



**Kaynemaile® Exterior Flat Screens:** Kaynemaile is extremely lightweight and easy to install. It goes up fast which dramatically reduces construction schedules and costs. It is tough and impact resistant, yet flexible enough to be stretched over a frame to execute complex three dimensional designs. Screens can be made to any height or width without joins or expansion gaps.

RE/8™ bio-circular architectural mesh by Kaynemaile is lightweight and doesn't need the same level of fixings or substructure as metal products. Our screens go up fast cutting down install time dramatically and saving costs.

### Features

**Weight:** 0.6lbs/ft<sup>2</sup> (3kg m<sup>2</sup>)

**Sizes:** Unlimited in size.

**Colour palette:** Our mesh comes in a range of solid colours. For colour range visit [www.kaynemaile.com/kaynemaile-colour-palette](http://www.kaynemaile.com/kaynemaile-colour-palette)

**Supplied hardware:** Kaynemaile screens are supplied with our RE/8 bio-circular architectural mesh and fixing system to suit your subframe.

### Hanging system

Our Kaynemaile screens utilize our 0.5in (12.7mm) stainless steel tube at the top and bottom and our 0.9in wide x 0.39in high (23mm x 10mm) low profile anodized aluminium track at the sides.

### Frame requirements

Our RE/8 mesh screens are under tension vertically and need a frame around the full perimeter. The size of the screen will determine the sub-frame requirements. Your sub-frame can be concrete, steel or timber.

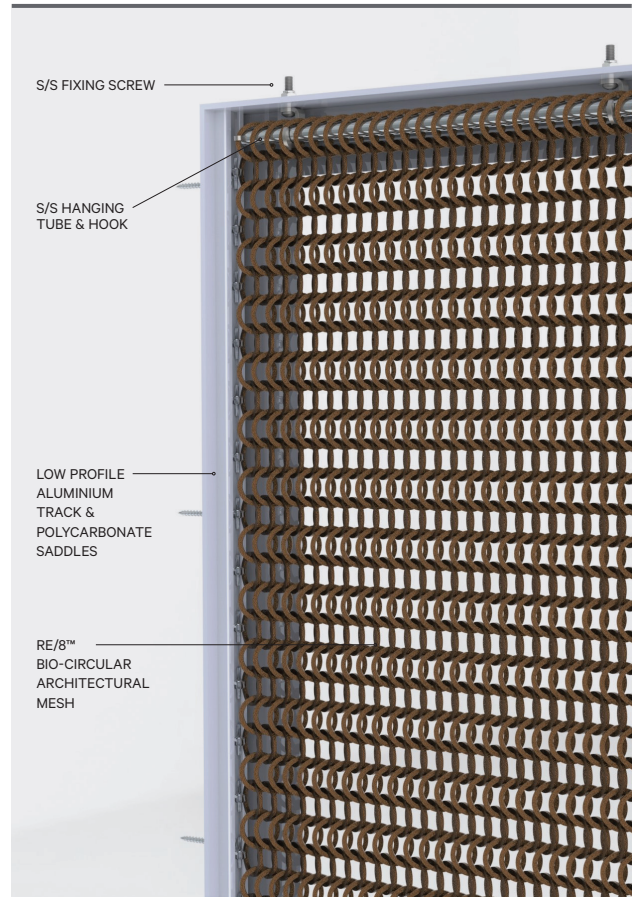
We can provide you with wind loading details so you can accurately determine your sub-frame requirements. Our ideal sub-frame for large screens is made from steel equal angle.

### Screen tension

Our RE/8 mesh screens are tensioned vertically.

### How to specify your screens

To specify your Kaynemaile Exterior Flat Screen just let us know the approximate width and height and we will advise on fixing details. If your screen is over 13ft (4m) in height it may require intermediate fixings.

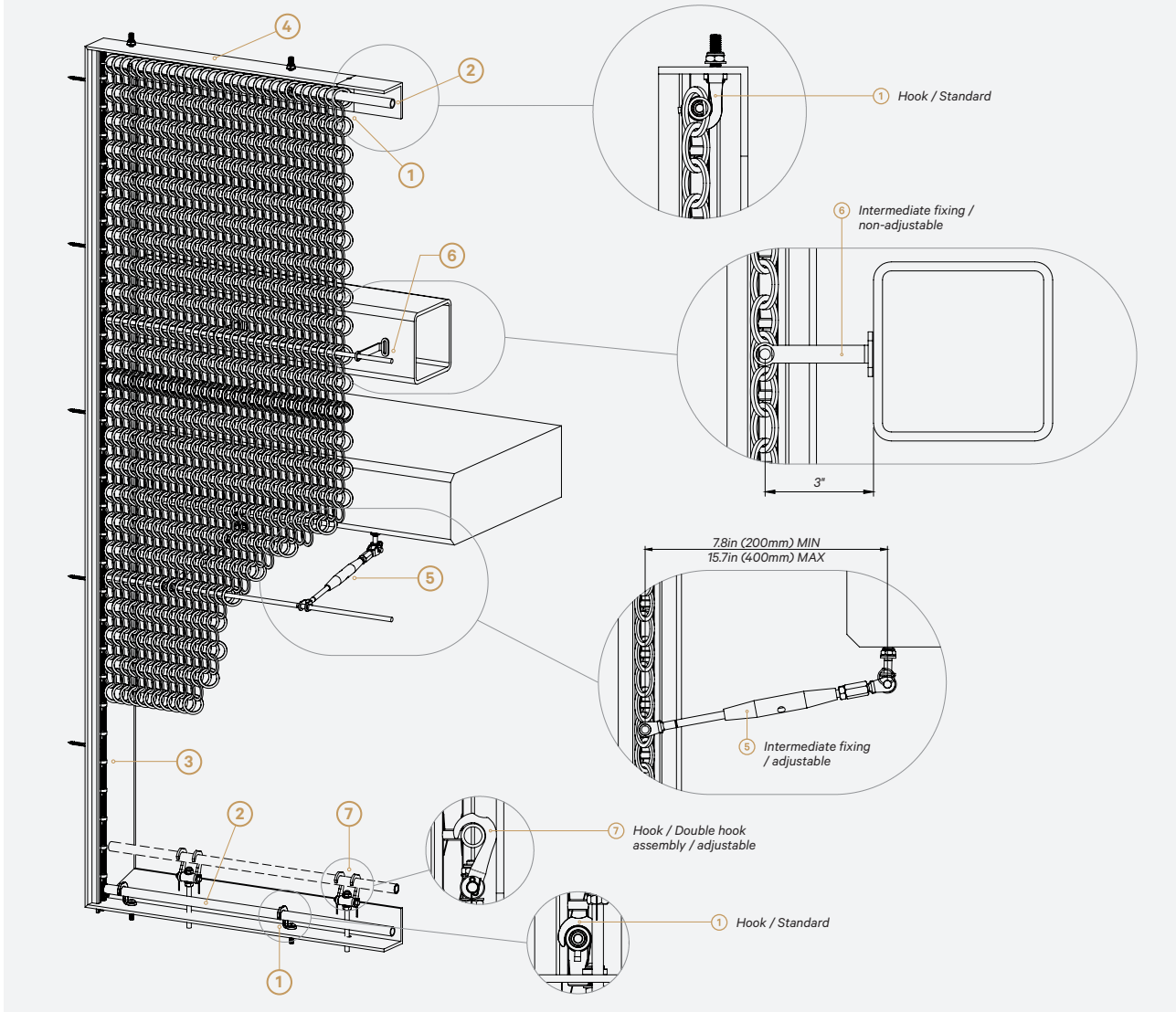


### Technical Specifications

Material	RE/8™ bio-circular architectural mesh, fire and UV resistant
Visual open area	Approximately 25%
Physical open area	Approximately 80%
Weight	0.6 lb/ft <sup>2</sup> (3kg m <sup>2</sup> )
Maximum sheet size	Unlimited height and width
Screen thickness	0.6in (15mm)
Colour customisation	Available (additional costs may apply to small orders)
Diameter of ring	0.8in internal (22mm), 1.10in external (28mm)



### Typical Kaynemaile Fixing Details



- ① Standard 0.12in (3mm) thick stainless steel hook. Typical hook spacing is 12in (300mm) however spacing varies based on the screen size and the project requirements. Hook fixings are M6 metric (0.25in).
- ② Standard 0.5in (12.7mm) stainless steel tube through top and bottom mesh rows.
- ③ Standard aluminium low profile track. Finish is silver anodized. Uses 0.1574in fixings (M4 metric) at 7.87in (200mm) spacing.
- ④ Typical steel equal angle full perimeter subframe. Recommended minimum size is 2.95" x 2.95" (75mm x 75mm). **Note:** Sub-frame is not supplied.
- ⑤ Adjustable intermediate fixing. Screens over 13ft high (4m) may require intermediate fixings. An adjustable fixing is used where a backspacing exceeds 2.5in (70mm) or when the intermediate fixing is required to attach to the underside of a concrete slab or sub-frame. All intermediate fixings connect to a 0.25in (6mm) solid stainless steel rod run internally through the mesh.
- ⑥ Non-adjustable fixing. Screens over 13ft high (4m) may require intermediate fixings.
- ⑦ Adjustable double hook arrangement. Typically used for large screens that may require spot-applied tension adjustments or screens with non-parallel bottom edges. Uses M6 metric fixing (0.25in).

**Please Note:** These details are provided for information purposes only and may not be the full extent of your project requirements. Please contact Kaynemaile or your local representative for more information.

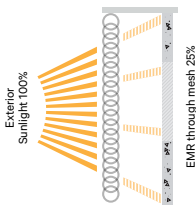


**Why does solar reduction matter?** The urban heat island effect, caused by the over-reliance on heat-absorbing construction materials, means that cities are often 1.8–5.4°F (1–3°C) warmer than their rural surroundings. This puts significant pressure on cooling systems, increasing electricity consumption. The effect is further amplified by the use of fully-glazed facades, where direct sunlight causes overheating. In hot and humid cities, almost half of the electricity used by high-rise office buildings goes towards cooling.

### How RE/8™ bio-circular architectural mesh by Kaynemaile works

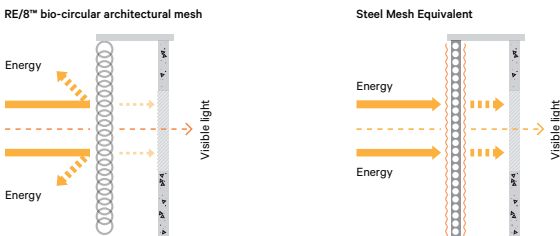
Our mesh facade system provides a cost-effective method to significantly improve the thermal environment inside a building, by reducing radiant heat transfer from direct sunlight. Its unique design lets daylight in, but allows you to manage the passive solar gain within the building envelope - all while maintaining visual transparency.

**There are 3 key factors at play:**



**Deflecting sunlight:** Our mesh facade system has been shown to deflect up to 70% of visible and infrared light waves, which are linked to overheating. This provides an alternative route to solar gain protection. In many environments, shading systems like ours have been shown to be even more effective at managing interior temperatures than costly, retrofitted glazing.

**Insulative properties:** Steel mesh products are highly thermally conductive, so under direct sunlight, their temperature rises and they transfer radiant heat into the building. In contrast, RE/8 mesh is an insulator, which remains at a near ambient temperature, even at the height of summer, moderating the building's thermal environment, and reducing its running costs.



**Cooling properties:** In our three-dimensional mesh structure, a high proportion of the mesh surface area is always in shade, which helps to control temperatures. In addition, as air passes through the cross-sectional open area, it provides a cooling effect.

### PROJECT SPOTLIGHT

Ideal solar management applications are buildings that require a low energy design, or those that can't be cooled by traditional methods, like parking garages.



#### University Parking Garage Facade Case Study

Our mesh was used on a University parking garage facade in San Bernardino, California. The hot, dry climate meant sun protection and airflow were critical requirements for the facade. With a fast install time and simple fixing details, Kaynemaile mesh exceeded the project requirements - providing enhanced air flow through beautiful louver-like strips.

Our mesh facade system significantly reduced the surface temperature, from 104°F to 82°F (40°C to 28°C) in the mesh protected areas\*.

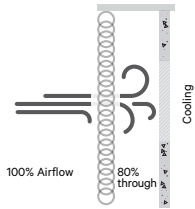
\* The specific benefits will vary from geographical location. The numbers included here are based on a combination of scientific tests, field readings, observations and weather conditions.



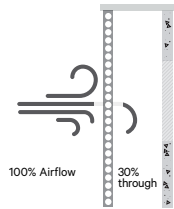


A typical two-dimensional steel mesh or perforated sheet offers much lower visible open area, significantly less airflow, and higher air temperatures, increasing a building's overall thermal load.

RE/8™ bio-circular architectural mesh



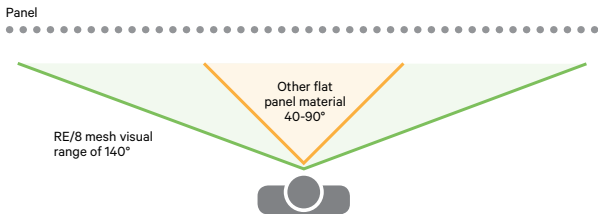
Steel Mesh Equivalent



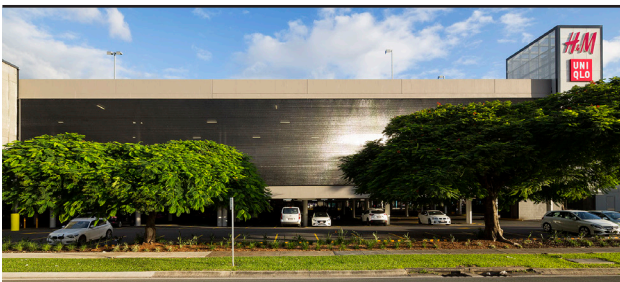
With RE/8 mesh you can reduce the total heat gain on the building envelope significantly. By protecting the building from harsh sunlight and not restricting the cooling effects of air movement, building engineers can reduce the air conditioning design and system costs, as well as reducing the total energy consumption costs in hot climates.

### Visual transparency means inside-out visibility

Unlike traditional two-dimensional perforated steel panels and meshes, our mesh's three-dimensional nature gives a consistent visual open area, providing great visual transparency and unobstructed views from the inside out. Other flat panel materials have an open aperture only when measured perpendicular to the panel face. RE/8 mesh gives a massive 140-degree panoramic view.



### KAYNEMAILE FACADE AT WESTFIELD'S PACIFIC FAIR SHOPPING CENTER



### FEATURE SPOTLIGHT

## Solar control and inside-out visibility

RE/8 bio-circular architectural mesh provides up to 70% sun filtering, and allows unobstructed views from the inside out.

Project: Distribution Centre facade

Architect: Thomas Chong Architect Ltd & BMC Architecture Ltd



Exterior Facade



Inside-out visibility



Full sun without RE/8 mesh vs 70% shading with RE/8 mesh



## Kaynemaile Light Transmission Test Results

An independent test was undertaken on our mesh by the Institute of Geological and Nuclear Sciences (GNS), New Zealand. This graph represents the average light transmission through RE/8™ bio-circular architectural mesh in standard exterior colors (Bronze, Steel, Copper, Obsidian Black, Translucent Black, and Silver).

The transmittance of single glazing is close to 100%, and for typical steel mesh, it can be more than 53% - in other words, more than half of the sunlight that hits a steel mesh can enter a building. In contrast, the opaque RE/8 mesh shows an average transmittance of 30% for visible light (400nm – 700nm), and just 22% transmittance in the infrared.

RE/8 LIGHT TRANSMISSION TEST





**RE/8™ bio-circular architectural mesh by Kaynemaile** is a patented, world-leading innovation. With over 60 years of polycarbonate material science and research to call on we know our mesh inside out. We think the benefits of our product are extraordinary.

### At a glance

#### Technical Specifications

Material	RE/8™ bio-circular architectural mesh, fire and UV resistant
Visual open area	Approximately 25%
Physical open area	Approximately 70%
Weight	0.6 lb/ft <sup>2</sup> (3kg m <sup>2</sup> )
Maximum sheet size	Unlimited height and width
Screen thickness	0.6" (15mm)
Color customization	Available (additional costs may apply to small orders)
Diameter of ring	0.8" internal (22mm), 1.10" external (28mm)

### Technical benefits



#### Simple Attachment Systems

Our attachment methods for both exterior and interior are based around two simple systems utilizing our stainless steel tube and hooks or our aluminium low profile track. Even our custom projects are based around these simple attaching systems. Fixing details can be found on our website.



#### Unbeatable Strength

Our mesh is made from the highest performing thermoplastic. It is extremely robust and impact resistant and thermally stable from -40°F up to 248°F (40°C up to 120°C).



#### Lightweight

Our mesh is stronger and lighter than glass. It weighs 0.6lbs per square foot (3kg m<sup>2</sup>) making it a perfect choice where a low static load on buildings is required. Plus our light weight makes handling on site easy.



#### 80% Airflow

Our mesh gives approximately 80% airflow through the cross sectional open area. This means air compliant movement can be maintained in interior spaces and exterior screens.



#### Fire Resistant

RE/8 mesh is thermally stable and has excellent heat resistance. It achieves the highest 1S rating in the AS/ISO 9705 room test. With a ASTM D 2843 smoke index of 70.9°, ASTM 635 HB-CCI and NFPA 701-pass. We use FR-V0 material that is rated self-extinguishing and suitable for high-density public spaces.



**Solar Protection**

RE/8 mesh gives you the ability to control the level of direct light entering your building. This can be as little as 25% right up to 50% light penetration.



**Weather Protection**

Our mesh cross-sectional density makes it an effective wind and rain screen. For added protection, a second skin of mesh can be utilized further limiting the wind and rain penetration.



**Efficient Installation**

Our large screens go up fast without cranes because our fixing systems are simple. Should you need it we offer an on-site supervisory service to help you with your project anywhere in the world.

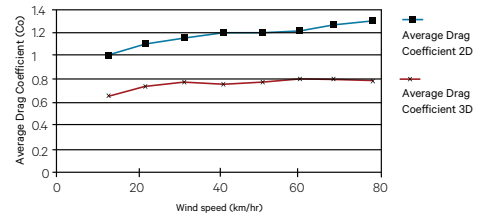
### Mesh Performance Testing - KML22-65FR

Test	Result
<b>GLOBAL</b>	
ISO 9705 Room Corner Test <i>Equivalent US NFPA 286 room corner classification (Class A*) performance</i>	1-S
IMO Resolution A.652	Pass smouldering cigarette & match flame equivalent
UL94-VO/3.0	Self-extinguishing
<b>USA</b>	
NFPA 285	Pass, meets standard criteria
NFPA 286	Pass, meets standard criteria (Class A)
NFPA 268	Pass, meets standard criteria
NFPA 701	Pass
Conforming with section 803.12 stability at 200°F	Meets standard criteria
ASTM D 2843	Smoke Index of 70.9
ASTM 635	Class HB-CC1
ASTM D 1929 Self-Ignition Temperature	968°F (520°C)
ASTM D 1929 Flash Ignition Temperature	842°F (450°C)
ASTM D 2843 Smoke Density Rating	70.9
<b>BS EU</b>	
BS EN 13501-1:2007 + A1:2009	B-s1, d0
BS EN ISO 11925-2:2010	Compliant
BS EN 13823:2010 + A1:2014	Compliant
DIN 4102 part 1	Pass B1
<b>UAE</b>	
BS EN 13501-1:2007 + A1:2009	B-s1, d0
BS EN ISO 11925-2:2010	Compliant
BS EN 13823:2010 + A1:2014	Compliant
<b>NZ / AU</b>	
NCC & AS 5637	Group 1 flammability rating. SMOGRA of 0.5m2/s2
AS 1530.2	Flammability index result of (FI) = 6
AS 1530.3	Regulatory indices - Ignitability index = 0, Spread of flame index = 0, Heat evolved index = 0



## Mesh Performance Testing

Test	Result
Sunlight (UV) and exterior weathering	<p>UV stabilised Makrolon Polycarbonate.</p> <p>Independently lab tested by Building Research Association of New Zealand (BRANZ).</p> <p>Results show minimal structural/tensile deterioration of the mesh after 2000 hours of continuous testing in New Zealand's harshest UV conditions – some of the toughest in the world.</p> <p>All colours are light fastened, mineral-based pigments to maintain colour and recyclability. Real world full external exposure testing after 8 years, shows 95% original strength.</p>
Tensile strength and impact resistance	<p><b>Note:</b> The accumulated strength of seamless mesh increases proportionately with the size of the panel.</p> <p>Astron burst testing with a point load area of approx. 32mm (1.5") on small 140 x 140mm (5 1/2" x 5 1/2") samples show a peak resistance of 279kg (615lb).</p> <p>Suitable for use as balustrade infill to <b>New Zealand Building Code NZBC F4</b> safety from falling.</p> <p>Exceeds required strength loads prescribed in <b>AS/NZS 1170.1 for balustrades including C5 Crowd loadings.</b></p>
Drag coefficient (used for calculating wind loadings)	<p><math>C_d = 0.8</math>, which is 40% less than an equivalent two-dimensional or woven mesh.</p> <p>Full wind tunnel test results for all angles available.</p>



## Care, maintenance and warranty



### Care and maintenance

RE/8™ bio-circular architectural mesh by Kaynemaile is easy to maintain and impervious to most airborne pollutants and dirt deposits. We simply recommend cleaning when dirt or pollutants can be seen, or annually as part of a normal cleaning regime.

#### Methods of cleaning:

##### Interior environments

- Vacuum clean or coarse bristle broom or brush, or using a damp cloth with regular dishwashing detergent and clean water, rinse with water if heavily soiled
- Avoid abrasive, wax, alkaline or silicon cleaning materials which may leave a dulling residue

##### Exterior environments

- Mild detergent pre-soak followed by a low-pressure water blaster rinse
- Avoid abrasive, wax, alkaline or silicon cleaning materials



### 10 Year Warranty

Kaynemaile mesh products have a 10 year standard warranty. Our RE/8™ bio-circular architectural mesh is UV stabilised using inorganic colours for long term stability and full recyclability.

For more information visit [www.kaynemaile.com](http://www.kaynemaile.com) or contact us via email or phone. We're happy to help.