

Insulated Panels
New Zealand

Evolution Panelised Façade Product Data Sheet

Evolution Axis, Recess and Multi-Groove Panelised Façade System



Product Data Sheet

Evolution Panelised Façade

Product Overview

Kingspan insulated wall panels are double skin, metal faced panels designed to be supported on structural wall girts or posts. Kingspan panels are manufactured in Sydney, Australia and throughout the world.

Available in widths of 900 and 1000mm, with lengths of up to 7.0m long, the Evolution Panelised Façade System is finished with the sleek simplicity of a flat facade with leading-edge design with excellent thermal performance.

Applications

Evolution Panelised Façades are suitable for all building applications in either horizontal or vertical applications. A choice of exterior and interior finishes caters for a range of colours and coatings in standard, high performance and high humidity environments.

Manufacture

Panels are manufactured in a Kingspan-owned facility in Sydney, Australia.

Available Lengths

Standard lengths are from 2m to 7m. These panels cannot be end lapped. Where joints are required vertical top hats are available.

Environmental

Kingspan Insulated Panels manufacturing facility in Australia sources 100% certified renewable electricity and procures steel that is made from 15-25% recycled content.



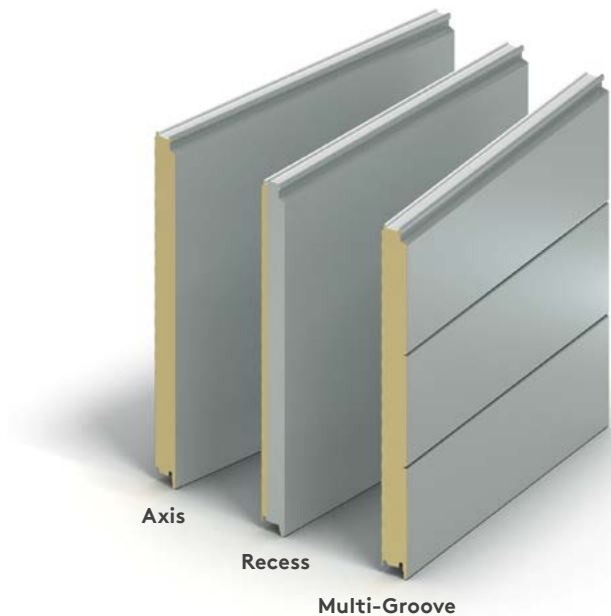
Evolution Panelised Façades have an Environmental Product Declaration in accordance with the requirements of ISO 14025 and EN 15804: 2012 + A2: 2019 for 50mm to 140mm thickness.

Evolution Panelised Façades are certified with a Global GreenTag GreenRate™ Level A certification to Version 4.0 of the Global GreenTag International Product Certification Standard, under the certified name 'Kingspan Wall Panels'.

A GreenRate Level A certification is the highest-ranking level in GreenTag's GreenRate program. As a result, Evolution Panelised Façades receive the maximum recognition by the New Zealand Green Building Council's Green Star® building rating tools scheme.



Member 2022–2023



Cover Widths

Evolution Panelised Façades are available in a choice of standard and non-standard cover widths.

Standard cover width	1000 mm
Non-standard cover width	900 mm

The table below provides clarification as to the availability of specific Evolution Panelised Façade profiles depending on panel cover width.

Evolution Panelised Façade Profile	Panel Cover Width (mm)	
	900	1000
Axis	✓	✓
Recess	✓	✓
Multi-Groove	—	✓

Fixing Method

Secret-fix.

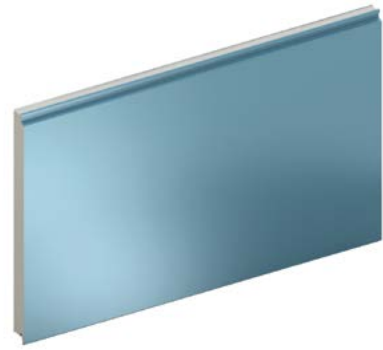
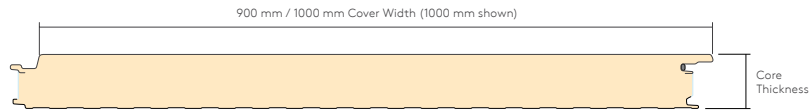
Profiles

Evolution Axis

Evolution Axis is an unprofiled insulated panel system; the perfect solution if you are looking to achieve a minimalist facade on buildings with large, flat surface areas.

Length:
2.0–7.0m

Widths:
900/1000 mm

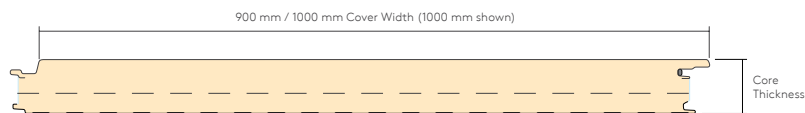


Evolution Recess

Evolution Recess features depth and dimension through the folding of the panel edge and the insertion of a 10mm or 20mm gasket between the panels, creating a unique 3D effect.

Length:
2.0–7.0m

Widths:
900/1000 mm



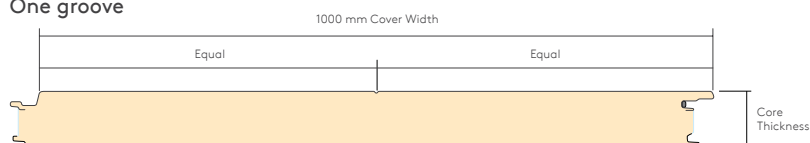
Evolution Multi-Groove

Evolution Multi-Groove has one, two or three grooves engineered into its surface, creating subtle shadow lines on the building's facade and an illusion of smaller panel widths without the installation time constraints.

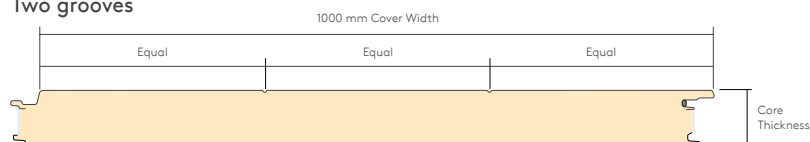
Length:
2.0–7.0m

Width:
1000 mm only

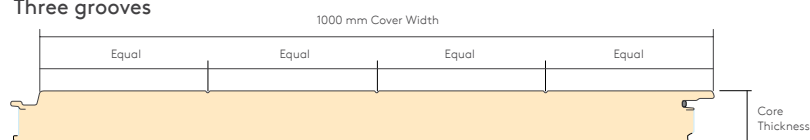
One groove



Two grooves



Three grooves



Note: Dimensions are nominal. Actual dimensions will vary due to manufacturing tolerances. Precise dimensions must always be measured from actual samples. All measurements in mm.

Panel Performance

A - Core Thickness (mm)	50	80	100	140
Material R value (m ² .K/W)*	2.34	3.84	4.82	6.76
Installed R value (m ² .K/W)**	2.46	3.96	4.94	6.88
Weight kg/m ² 0.75/0.4 steel ***	11.9	13.1	13.6	15.1

* Material R value = the aged thermal value @ 15°C, as independently tested and calculated to AS/NZS4859 parts 1&2: 2018. Note this is for the product only before installation.

** Installed R value = the thermal resistance of the installed product and includes air films as per NZS 4214.

*** other steel thicknesses both external and internal are available and could alter the weight.

Materials

Exterior Weather Sheet:

- Zincolume G300S AM100 (standard environment) or AM150 (high performance environment) coated steel in accordance with AS1397:2021
- Paint coating in accordance with AS/NZS 2728:2013
- Colours as per the Kingspan Colour brochure available on the website. Steel colour swatches are available on request.

Insulation Core:

- Polyisocyanurate (PIR), with zero Ozone Depletion Potential (Zero ODP).
- PIR foam is a thermosetting material. It does not melt, flow or drip when exposed to fire. It will form a strong char that helps protect the foam core and prevent flame spread within the panels.

Internal Liner Sheet:

- Zincolume G300S AM100 (standard environment) coated steel in accordance with AS1397:2021
- Paint coating in accordance with AS/NZS 2728:2013
- Rib Profile
- Colour: Standard White Liner
 - other colours available on extended lead time and price
 - AQUAsafe (white) stocked in limited quantities for high humidity environments

Acoustic Performance

Evolution Panelised Façades have a single figure weighted sound reduction index of $R_w = 24-26\text{dB}^*$. Results are based on panels with a similar profile and core material.

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	R _w
SRI (dB)	20	18	20	24	20	29	39	46	24

* Please contact Technical Services for project specific support and product specification where $R_w = 26\text{dB}$ is required.

System Accessories

The Evolution Panelised Façade System can include the following accessories:

- Butyl seals
- Top hats
- Bubble gaskets
- AWP filler blocks
- Base channel
- Panel bearers
- General flashings
- Gaskets
- Folded corners (50, 80, 100mm only)

Corners



Single crank corner



Double crank corner

West Australia Institute of Sport (WAIS), Churchlands, Australia

New build • Wall: Evolution Panelised Façade (Axis) • Roof: KS1000RW Trapezoidal Roof Panel



NZBC Compliance

Kingspan panels have been used around New Zealand, on many building types for in excess of 15 years.

The Evolution Panelised Façade holds a CodeMark Certificate of Conformity stating the provisions of the Building Regulations 2008 (New Zealand) the product conforms to.



CodeMark Certificate of Conformity is certified under the name Kingspan Insulated Panels Architectural Wall Panels (AWP) and Evolution (EVO).
Certificate number: CM20114 Rev V2.

For further details please contact the Kingspan Technical Service Department or alternatively refer to the MBE - Product Certificate Register and search for 'Kingspan KS1000AWP'.

When designed, used, installed and maintained in accordance with Kingspan standard details, the Evolution Panelised Façade is compliant with the following clauses on the NZBC:

B1 Structure — B1.3.1; B1.3.2; B1.3.3(a, f, g, h, j); B1.3.4

B2 Durability — B2.3.1(b)

C3 Fire Affecting Areas Beyond the Fire Source — C3.4(a); C3.5; C3.7

E2 External Moisture — (contributes to) E2.3.2; E2.3.7

E3 Internal Moisture — E3.3.5

F2 Hazardous Building Materials — F2.3.1

H1 Energy Efficiency — (contributes to) H1.3.1

Codemark Certification demonstrates compliance to the NZBC equivalent of an Acceptable Solution. Some specialist buildings may fall partially or wholly outside of the scope of the Codemark Certificate, should this occur then please contact Kingspan Technical for assistance in demonstrating NZBC compliance via an Alternative Solution.

Fire Performance

When tested to ISO 13784 Kingspan panels achieved the fire hazard results

Internal Surface Finish (NZBC C.4.17.1) (to ISO 9705)

Standard Details

Group 2S

External Radiation (NZBC C.5.8) (to ISO 5660-1)

Building Code Document	Cladding Material Type
NZBC Acceptable Solutions C/AS1 Table 5.1	< 100kW/m ² and < 25 MJ/m ²
NZBC Acceptable Solutions C/AS2 Table C1.3	Type A

Foam Plastic Core (NZBC C.4.17.2)

Core meets the requirements of AS 1366.2

Insurance

Evolution Panelised Façade is approved by FM Global to the following Approval Standards:

- **FM4880 - Class 1** Internal wall and ceiling panels without height restriction for thicknesses 50, 80, 100 and 140 mm
- **FM4881 - Class 1** External Wall Panel System without height restriction for thicknesses 50, 80, 100 and 140 mm



FM 4881 – Exterior Wall Systems

900	1000
✓	✓

FM Approvals are subject to the following certified names:

- For 1000mm widths: KS1000 Evolution
- For 900mm widths: KS900 Evolution

Insurer approvals are large scale testing regimes that provide objective third party testing, which is underpinned by quarterly, half-yearly and yearly factory surveillance audits (depending on the region) to verify compliance. Insurer approvals are subject to panel thickness, width, orientation, method of assembly, steel coating and manufacturing

Sprinkler Code NZS 4541:2020

The Sprinkler Standard NZS 4541:2020 contains levels of sprinkler protection required for buildings constructed with "Approved" and "Not Approved" panels - refer to clause 2.12 and Appendix K.

Kingspan's PIR-cored Evolution Panelised Façades are classed as "Approved" as they have FM Global approval.

Product Selection Assistance

Sales representatives are available nationwide to answer queries on product options, assist with detailing, spans, colour swatches and other queries. They can also provide early stage budget estimates and co-ordinate the provision of project specifications.

Technical Assistance

Our technical team is available to provide specific advice on panel spans, product specifications, standard and bespoke detailing, panel optimisation, fire wall options, project specific acoustic solutions, panel guarantees, thermal condensation risk calculation along with general building science cladding advice.

Kingspan Technical Services can provide 'side by side' assistance with regard to project detailing, attending design meetings, providing training and undertaking site visits when required.

Guarantees

Kingspan will provide product guarantees on an individual project basis.

Guarantees are typically up to 15 years in a non marine/ geothermal environment. All guarantees are subject to a maintenance regime. Specialist coatings are available for marine and other more corrosive areas.

Product Tolerances

Length < 3 m	±5 mm
Length > 3 m	±10 mm
Cover Width	±2 mm
Thickness < 100 mm	±2 mm
Thickness > 100 mm	±2%
Squareness	≤0.6% of width
Flatness*	
L = 200 mm	0.6 mm
L = 400 mm	1.0 mm
L > 700 mm	1.5 mm
Bowing	2 mm per metre length up to maximum 20 mm

*Flatness shall be measured at least 100 mm from the edge of panel and 200 mm from the end of the panel.

Biological

Kingspan panels are normally immune to attack from mould, fungi, mildew, and vermin. No urea or formaldehyde is used in the construction, and the panels are not considered deleterious to health.

Quality and Durability

Evolution Panelised Façade is manufactured from the highest quality materials using state-of-the-art production equipment to rigorous quality control standards, complying with ISO 9001 standard, ensuring long-term reliability and service life. The panels are also being manufactured under Environmental Management System Certification ISO 14001 and Occupational Health and Safety Certification ISO 45001.

Delivery & Packing

Standard Packing

Protective film is applied to the external face.

Kingspan wall panels are stacked horizontally.

The number of panels in each pack depends on panel thickness.

Delivery

All deliveries (unless indicated otherwise) are by road transport to project site by flat bed truck for off-loading by crane or fork hoist.

Off-loading is the responsibility of the installer.

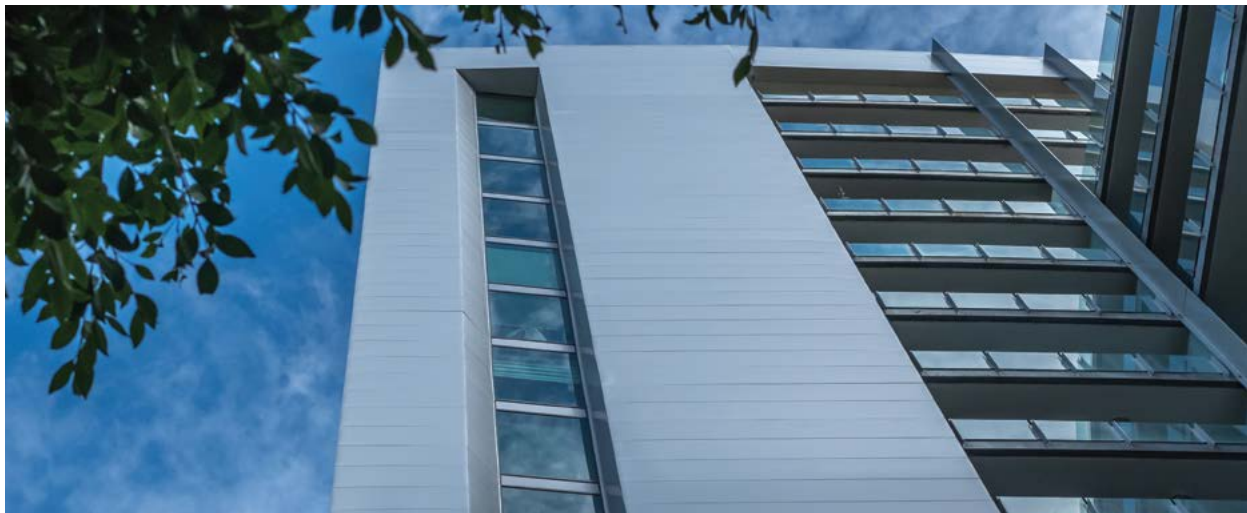
Handling guidelines are available from Kingspan Technical Services.

Site Installation Procedure

A site assembly instruction brochure is available from Kingspan Technical Services.

Aurora Apartments, Melbourne, Australia

Reclad • Wall: Evolution Panelised Façade

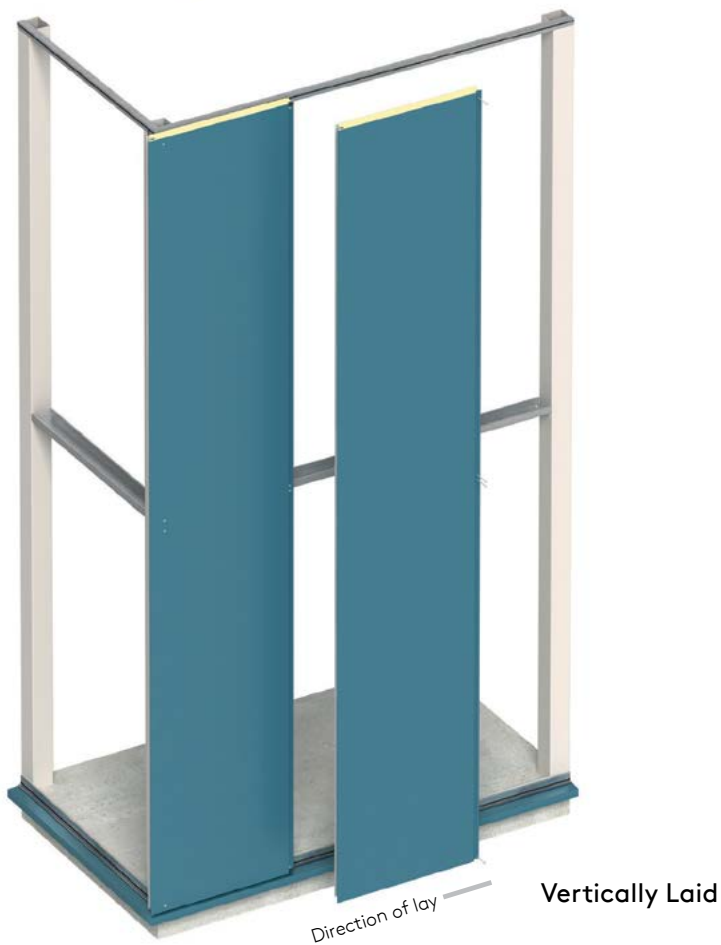


Installation

Evolution Panelised Façade



Horizontally Laid



Vertically Laid

Span Tables – Wall Application

Single Span Condition

Span capability of composite systems can depend on a number of external factors. The following table is based on typical medium colour selections. For darker colours contact Kingspan Technical Services.

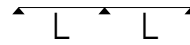
The following tables are based on the parameters as outlined. The project engineer/designer should ensure structure is designed within these span tables and the limits of the fixings chosen.

Panel Thickness (mm)	Load Type	Span L in metres										
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
Uniformly distributed loads kN/m²												
Ultimate Limit State (ULS)												
50	Pressure	4.45	3.56	2.97	2.42							
	Suction	3.74	2.39	1.66	1.22							
80	Pressure	7.04	5.63	4.69	3.68	2.82	2.23	1.80				
	Suction	6.03	3.86	2.68	1.97	1.51	1.19	0.96				
100	Pressure	8.70	6.96	5.80	4.46	3.42	2.70	2.19	1.81	1.52	1.29	
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.21	1.00	0.84	0.72	
140	Pressure	8.84	7.07	5.89	5.05	4.41	3.49	2.83	2.34	1.96	1.67	1.44
	Suction	8.84	6.85	4.76	3.49	2.68	2.11	1.71	1.42	1.19	1.01	0.87
Serviceability Limit State (SLS)												
50	Pressure	3.80	2.32	1.49	0.99							
	Suction	3.26	1.90	1.15	0.65							
80	Pressure	7.04	4.69	3.22	2.27	1.64	1.22	0.92				
	Suction	6.03	3.86	2.68	1.92	1.35	0.96	0.70				
100	Pressure	8.70	6.96	4.36	3.17	2.35	1.78	1.37	1.07	0.85	0.68	
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.12	0.85	0.66	0.50	
140	Pressure	8.84	7.07	5.89	5.05	3.62	2.85	2.27	1.82	1.48	1.22	1.01
	Suction	8.84	6.85	3.49	3.49	2.68	2.11	1.71	1.42	1.19	1.01	0.87

Please refer to notes on page 11.

Span Tables – Wall Application

Double Span Condition



Span capability of composite systems can depend on a number of external factors. The following table is based on typical medium colour selections. For darker colours contact Kingspan Technical Services.

The following tables are based on the parameters as outlined. The project engineer/designer should ensure structure is designed within these span tables and the limits of the fixings chosen.

Panel Thickness (mm)	Load Type	Span L in metres									
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	5.9	
Uniformly distributed loads kN/m²											
Ultimate Limit State (ULS)											
50	Pressure	4.45	3.56	2.97	2.42	1.86					Exceeds maximum container length (11.8m)
	Suction	3.74	2.36	1.66	1.22	0.94					
80	Pressure	7.04	5.63	4.69	3.68	2.82	2.23	1.80	1.49		
	Suction	6.03	3.86	2.68	1.97	1.51	1.19	0.96	0.80		
100	Pressure	8.70	6.96	5.80	4.46	3.42	2.70	2.19	1.81	1.52	
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.21	1.00	0.84	
140	Pressure	8.84	7.07	5.89	5.05	4.41	3.49	2.83	2.34	1.96	
	Suction	8.84	6.85	4.76	3.49	2.68	2.11	1.71	1.42	1.19	
Serviceability Limit State (SLS)											
50	Pressure	3.41	1.91	1.22	0.85	0.63					
	Suction	3.74	2.39	1.66	1.10	0.78					
80	Pressure	5.77	3.58	2.19	1.48	1.07	0.81	0.64	0.51		
	Suction	5.47	3.86	2.68	1.97	1.48	1.07	0.81	0.63		
100	Pressure	6.31	4.94	3.02	2.00	1.42	1.06	0.83	0.66	0.54	
	Suction	5.98	4.69	3.37	2.48	1.90	1.50	0.09	0.84	0.67	
140	Pressure	6.15	4.80	3.92	3.32	2.30	1.67	1.27	1.00	0.81	
	Suction	5.80	4.52	3.70	3.13	2.68	2.11	1.71	1.42	1.12	

Notes

1. Values have been calculated in accordance with AS/NZS 1170.0, and also take into account the methods described in EN 14509:2006 titled 'Self-supporting double skin metal face insulating panels (Light coloured) - Factory made products - Specifications', taking imposed loads (excluding snow), temperature and creep into account.
2. The serviceability limit state is defined by local buckling, bending or crushing failure at an intermediate support or the exceedance of a specified deflection limit.
3. Deflection limit of L/100 was used.
4. The allowable steelwork tolerance between bearing panels of adjacent supports is +/- 5mm or L/600, whichever is the least.
5. The actual wind suction load resisted by the panel is dependant on the number of fasteners used and the support width as well as the fastener material. This table is based on a support width of 60mm.
6. The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
7. For FM approved applications, a maximum span of 2000mm applies.
8. Load span tables for other panel specifications not shown are available from Kingspan Technical Services.
9. The effects of temperature have been included based external surface temperatures of +65degC Summer -5degC Winter and Internal Temperatures of 25degC Summer +18degC Winter. Buildings held at lower internal temperatures will require specific calculations.
10. Panel cantilevers require specific calculations.
11. Penetrations through the panels greater than 300mm dia will require additional structural support.

Contact Details

New Zealand

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For the product offering in other markets please contact your local sales representative or visit www.kingspanpanels.com

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o ensure you are viewing the most recent and accurate product information, please visit: <https://www.kingspan.com/nz/en/products/insulated-panels/wall-panels/evolution-panelised-facade/>

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