



**ATMOSPHERE  
SYSTEM**

Architectural Facades

# The Atmosphere System

Atmosphere brings a new perspective to sustainable facade systems. Ideally suited to both new construction and retrofit applications, Atmosphere E<sub>2</sub> reduces the impact of solar energy entering the building by up to 78%\*, hence reducing the energy consumed by HVAC equipment for comfort control. The visual impact Atmosphere can offer the external face of the building, is unrivalled. Created using a series of perforated elements, each floating beyond the external envelope of the building, Atmosphere offers a light textural element. Design isn't constrained, with a myriad of element profiles available in a kaleidoscope of colors.

The unique cable attachment system means Atmosphere can be tailored and varied within the one facade, changing element profiles, colors and even leaving sections uncovered if the design requires. In addition, the profiles can be tailored to match the requirements of each orientation; North, South, East or West.

Equally suited to retrofit or new construction, Atmosphere is light and easy to install. Heavy RHS frames, supported at intervals down the buildings height are now only a memory; Atmosphere simply floats. Utilizing a tensioned cable system, cables are dropped down the facade under tension with the elements fixed to cables using the patented attachment system.

\* Based on the analysis of the E<sub>2</sub> profile for a northern facade of a typical office arrangement with a curtain wall system in Melbourne, Australia. As studied by GHD.

Cover location: Park Beach Plaza, Coffs Harbour, Reddog Architects  
Project location to the right: Rockhampton Hospital, QLD, Hansen Yuncken



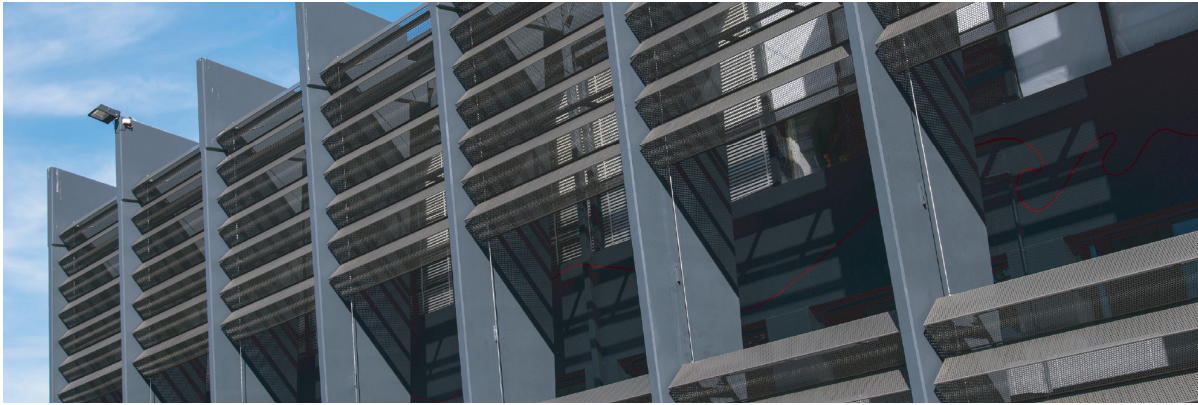


# Ease and Simplicity

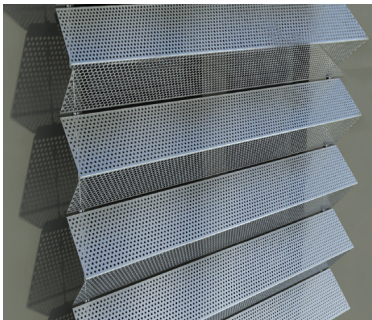
Available as a complete engineering package, our Atmosphere system was created to help simplify choice, shorten lead times and provide for ease of installation.

All the while, the system offers you the design flexibility and functionality that Valmont® Structures solutions are known for around the globe.

# Profile Solutions



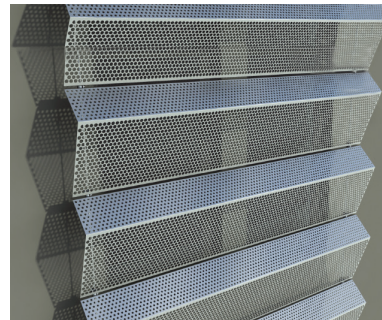
St. Columbus, Victoria



- symmetric elements, maximizing energy reduction and visibility



- providing a continuous external face



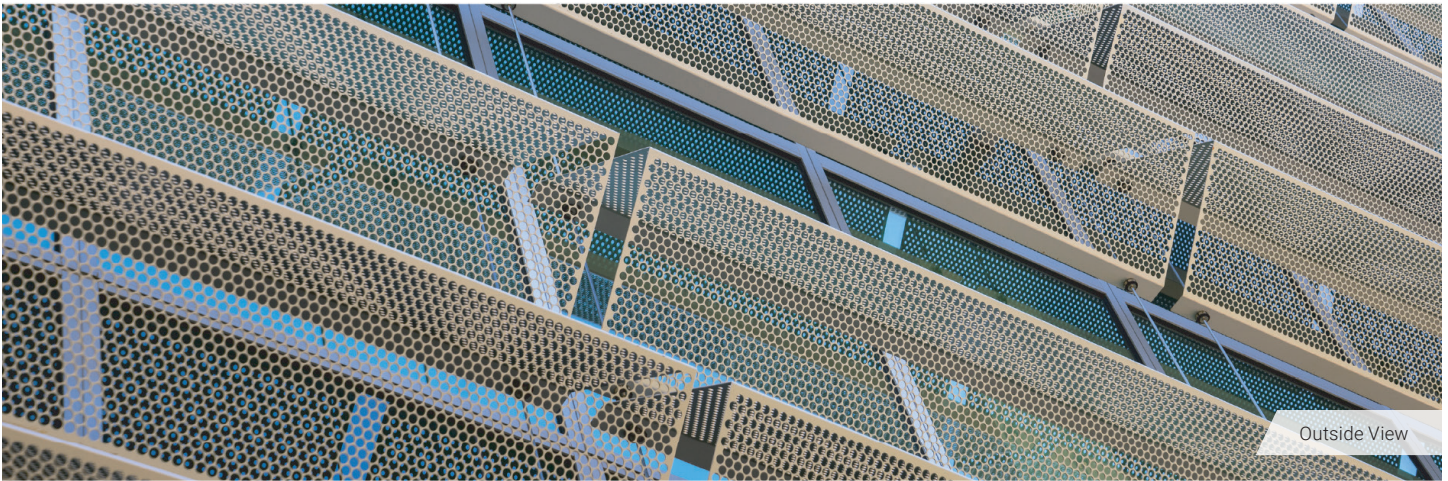
- fluid elements with priority given to the occupant's vision, where glare is less of a concern



Endeavour Hill Leisure Center, Victoria

The Endeavour Hills Leisure Center project used the Atmosphere system to cover the plain external walls of the Center, providing an impressionable facade with minimal impact on the building structure.

In consultation between Valmont® Structures Architectural Facades and the Casey Council the introduction of a Pic Perf image on the Atmosphere facade was introduced to reflect the activities that occurred inside the building and to promote its use.



Outside View



Inside View

Armadale Council, Western Australia

## Variability

- Several Atmosphere elements are available for immediate specification to maximize airflow, energy reduction or visibility.
- Elements can be custom designed to give your project a unique aesthetic. Include Pic Perf panels to brand or add artistic impression.
- Atmosphere's unique cable structure and patented attachment system allows the designer to play; drop different colors into the facade, remove panels to add texture and variation.
- Depending on the project brief, maximize the daylight or energy reduction on the building envelope.
- Atmosphere E<sub>2</sub> profile maximizes energy reduction while still allowing enough daylight into the building.
- Atmosphere floats off the building, without a heavy, unsightly support structure.

## Environmentally Sustainable Design

- Atmosphere E<sub>2</sub> reduces the impact of solar energy entering the building by up to 78%, as studied by GHD\*.
- Installing Atmosphere E<sub>2</sub> on a typical building in Melbourne has shown energy cost savings of 45% annually covering heating, cooling and ventilation. Savings are expected to be higher in warmer climates with less reliance on heating during winter\*\*.
- Atmosphere's unique cable structure and patented attachment system allows the designer to play; drop different colors into the facade, remove panels to add texture and variation.
- Carbon emission savings have been measured at 44% annually for the same installation\*\*.
- The ability to custom design an Atmosphere element profile means you can achieve the savings of your choice.
- Minimize the glazing costs, install standard single glazing, and still maximize energy efficiency.

\* Based on the analysis of the E<sub>2</sub> profile for a northern facade of a typical office arrangement with a curtain wall system in Melbourne, Australia. As studied by GHD.

\*\* Based on Electricity costs of 19c/kWh & natural gas cost of 0.033c/kwh. Electricity emissions factor of 1.25kg CO<sub>2</sub>-e/kWh. Natural gas emissions factor of 0.9 tonnes CO<sub>2</sub>-e/TJ.



Tamk Street, Queensland

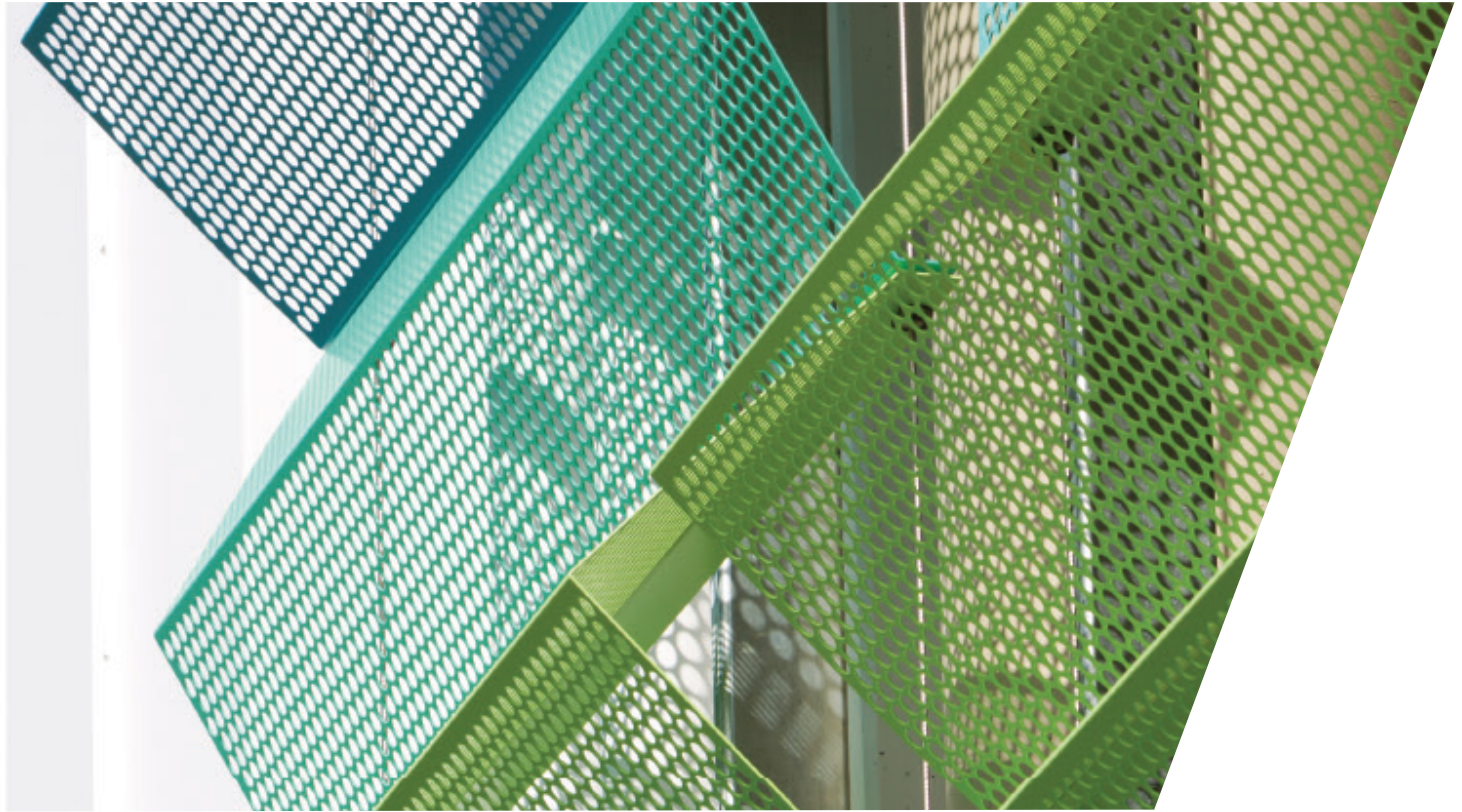
## Retrofit

- Give an outdated facade a fresh face, while providing occupants with enhanced conditions.
- Atmosphere reduces solar energy entering the building and hence the requirements for air conditioning, without major structural changes.
- Prepare for commercial building disclosure requirements, by improving energy efficiency ratings.
- Atmosphere can be retrofitted to existing building stock while the tenants are still in occupancy\*\*\*.
- No heavy support structure is required.
- Easy and fast to install.

## Fast and Easy Installation

- Minimal installation costs compared to a traditional facade based on tensioned cables and patented attachment clips.
- One contact point. Valmont® Structures Architectural Facades will manage the customization, manufacturing and installation of the system.
- Atmosphere cables, clips & elements can be installed quickly without the requirements for a heavy support structure, and without disturbing internal occupants.

\*\*\* Requires base building to be suitable for loads that will be applied by tensioned cables.



## Atmosphere Elements

Since 1956, the Architectural Facades product line from Valmont® Structures has evolved to meet the changing needs of architects, engineers and contractors. The core benefits are:

**Constructability** – The design of the tensioned cable support structure provides for superior constructability.

The Atmosphere system is installed in less than half the time of an equivalent facade canvas. Atmosphere elements can be fitted to the cables, utilizing the patent protected attachment system, while still on the ground, and then lifted 'in stacks' and attached to the facade.

**Communication** – Incorporate an image that portrays the message or vision of your project. Atmosphere can be designed to incorporate Architectural Facades popular Pic Perf offering.



**Protection from the Elements** – Atmosphere provides a wind break to either the building envelope or work area due to the unique design of the perforated panels.

Architectural Facades has installed an Atmosphere 'wall' at its Dandenong head office to protect the team in the dispatch area. Even during days of high wind conditions, the Atmosphere wind wall provides protection, absorbing the wind load, as the perforations diffuse the velocity.

**Technical Endorsment** – The following data is based on analysis of the E<sub>2</sub> panel, as performed by GHD, based on a typical curtain wall application for a typical office in Melbourne, Australia.

Annual Irradiation Levels			Estimated Reduction
North	No shading device	1,350,242 Wh/m <sup>2</sup>	77.9%
	<b>with Atmosphere</b>	<b>297,796 Wh/m<sup>2</sup></b>	
South	No shading device	546,876 Wh/m <sup>2</sup>	65.6%
	<b>with Atmosphere</b>	<b>188,322 Wh/m<sup>2</sup></b>	
East	No shading device	951,412 Wh/m <sup>2</sup>	74.4%
	<b>with Atmosphere</b>	<b>243,509 Wh/m<sup>2</sup></b>	
West	No shading device	946,673 Wh/m <sup>2</sup>	73.0%
	<b>with Atmosphere</b>	<b>255,468 Wh/m<sup>2</sup></b>	

Average insolation at the facade-reduction in energy hitting the building over a year.

Peak Irradiance Levels			Estimated Reduction
North	No shading device	432.55 W/m <sup>2</sup>	58.8%
	<b>with Atmosphere</b>	<b>178.17 W/m<sup>2</sup></b>	

Average insolation at the facade measured at the height of summer.

The following savings is based on analysis of the E<sub>2</sub> panel, as performed by GHD, based on a typical curtain wall application, for a 'typical building' in Melbourne, Australia. Savings include heating, cooling and ventilation.

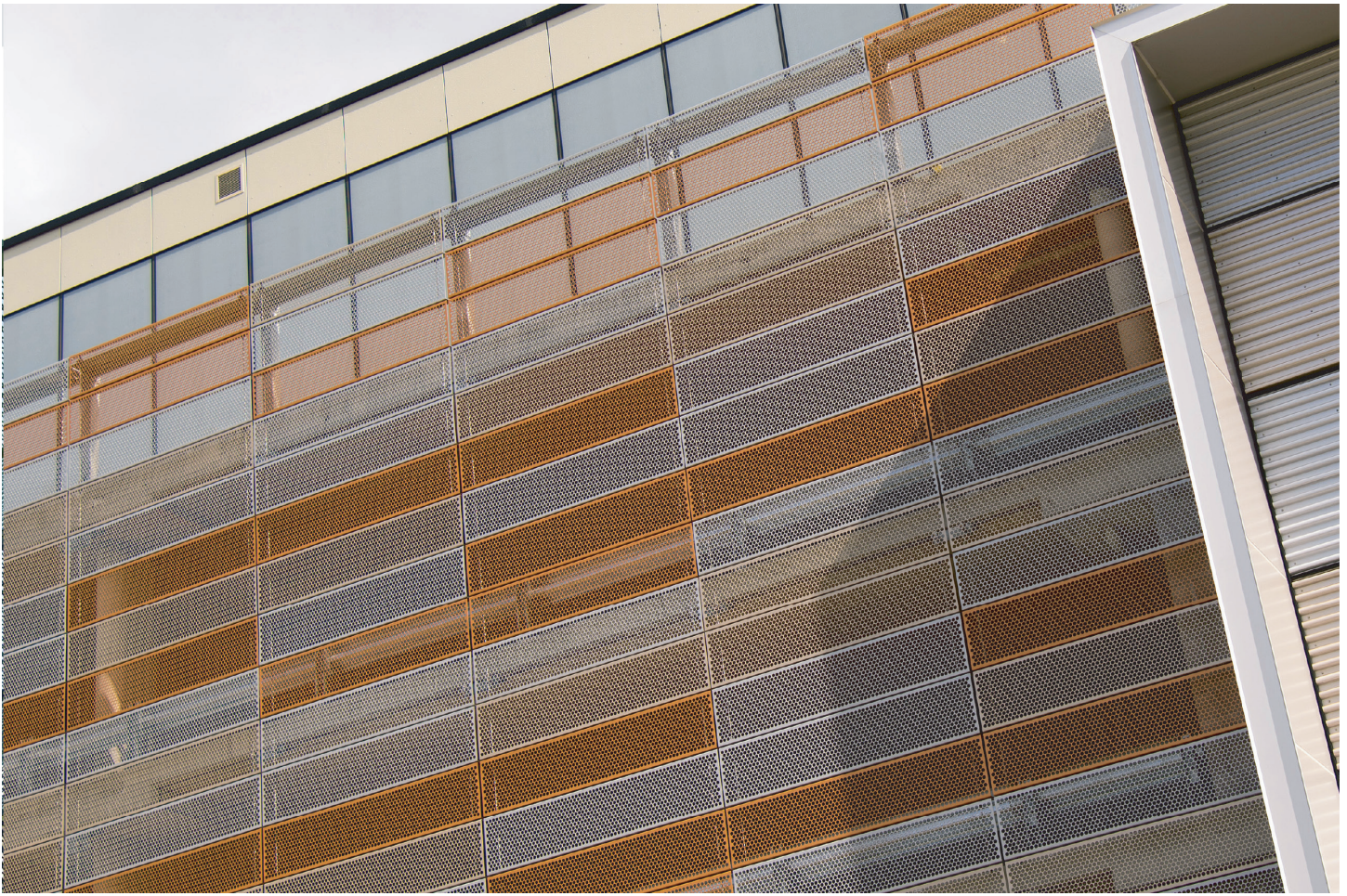
#### Definitions:

**Illuminance (Lux)** – The intensity of light per unit area reflected or transmitted from a surface, measured in candels/m<sup>2</sup>.

**Daylight Factor (%)** – Indicates the ratio between the internal and external illuminance for an unobstructed sky condition for a nominated internal height.

**Irradiance (Watts/m<sup>2</sup>)** – Indicates the amount of solar energy arriving per m<sup>2</sup> in a single instant. It indicates the instantaneous flux or energy flow density.

**Irradiation (Watt hours/m<sup>2</sup>)** – The amount of solar energy arriving per m<sup>2</sup> over a specific period of time (annually).



## ROYAL NORTH SHORE HOSPITAL, NSW

**PRODUCT:** Atmosphere facade attachment system

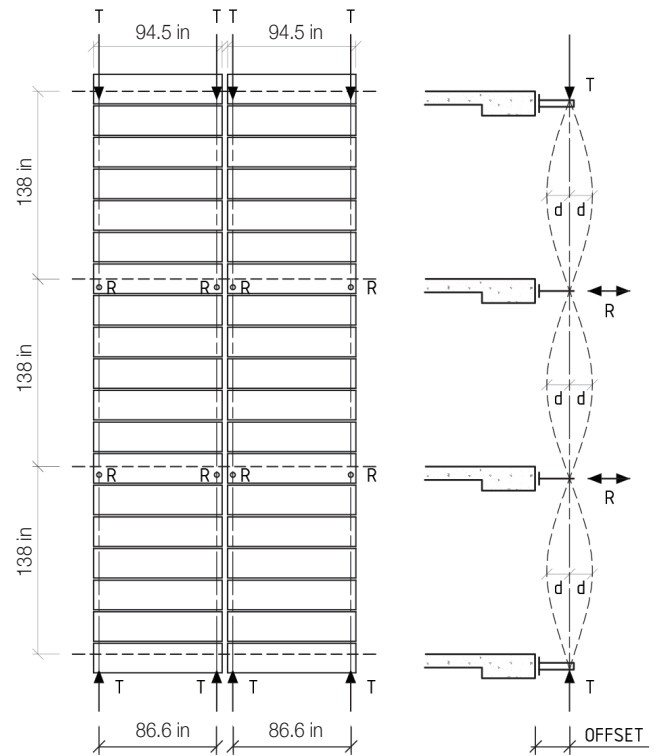
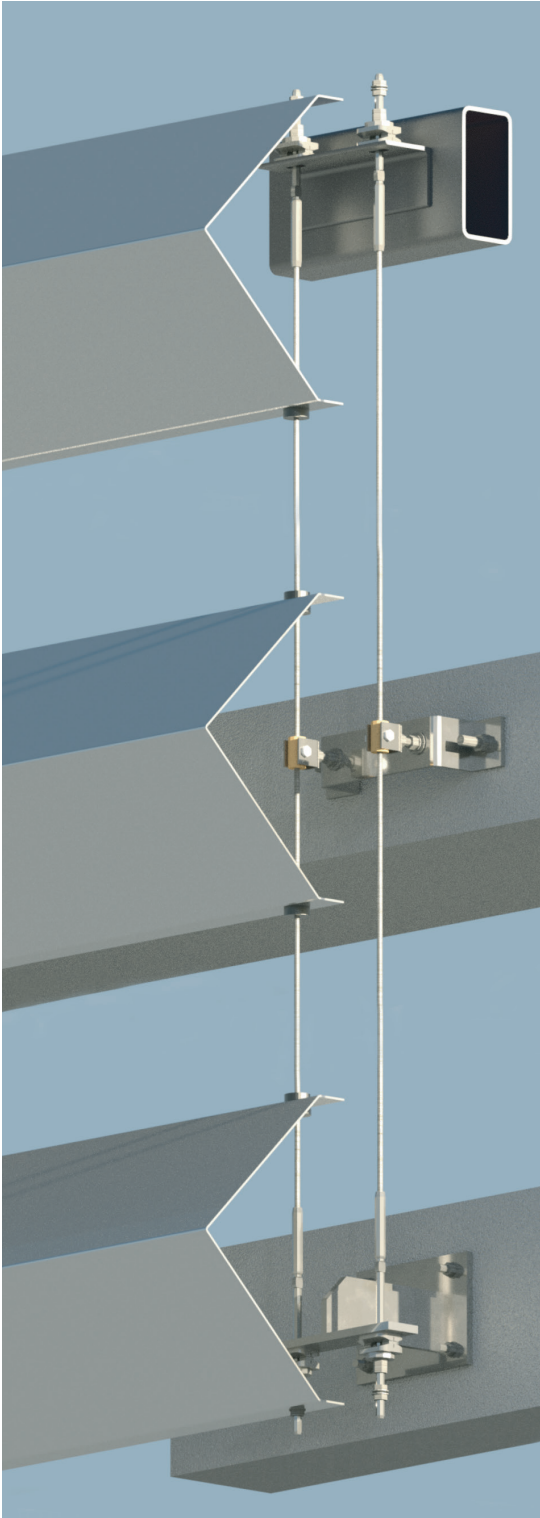
**ARCHITECT:** Cox Richardson



This project was to build a decorative facade and sunscreen that could also act as a pedestrian barrier for the new seven-level, 567-space parking building. In order to achieve greater installation efficiency and a more practical solution, we re-envisioned a design utilizing Atmosphere facade system after being approached by Thiess.

The Atmosphere facade system was chosen based on the simplicity of the attachment system and the resulting reduction of steelwork required. The extensive planning combined with the simplicity of the Atmosphere stages meant the installation of the RNSH facade took just 10 days leading to the project being finished on-time and on-budget.

# Typical Panel and Cable Arrangement, Showing Indicative Design Forces



## End Anchorage Design Force 'T', Per Cable

(UDL Equivalent given in brackets)

G = 2248 lbs (10kN)	569 lbs/ft (8.3 kN/m)
G + Ws = 4496 lbs (20kN) ±5°	1144 lbs/ft (16.7 kN/m) ±5°
1.2G + Wu = 6295 lbs (28kN) ±8°	1597 lbs/ft (23.3 kN/m) ±8°

Deflection ± 4.53 (115mm) 'd'  
(Serviceability Wind)

## Intermediate Restraint Design Force 'R', Per Cable

(UDL Equivalent given in brackets)

G = 0 lbs (0kN)	0 lbs/ft (0 kN/m)
G + Ws = ± 450 lbs (2kN)	± 117 lbs/ft (1.7 kN/m)
1.2G + Wu = ± 899 lbs (4kN)	± 233 lbs/ft (3.4 kN/m)

## Notes:

1. Design forces are indicative only. Contact Valmont® Structures for project specific design forces.
2. Region A, terrain category 3.
3. Stiffness of support structure needs to be considered.
4. Cable offset from support structure also needs to be considered.

G = Permanent Load  
Ws = Serviceability Wind Load  
Wu = Ultimate Wind Load



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