PHOMI US Headquarters | Elementum Showroom
www.PhomiEconiClay.com
www.Elementum-Surfaces.com
20373 Valley Blvd., Suite B-C, Walnut, CA 91789, USA
contact@elementum-surfaces.com
951-223-6655

Product Catalog (Short). July 2025.

ELEMENTUM SURFACES™

EconiClay™

Product Catalog

eCovering
eSolar
eDisplay

EconiClay™ Panels for Residential & Commercial Projects

Unrivaled Excellence

- ✓ 100% sustainable material made from clay
- ✓ International patents, awards, and certifications
- ✓ 50% saving on installation time, transportation, and labor costs
- ✓ 30-year Limited Warranty*
- ✓ 50-year life span

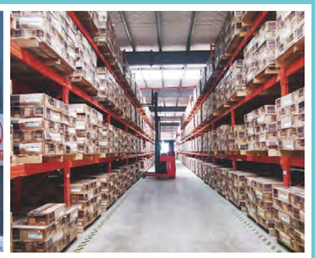
Best-in-Class

- ✓High durability
- ✓Low maintenance
- ✓Fire and weather resistant
- ✓Non-toxic
- ✓Eco-friendly
- ✓Contours to curved surfaces

3 Solutions to Meet Your Construction Needs

	EconiClay eCovering Panels	EconiClay eDisplay Panels	EconiClay eSolar Panels
Natural INTERIOR wall panels that mimic a variety of stone, wood, and weave patterns	✓	✓	
Natural EXTERIOR wall panels that mimic a variety of stone, wood, and weave patterns	✓	✓	✓
Ability to display digital media		✓	
Ability to generate electricity from solar energy			✓





Patents, Certifications & Test Reports

US Patent

EU Patent

Carbon Footprint

Singapore Green Label

Anti-Bacteria Test Report

CE Certificate

Outdoor Test Report

Fire Resistance Test Report

UL Certificate

Concours Lepine International Invention Award (Paris 2024)

iENA International Invention Award (Nuremberg 2024)

Material Health Certificate
(In progress)

Greece Travertine
Anna Light Grey

Oceanic Travertine
Moonlight White

Oceanic Travertine
Greek Yellow

Coral Travertine
Stellar Grey

Rome Travertine
Cloud White

Rome Travertine
Loki White

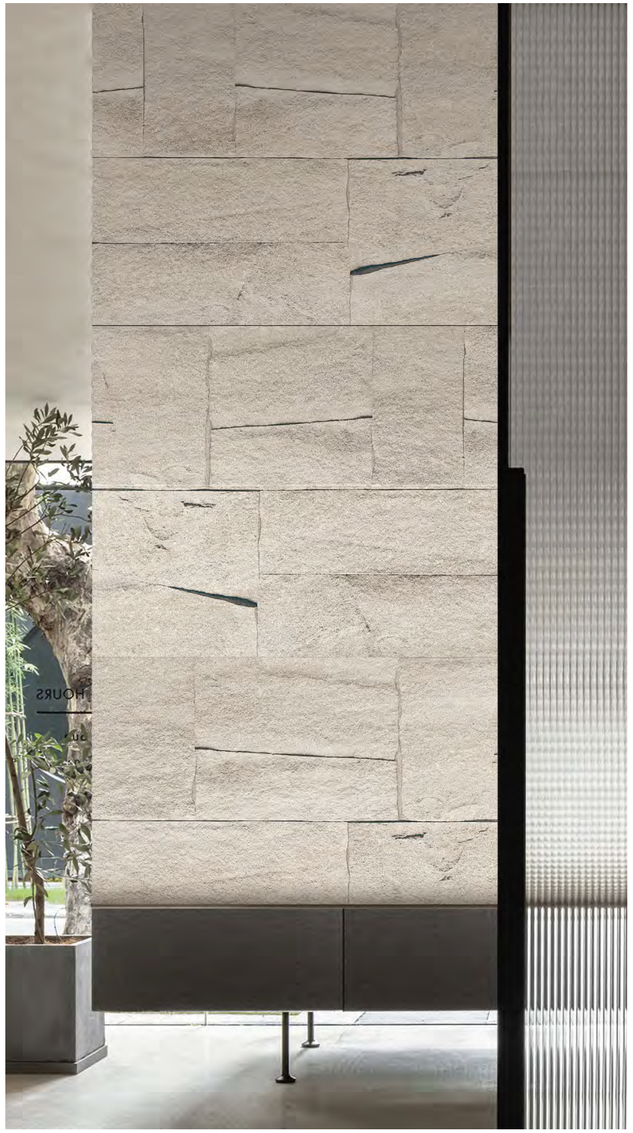
Cloud Silk
Travertine Ash Grey

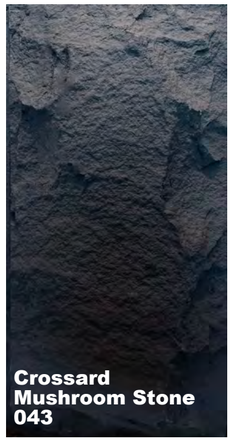
Regular Size: 2 x 4 ft
Thickness: 3-3.4 mm
Panels per package: 16

eCovering Travertine

STONE SERIES

Material science that shapes the future.



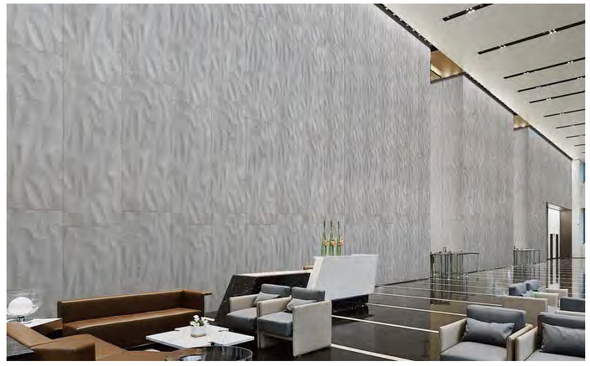


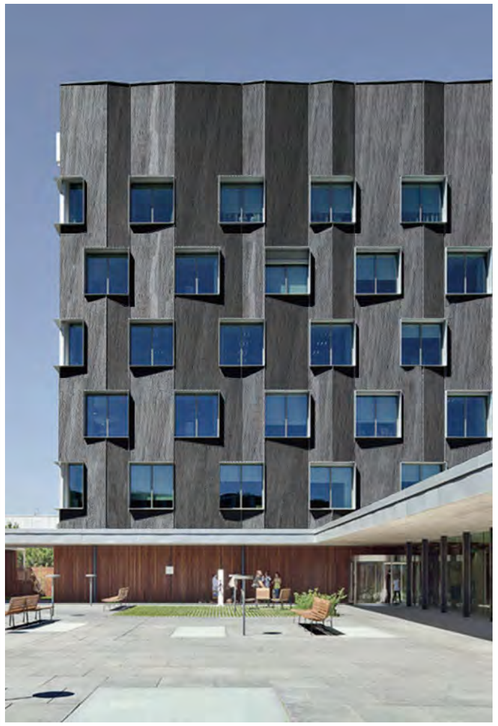
eCovering
Mushroom Stone

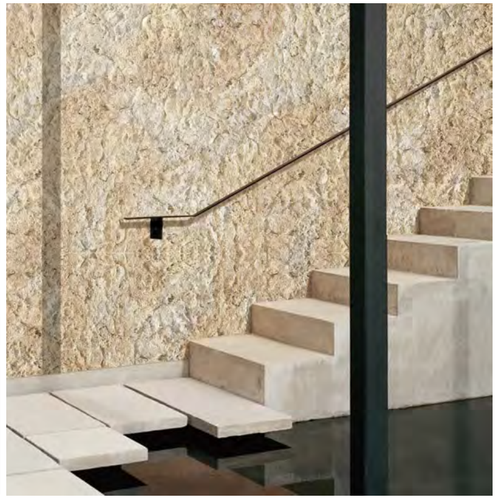
Regular Size: 2.6 x 1.3 ft
Thickness: 5-8 mm
Panels per package: 42

Regular Size: 2 x 4 ft
Thickness: 5-8 mm
Panels per package: 6

Material science that shapes the future.

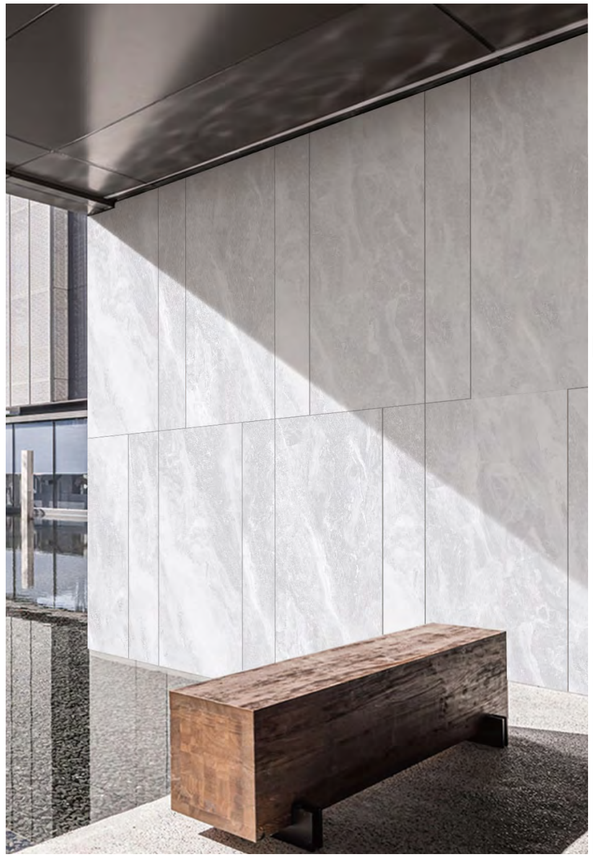


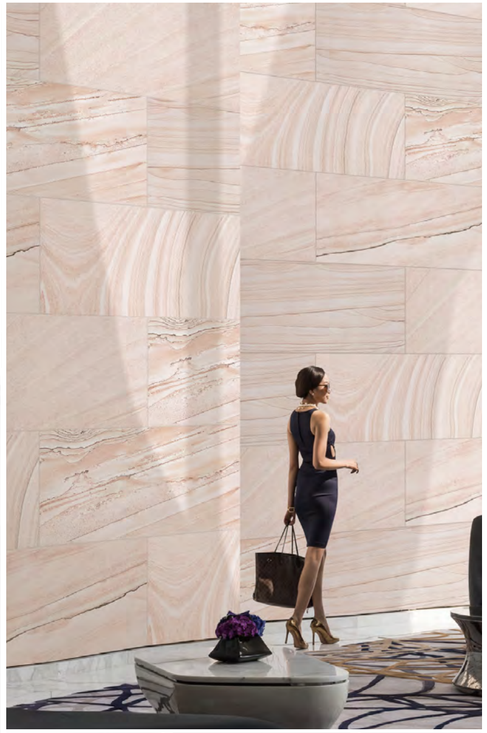


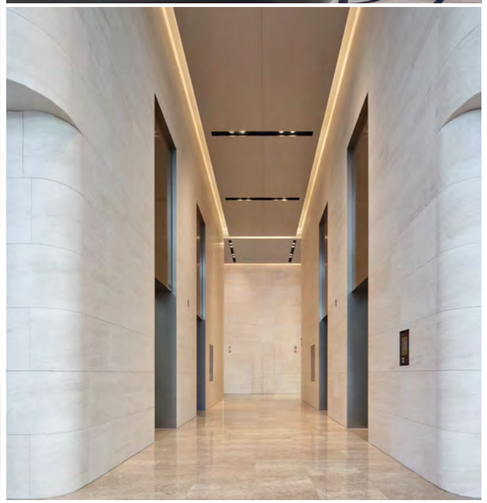


eCovering Rough Stone

Regular Size: 2 x 4 ft
Thickness: 5-8mm
Panels per package: 6



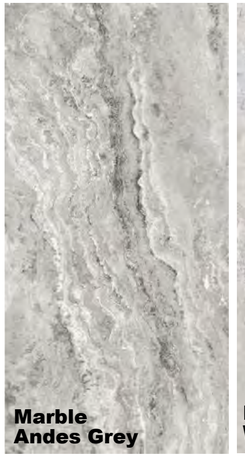




eCovering
Marble & Sandstone


Polished Stone
Sunis White


Marble
Nile Dark Grey


Marble
Andes Grey


Polished Concrete
Wall Fog


Sandstone Australia Orange

Regular Size: 2 x 4 ft
Thickness: 2-3 mm
Panels per package: 16

Material science that shapes the future.

eCovering
Linear Stone

Arcuate Rock
Veil White

Infiniti
Plain White

Chiseled Stone
Plain White

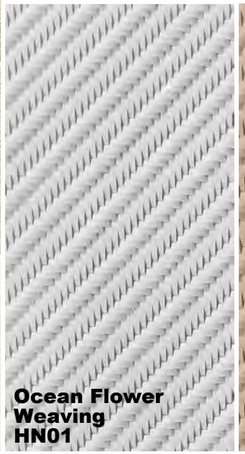
Stone Ridged
Andes White

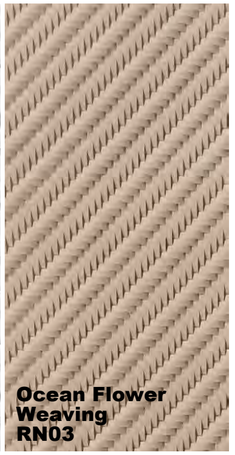
Oman Linear Stone
Andes White

Regular Size: 2 x 4 ft
Thickness: 3-6 mm
Panels per package: 8

Material science that shapes the future.

eCovering
Wood & Weaving

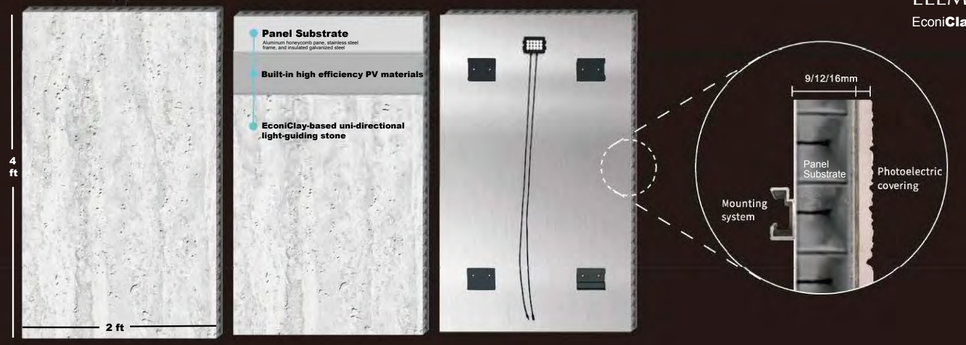




Wood
Regular Size: 1 x 4.5 ft
Thickness: 2-2.5 mm
Panels per package: 42

Weaving
Regular Size: 2 x 4 ft or 2 x 4.5 ft
Thickness: 3-4 mm
Panels per package: 14

Material science that shapes the future.



eSolar Panels

Blending renewable power and natural aesthetics

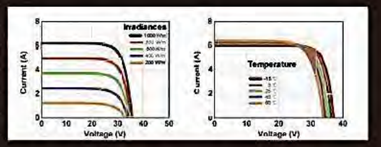
Winner of the 123rd Paris International Invention Gold Award

Winner of the 76th International Exhibition of Inventions Nuremberg Award

eSolar Panel Technical Specifications

ELECTRICAL SPECIFICATIONS	
Test Conditions	STC
Maximum Power (Pmax)	59.23 ~ 166.62 W
Maximum Power Voltage (Vpmax)	20.70 ~ 29.22 V
Maximum Power Current (Ipmax)	2.86 ~ 5.70 A
Open Circuit Voltage (Voc)	24.18 ~ 35.52 V
Short Circuit Current (isc)	3.15 ~ 6.17 A
Module Efficiency	9.12% ~17.63%
Maximum System Voltage (VDC)	1500 V (TUV/CE/CB/CQC/UKCA)
Series Fuse Rating	25 A
Power & Other Electrical Specification Tolerance	5%

I-V CURVES



STC: Standard Test Conditions 1000 W/m2 - AM 1.5 - Temperature 25°C

MECHANICAL PROPERTIES	
Module Weight	15.28kg/m² (variable for different texture)
Dimensions (L x W x T)	1140x570x30mm, 1200x600x30mm, 1254x751x30mm, 1260x746x30mm
Maximum Surface Load (Wind / Snow)	2400 Pa rear & front
Hail Impact Resistance	ø 25mm @ 23.0 m/s
Fire Rating	A
Glass	No
Back support	Aluminium honeycomb composite panel
Cables & Connectors	300mm, 1000mm, 1200mm, 4mm²
Front layer	EconiClay eCovering (High durability, UV resistant)
Backsheet	EconiClay eCovering (High durability, UV resistant)
Bypass Diodes	2 diodes
Junction Box	Ip68 rated, TUV certified

TEMPERATURE RATINGS	
Temperature Coefficient Isc	0.036% /°C
Temperature Coefficient Voc	-0.25% /°C
Temperature Coefficient Pmax	-0.30% /°C
Nominal Module Operating Temperature	42 ± 3°C
Operating Temperature	-40°C ~ +85°C

WARRANTY

Product Warranty: 25 years
Perfomance Warranty:
fi ≥ 98% end of 1st year
fi ≥ 90% end of 12th year
fi ≥ 80% end of 25th year

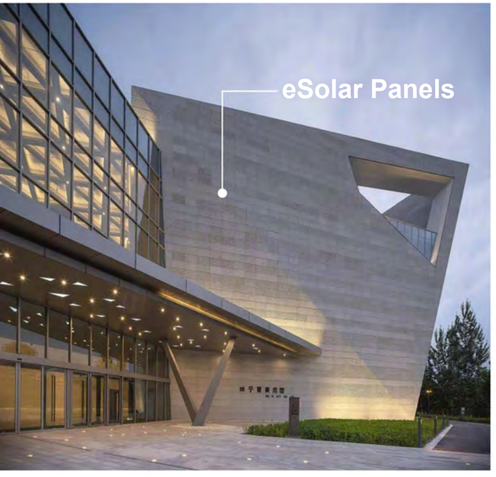
Certifications

SGS TÜV SAAR — EU TUV Certification
CAC — China CQC Solar Product Certification
CEC 中国质量认证中心 CHINA QUALITY CERTIFICATION CENTRE — China CQC Quality Certification
CB — International CB Certification
CE — CE certification

eSolar Panels

Blending renewable power and natural aesthetics

EconiClay™ BIPV eSolar Panels vs. Glass BIPV Solar Panels



EconiClay™ eSolar Panels

Glass Solar Panels

eSolar Panels in Action: 65,000 ft²

- Annual power generation: 600,000 kWh (0. 6 MW capacity x 1,000 hours)
- Lifecycle carbon footprint: 0.26 kgCO2e/Wp (BV certification)

Economic Value

- Electricity bill annual savings: $48,000 ($0.08/kWh electricity rate)
- Carbon trading revenue: $6,912 ($8/ton carbon price x 864 tons)
- Government subsidies

Ecological Contribution

- Carbon sequestration: equivalent to 48,000 trees
- Carbon offset: equivalent to annual emissions of 340 vehicles

Green Certification

- Earn LEED/BREEAM credits, enhancing building value by 3-5%

Application Scenarios:

Engineered for new construction projects—including residential, commercial, and public infrastructure—this solar solution is ideal as non-glass facades for buildings, stations, airports, sports venues, bridge piers, and warehouses. eSolar delivers architectural elegance with long term energy savings, enhanced property value, and a significant reduction in carbon footprint.

eSolar Panel Advantages:

Beyond Glass

Unlike conventional BIPV, which is typically confined to glass facades and windows, eSolar panels mimic the look and texture of stone, wood, or brick—dramatically expanding solar coverage to non-glass curtain walls and architectural surfaces.

Curvature Adaptability

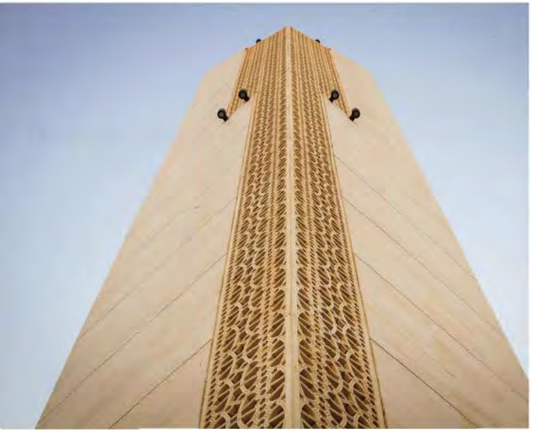
eSolar panels are engineered with flexible substrates that seamlessly conform to curved surfaces, columns, and non-linear architectural elements—unlocking solar potential in places traditional panels can't reach.

Higher Efficiency, Lower Carbon Emission

eSolar panels offer over 60% HIGHER power conversion efficiency than traditional glass BIPV panels with 60^ transmittance (CQC and TUV certifications) and 54.6% lower carbon emission (BV certification).

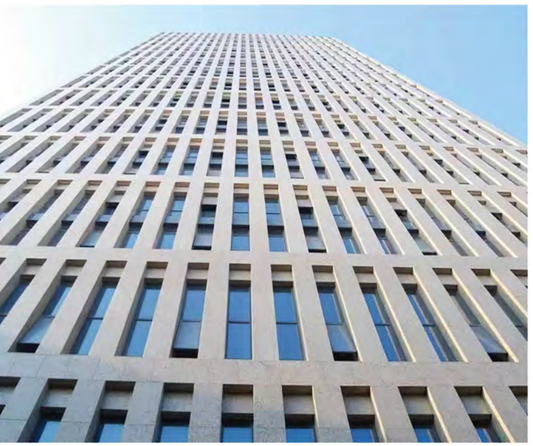
eSolar Panels

Blending renewable power and natural aesthetics



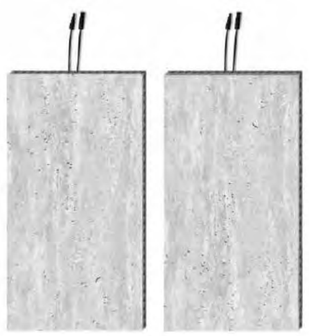
eSolar Travertine
Salento Yellow

7.6 ft x 3.7 ft (customized size)
5-11 W/ft^2



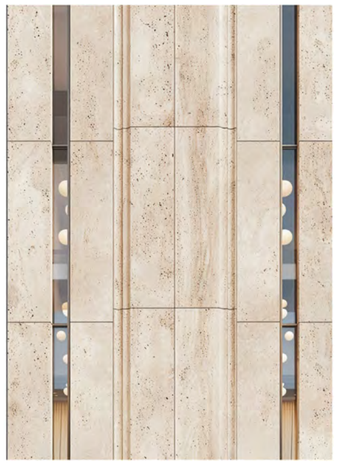
eSolar Travertine
Andes White

3.8 x 1.9 ft
5-11 W/ft^2



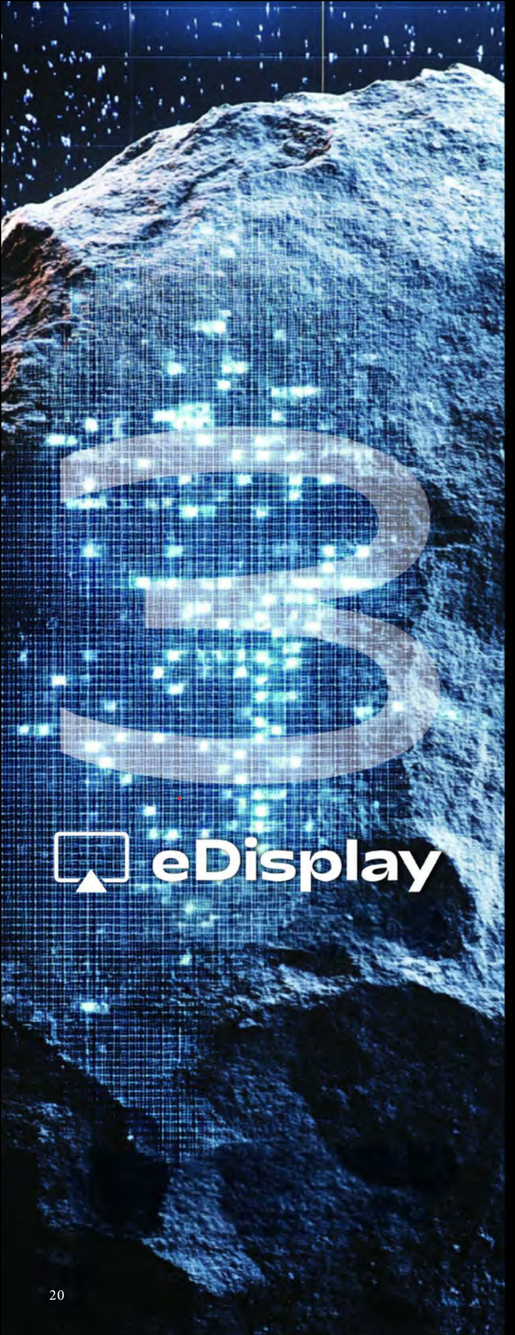
eSolar Travertine
Cloud Grey

3.7 x 1.9 ft
5-11 W/ft^2



eSolar Travertine
Mookie Ivory

7.6 x 1.9 ft (customized size)
5-11 W/ft^2



eDisplay

Winner of **4** top awards at the 76th International Exhibition of Inventions Nuremberg: Gold Medal, Special Invention Award, ARCA Award, and Committee Award.

Turning stone surface into digital canvas

We invented a covering material with one-way light guiding capability for display purpose - eDisplay. The core of this technology lies in precise manipulation of the microstructure of the covering material to achieve efficient unidirectional transmission of light. Through state-of-the-art technology, a specific optical channel network is constructed at the microscopic level, allowing the light generated by optoelectronic materials to propagate along a predetermined path and ultimately exit through specific areas of the covering material, forming a clear and coherent video signal output.

In addition to technological innovation, eDisplay also incorporates aesthetic design to simulate the natural texture of stone, the warm texture of wood or the rustic look of terracotta bricks through surface treatment, which is virtually unaffected by light conduction, ensuring that the eDisplay system can still present a pleasing visual effect while displaying video content. Moreover, eDisplay has a lower carbon footprint during its life cycle, which meets the requirements for green and sustainable development.

eDisplay is poised to become the mainstream choice in the display industry, with widespread applications in architectural decoration, information visualization, and beyond. Its emergence marks a new chapter in the evolution of digital display technology.

Core Value

Architectural Revolution

- Seamless Material-Display Fusion: instantly coverts stone, wood, or brick facades into 4k displays-disappearing when powered off. Interior surfaces such as walls, ceilings, and floors become interactive displays.
- Invisible Design: Integrates display interface into the building surface. This zero-exposure design replaces traditional external LED screens.

Solar-Powered Option

- eDisplay panels can be powered by solar energy when used in conjunction with our eSolar panels.

Auto-Sensing Brightness Control

- AI-powered sensors dynamically adjust brightness in response to ambient light conditions, ensuring optimal visibility at all times.

Unlocking Commercial Value

- Outdoor Space: Building facades transform into 2000-nit billboards, boosting ad exposure and space value.
- Indoor Space: Retail walls instantly become immersive product showcases, increasing customer dwell time by 40%.

eDisplay Specifications

Specifications			Outdoor (night use only)	Outdoor (day and night use)	Indoor
Module Specification	Dimensions (ft)		6.3x1 / 4.2x1 / 4.2x2 / 2x1		4.2x1.6 / 3.3x2.5 / 3.2x1 3.2x0.5 / 2x1
	Service access		Rear		Front
Physical Parameters	Resolution		P4	P6.67	P2.5
Image Processing Capabilities	Image frequency	Frame change frequency	50&60Hz	60Hz	50&60Hz
		Refresh frequency	⩾1920Hz	3840Hz	⩽3840Hz
Optics Parameters	Display uniformity	Color	△(Cx,Cy)⩽0.003		
	Contrast Ratio		3000:1		
	Viewing Angle	Horizontal	100°		
		Vertical	50°		
Electrical Specifications	Power consumption		Max.⩽112 W/ft^2 Avg.⩽70 W/ft^2	Max.⩽48 W/ft^2 Avg.⩽16 W/ft^2	Max.⩽80 W/ft^2 Avg.⩽27 W/ft^2
Use Conditions	Operating ambient temperature		-20~50°C		
	Storage ambient temperature		-20~50°C		
	Operating ambient humidity		10-70% RH		
	Storage ambient humidity		10-70% RH		
	Service life		100,000 Hr		

Certifications

TÜV SAAR · CCC · ETL · RoHS · CB · CE

eDisplay

Turning stone surface into digital canvas

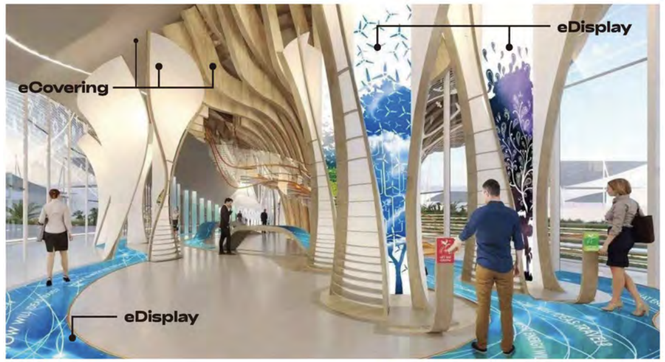
[Your stone facade is also a 2000-nit digital billboard, boosting revenue and property value]

[Hidden in plain sight, activated in an Instant - the travertine wall with a digital soul]

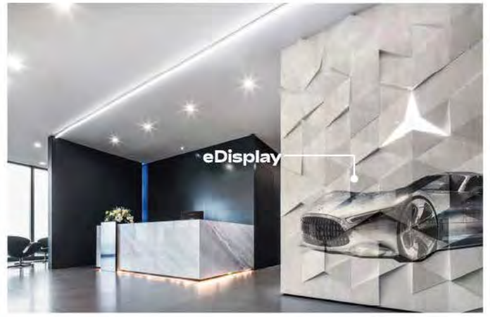
[Superpowered buildings - where architecture meets illumination]

eDisplay

Turning stone surface into digital canvas

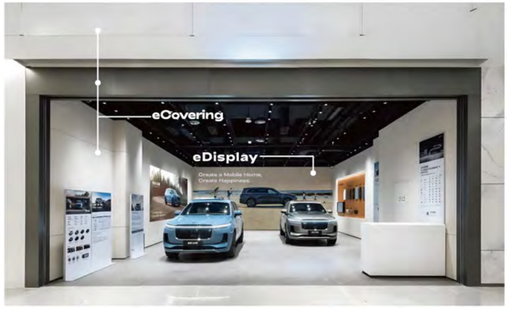


[The wall comes alive with a simple tap]



[Each stone is an 8K canvas]

[Silent stone, dynamic vision - let your space tell your brand's story]



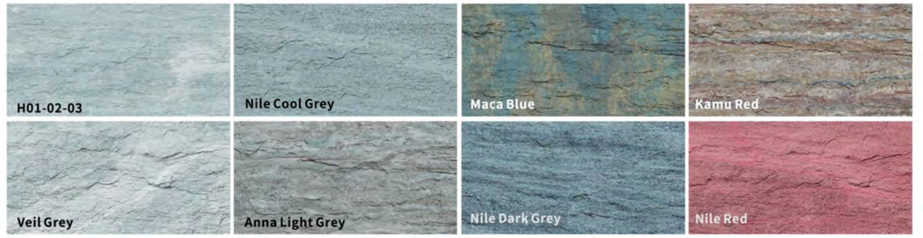
eDisplay
Standard colors

Marble Series

Skyline Series

Additional color and size options may be available

eDisplay
Standard colors



Sandstone Series

Standard Sizes

eDisplay:

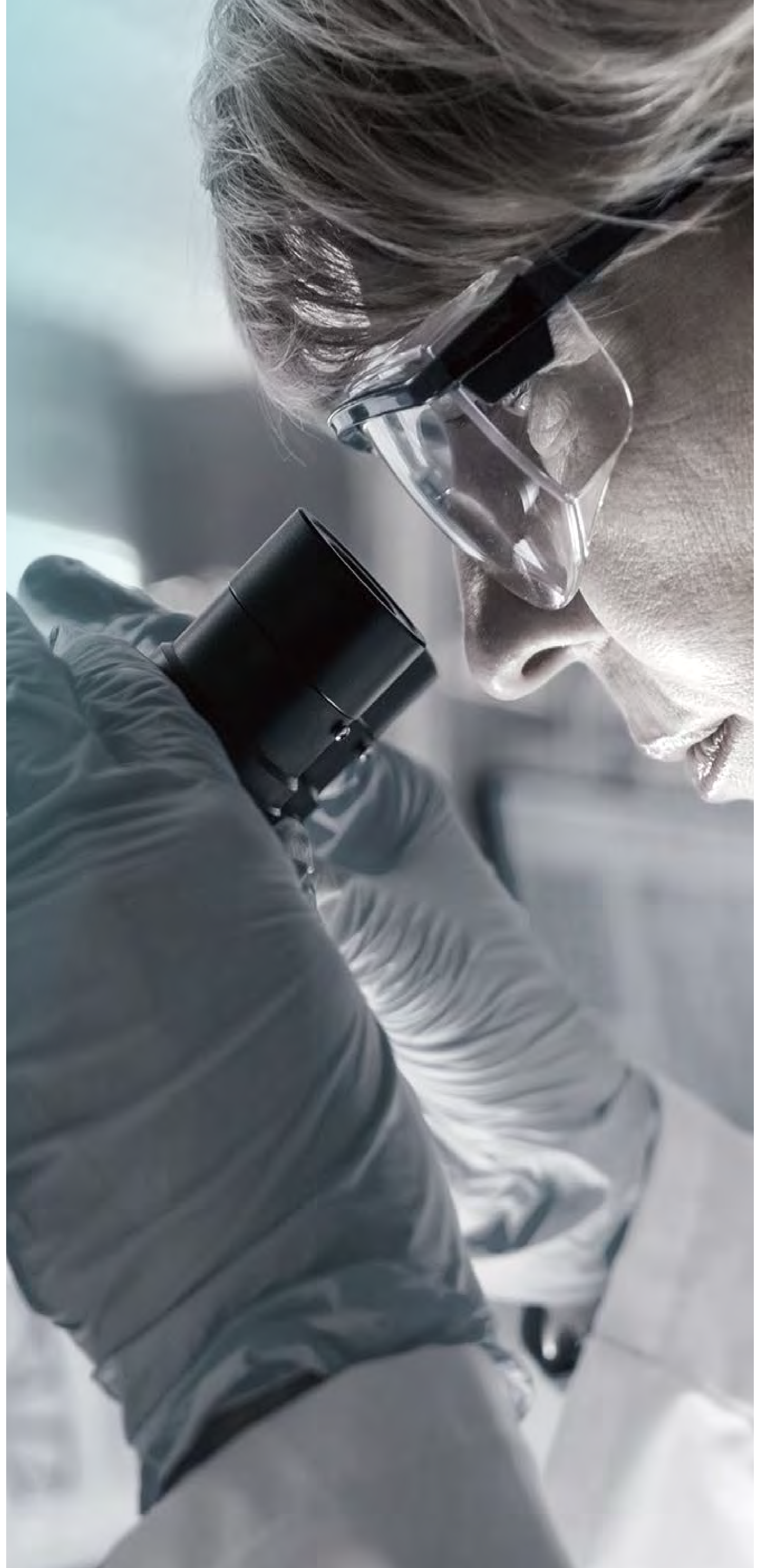
6.3 x 1 ft (Exterior)	3.3 x 2.5 ft (Interior)
4.2 x 2 ft (Exterior)	3.2 x 1 ft (Interior)
4.2 x 1ft (Exterior)	3.2 x 0.5 ft (Interior)
4.2 x 1.6 ft (Exterior)	2 x 1 ft (Exterior/Interior)

Performance comparison between EconiClay™ and traditional building facade materials

Characteristic	EconiClay	Ceramic Slab	Wall Fabric	Natural Stone	Coating				Wood Veneer		PVC Panel
					Emulsion Paint	Diatom Mud	Mud Paint	Inorganic Paint	Wood Veneer	Artificial Wood Veneer	
Fire Safety	Class A	Class A	Class C	Class A	Class C	Class A	Class A	Class B	Class C	Class C	Class B
Non-Toxic	Excellent. UL Certificate	Good. Environmental Labeling	Depends on quality. VOCs typically exceed safety level	Depends on quality. Some are radioactive	Poor. VOCs typically exceed safety level	Good. No VOC release	Good. No VOC release	Depends on quality	Depends on quality	Poor. VOCs typically exceed safety level	Depends on quality. VOCs typically exceed safety level
Production Process	Meets 3R* principle. Low engergy consumption. Zero emission. Zero pollution. Renewable.	Fails 3R* principle. High energy consumption. High Emission. High Pollution. Non-renewable.	Depends on quality	Fails 3R* principle. High energy consumption. High Emission. High Pollution. Non-renewable.	Depends on quality	Fails 3R* principle. Destroys nature. Non-renewable	Meets 3R* principle. Low engergy consumption. Zero emission. Zero pollution.	Depends on quality	Fails 3R* principle. Destroys nature. Non-renewable	Fails 3R* principle. High energy consumption. High Emission. Non-renewable.	Fails 3R* principle. High energy consumption. Non-renewable.
Moisture Absorption and Damp-Proof Capacity	Excellent in moisture-proofing. Keeps structure dry in wet conditions.	Non-moisture-proof. Condensation in wet conditions.	Non-moistur-proof. Condensation in wet conditions.	Non-moisture-proof. Condensation in wet conditions.	Non-moisture-proof. Condensation in wet conditions.	Excellent in moisture-proofing. Keeps structure dry in wet conditions.	Excellent in moisture-proofing. Keeps structure dry in wet conditions.	Non-moisture-proof. Condensation in wet conditions.	Non-moisture-proof. Condensation in wet conditions.	Non-moisture-proof. Condensation in wet conditions.	Non-moisture-proof. Condensation in wet conditions.
Mold-Proof	Good	Good	Poor	Good	Poor	Depends on quality	Good	Depends on quality	Poor	Good	Good
Breathability	Excellent	Poor	Poor	Excellent	Poor	Excellent	Excellent	Good	Excellent	Poor	Poor
Air-Cleaning Capacity	Able to absorb and decompose formaldehyde and odor due to its catalytic UV feature	Unable to absorb formaldehyde. Some are able to decompose formaldehyde on the surface.	No	No	No	Able to absorb and decompose formaldehyde and odor.	Able to absorb and decompose formaldehyde and odor.	No	No	No	No
Durability	Durable. No edge lifting. Fastness. Mold-proof. No pressure-induced delamination**	Durable. No edge lifting. Fastness. Pressure-induced delamination**	Not durable. Maintains shape for 1-2 years. Color fading. Prone to mildew.	Durable. No edge lifting. Fastness. Pressure-induced delamination**	Not durable. Fades fast, especially dark colors. Prone to mildew.	Not durable. Peeling. Softens with water. Powdering	Durable. No peeling. Fastness. Mold-proof. Not water-resistant.	Durable. Fastness. Mold-proof. Not water-resistant.	Not durable. Prone to rot. Prone to mildew.	Not durable. Prone to deform. Edge lifting. Color fading.	Durable. No edge lifting. Mold-proof. No pressure-induced delamination**
Salt Spray Resistance	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Poor	Good
Ease of Installation	Simple No anchoring required	Complex	Simple	Complex	Simple	Complex	Situation dependent	Complex	Simple	Simple	Simple

* 3R principle refers to Reduce, Reuse, Recycle

** Pressure-induced delamination occurs when there is high air pressure created in the cavity under low/non-air permeable cladding, which causes the material to detachment from the substrate.



Certifications

- UL Listed
- American Conference of Governmental Industrial Hygienists (ACGIH)
- EU EPD Environmental Product Certification
- EU CE Certification and Class A Fireproof Certification
- Russia GOST Quality and Safety Certification
- Polish Conference of Governmental Industrial
- Customs-Trade Partnership Against Terrorism (C-TPAT)
- Czech Republic Fire Safety Class A Certification
- Russia Fire Safety Class A Certification
- Malaysia Fire Safety Class A Certification
- Singapore Green Label Certification
- Korea Green Building Material Certification
- UNI EN ISO 14021: Products contain at least 40 percent recyclable material before consumption
- China Class A Fireproof Certification
- UNI EN ISO 9001 National Quality Management System certification
- China National Safety Standardization Production Certificate
- China National Occupational Safety and Health Management System Administration
- China Certification for Environmental Products (CCEP)
- China 3-Star Green Label Certification