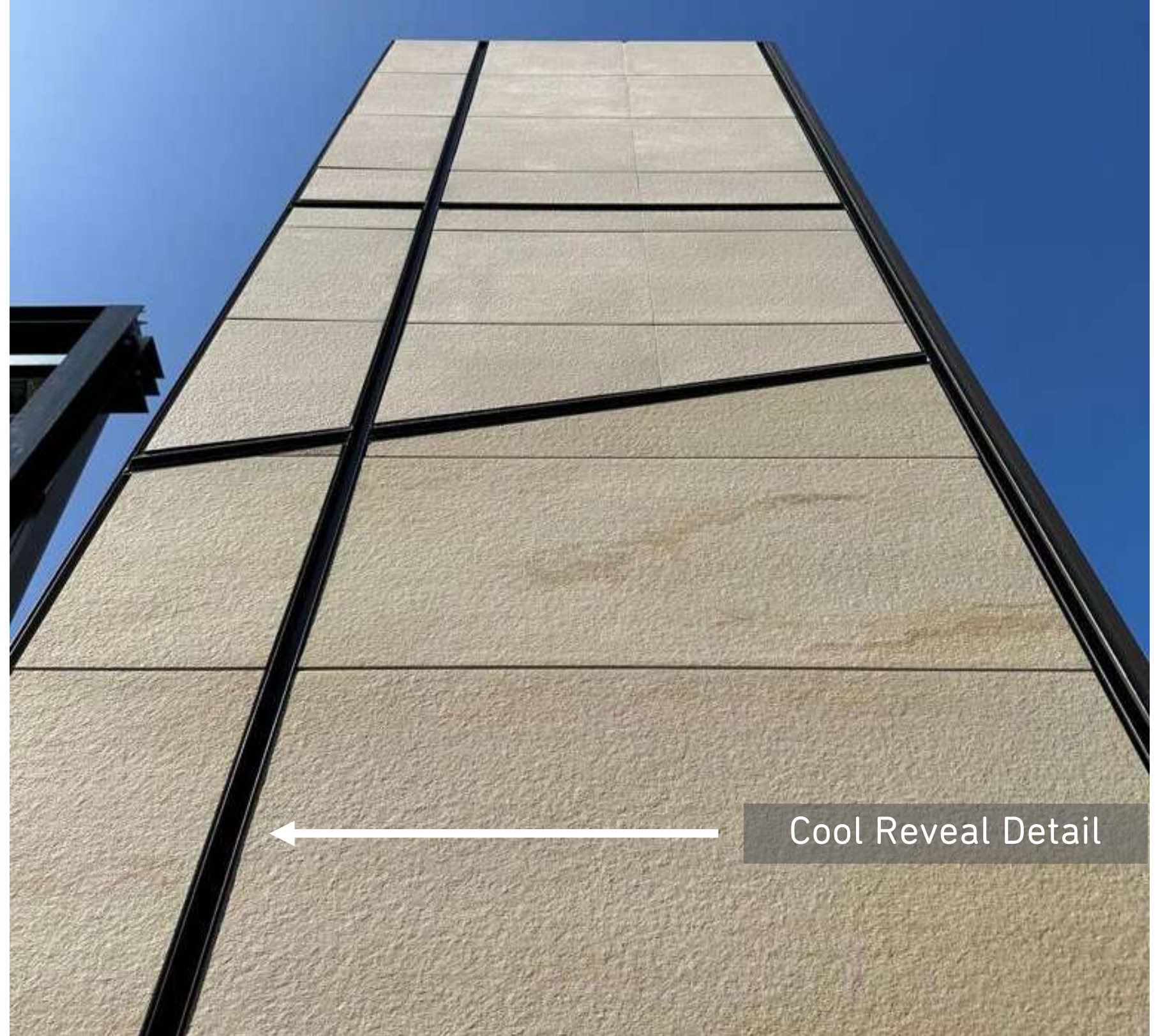
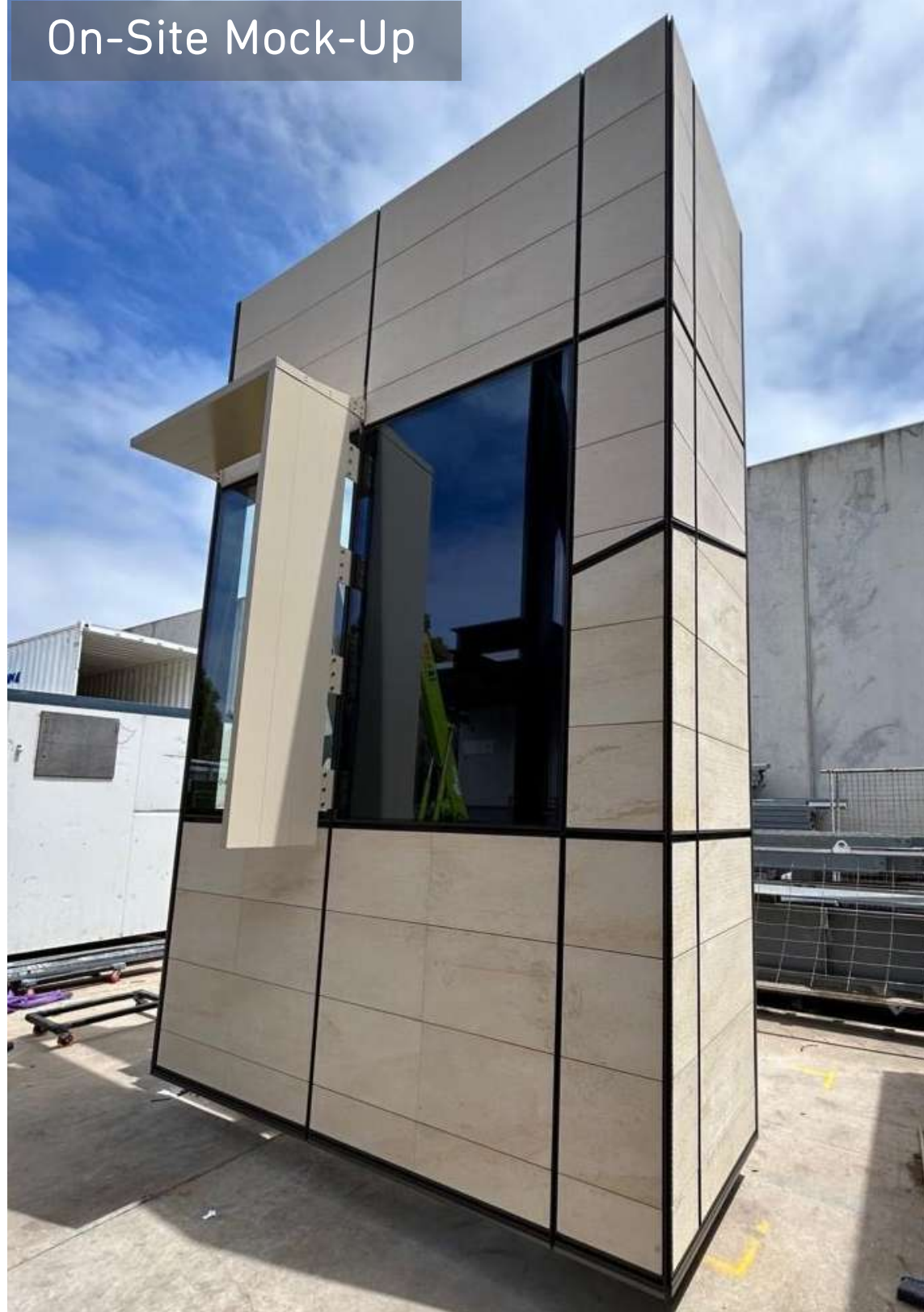
Clean Lines

NORTHEAST CAREER AND TECHNICAL ACADEMY, NORTH LAS VEGAS, NV  
INNOVATIVE DESIGN WITH PORCELAIN





On-Site Mock-Up

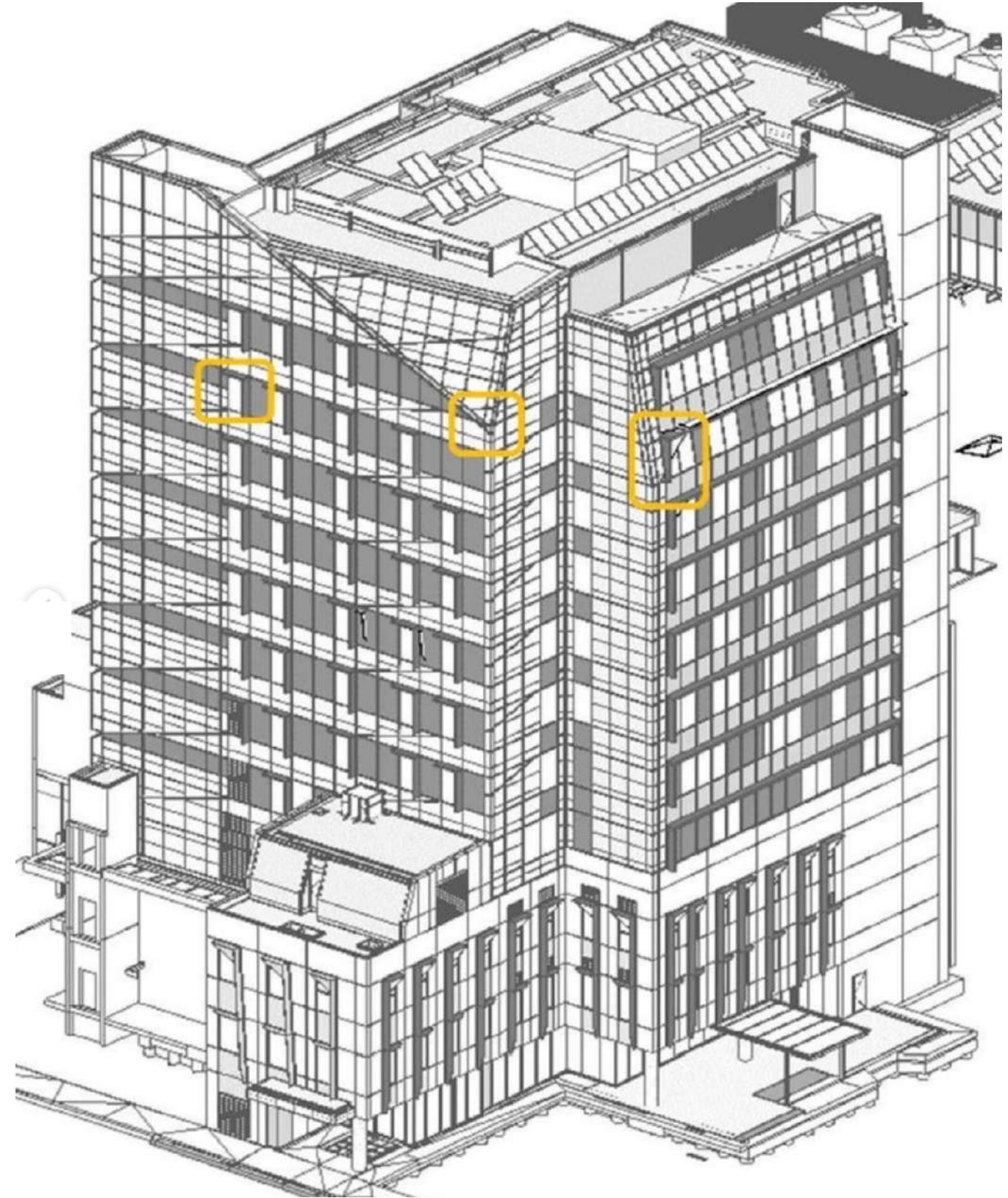
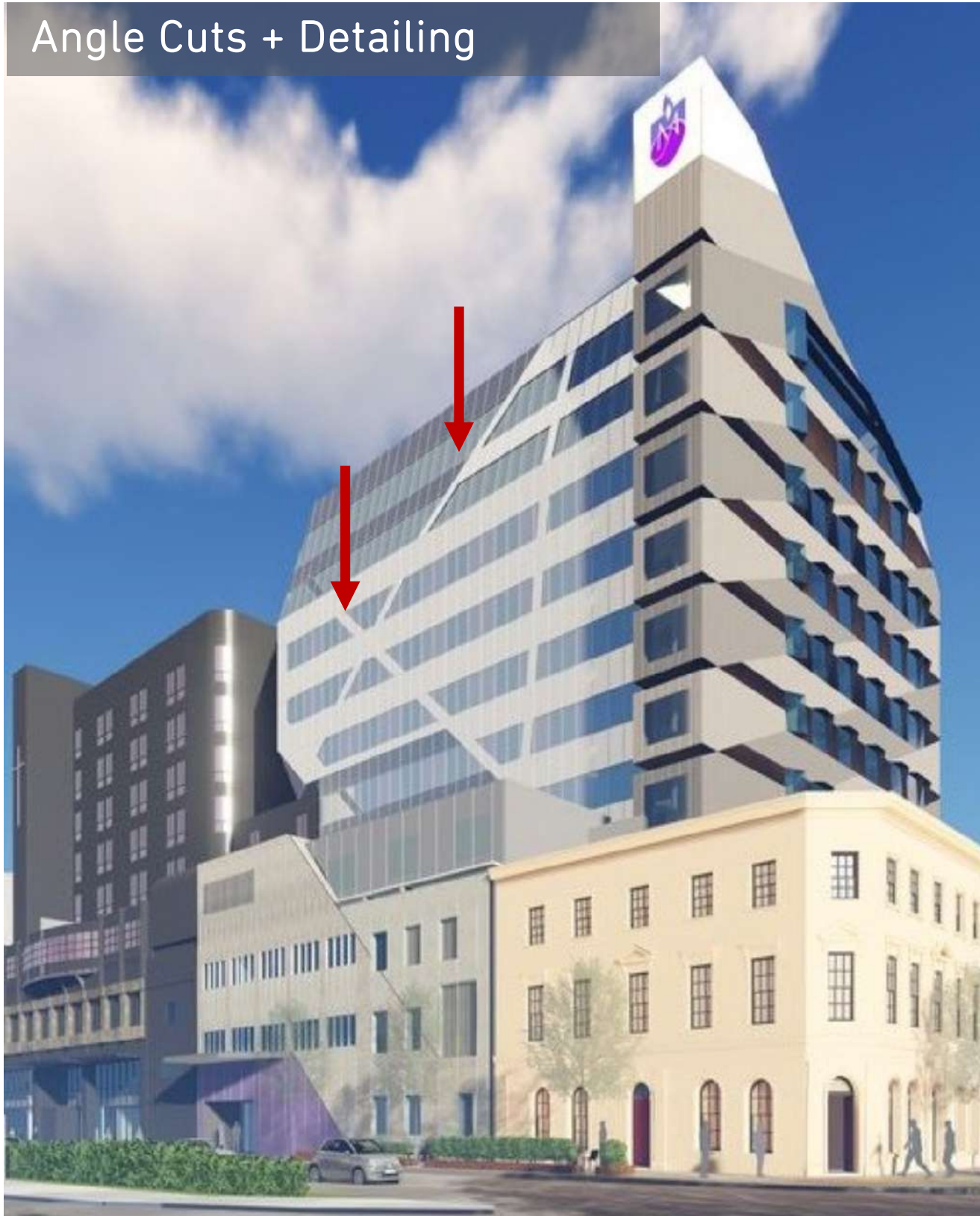


HEALTHCARE BUILDING MOCK-UP of INTERESTING REVEAL DESIGN FEATURE  
INNOVATIVE DESIGN WITH PORCELAIN





Angle Cuts + Detailing



ST. VINCENT'S HOSPITAL – SYDNEY, AUSTRALIA  
INNOVATIVE DESIGN WITH PORCELAIN





Warm Terracotta Look Porcelain Facade



Porcelain Design with Glass



MASTER PLANNING – NIRION KNOWLEDGE PARK CENTER- MUMBAI, INDIA  
INNOVATIVE DESIGN WITH PORCELAIN





Warm Terracotta Look Porcelain Facade



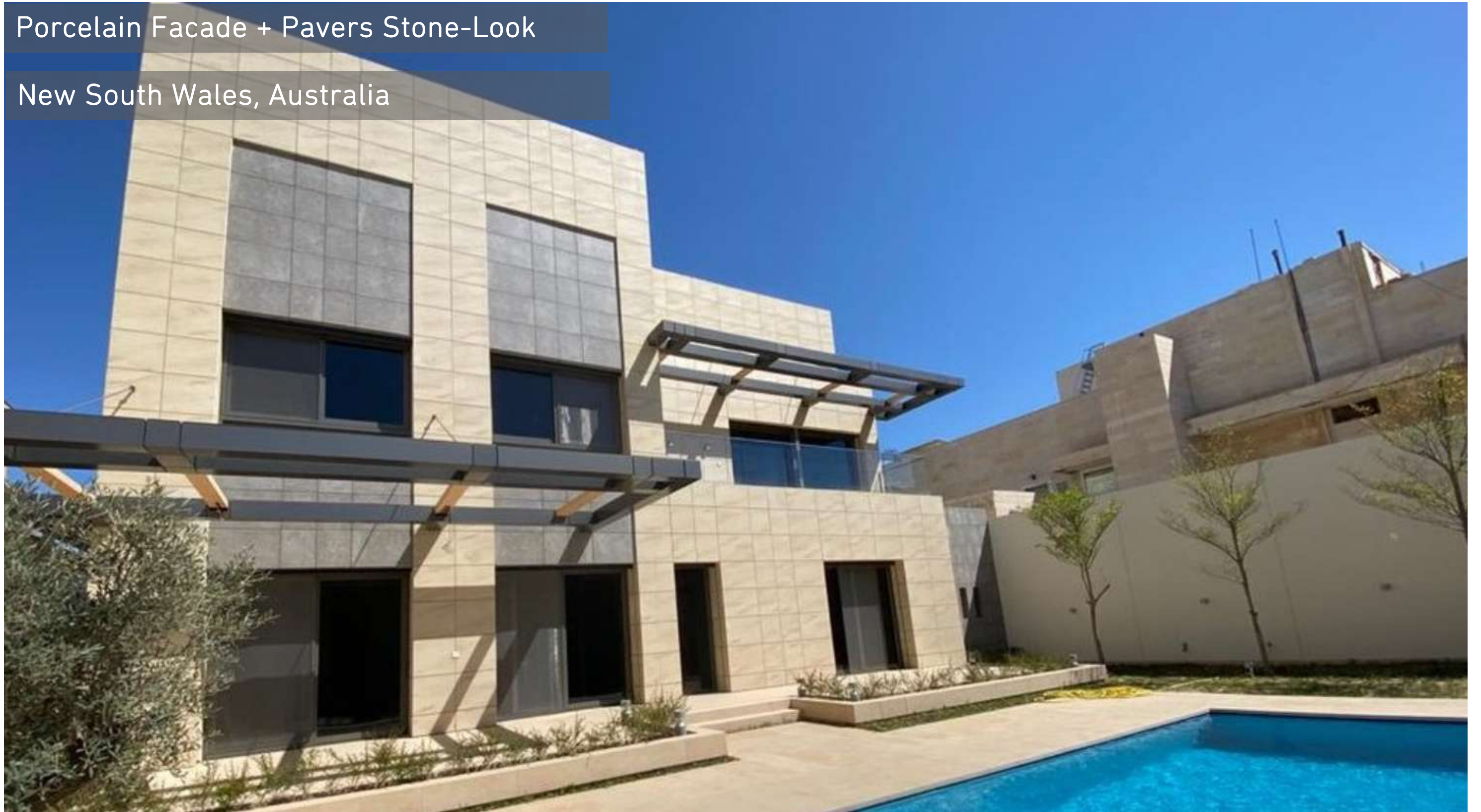
MASTER PLANNING – NIRION KNOWLEDGE PARK CENTER – MUMBAI, INDIA  
INNOVATIVE DESIGN WITH PORCELAIN





Porcelain Facade + Pavers Stone-Look

New South Wales, Australia



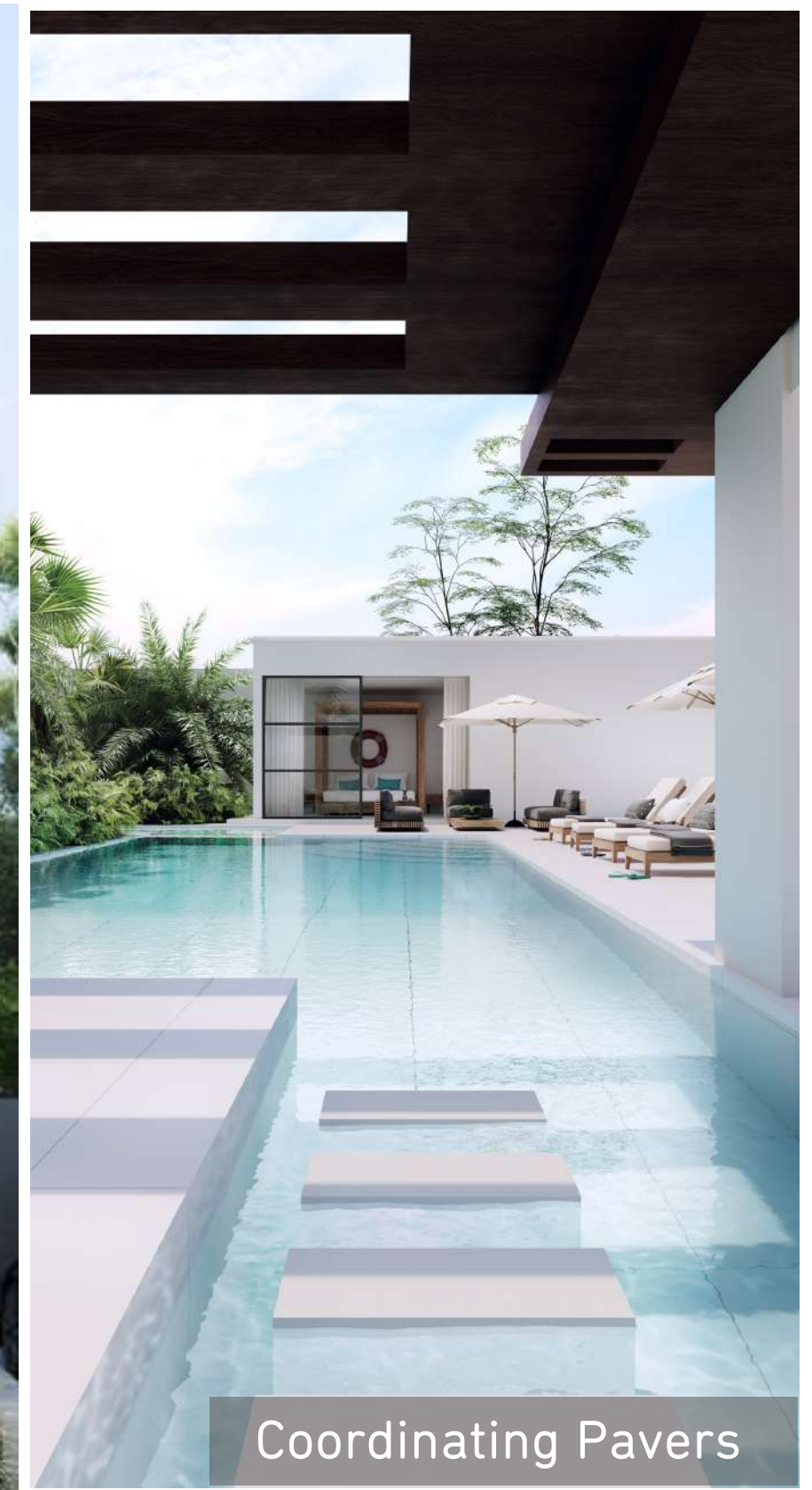
APARTMENT BUILDING **REFURBISHMENT – REMOVE FLAMMABLE CLAD + NEW PORCELAIN**

INNOVATIVE DESIGN WITH PORCELAIN





Elegant Porcelain Facade



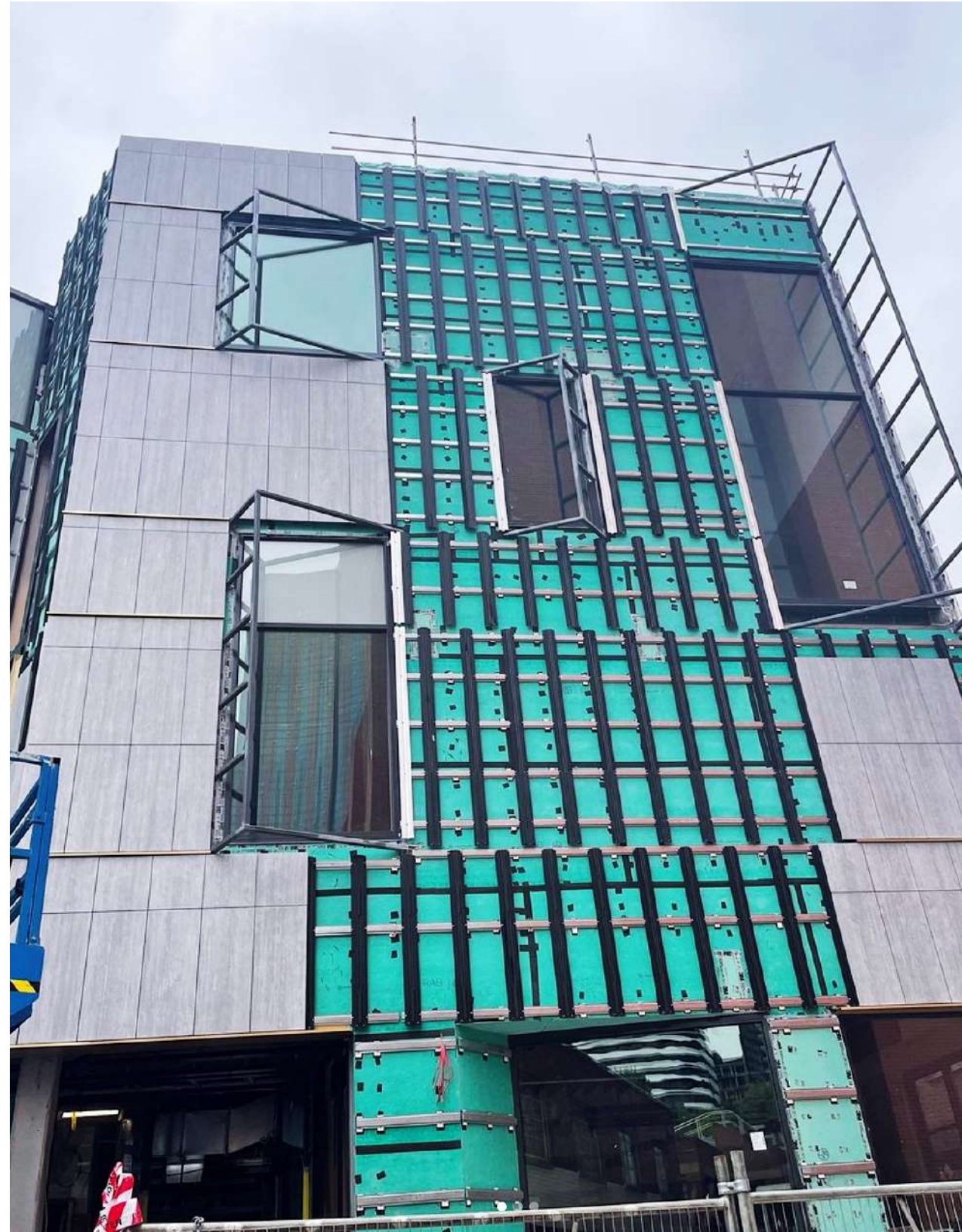
Coordinating Pavers

MASTER PLANNING - RESIDENCE  
INNOVATIVE DESIGN WITH PORCELAIN





Elegant Lines + Details



MULTI-FAITH and WELLBEING CENTER – RMIT UNIVERSITY - MELBOURNE  
INNOVATIVE DESIGN WITH PORCELAIN







Porcelain Facade



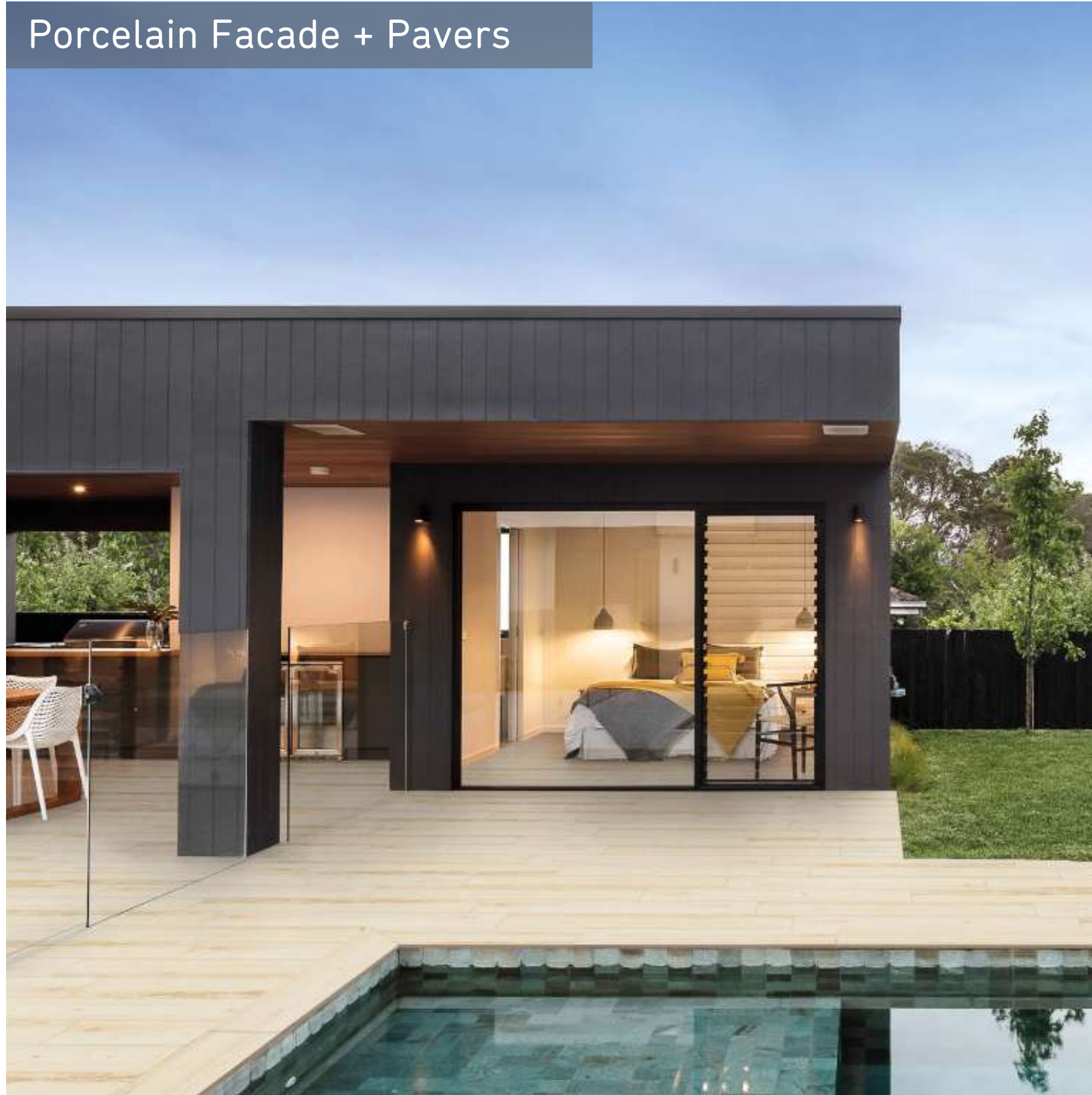
Precision Cut Panels to Site Grading

MASTER PLANNING - CRANBROOK PRIVATE SCHOOL, SYDNEY  
INNOVATIVE DESIGN WITH PORCELAIN





Porcelain Facade + Pavers



Elegant Stairs + Walls



Interior Surfaces

EXTERIOR PORCELAIN FAÇADE to INTERIOR FLOORS, WALLS + COUNTERTOPS  
INNOVATIVE DESIGN WITH PORCELAIN







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PUBLIC ENTRANCE – PERIMETER WALL  
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CITY HALL NAZARETH  
INNOVATIVE DESIGN WITH PORCELAIN





The background is a dark, monochromatic architectural rendering of a building's exterior. It features a grid of vertical and horizontal lines representing the structure of a rainscreen system. The lines are light gray, creating a technical, blueprint-like appearance. The overall tone is professional and modern.

# Frontek

INTELLIGENT EXTRUSION

SPECIFYING EXTRUDED  
PORCELAIN RAINSCREEN SYSTEMS

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