

## SMART FACADE

Innovative and cost effective insulation for ventilated facades that looks as good as it performs.



Non-combustible



Thermal performance



Acoustic performance



Moisture resistant



Wind wash protection

challenge.  
create.  
care.



Smart. And beautiful.

We ask a lot of the modern buildings that we live and work in. Protection from the elements, as well as comfort and relief from temperature extremes, and a shield to noisy external environments. And, of course, good looks. As part of a ventilated facade system, Smart Facade from Knauf Insulation provides an elegant solution to all. Designed to disappear, Smart Facade has the durability and high performance you can count on thermally, acoustically, and aesthetically. With Smart Facade, architects, specifiers and construction companies worldwide have a high performance facade solution that provides crisp, modern aesthetics with no compromise on performance.

**KNAUF**INSULATION



# CONTENTS

|  |           |
|--|-----------|
| <b>More to a Smart Facade than meets the eye</b>             | <b>4</b>  |
| How do Smart Facades work?                                   | 5         |
| <b>The benefits of Knauf Insulation Smart Facade</b>         | <b>6</b>  |
| Reduces energy usage   | 6         |
| Adds extra protection and performance                        | 6         |
| Smart Facade fire safety                                     | 6         |
| Additional benefits  | 6         |
| <b>Game-changing features</b>                                | <b>7</b>  |
| Innovative Wind-Wash Barrier                                 | 7         |
| DriTherm® Technology   | 7         |
| <b>Outstanding thermal performance</b>                       | <b>8</b>  |
| <b>Durability and moisture resistance</b>                    | <b>9</b>  |
| <b>A cost-effective solution</b>                             | <b>9</b>  |
| <b>Why your next project should incorporate Smart Facade</b> | <b>10</b> |
| <b>Smart Facades in practice</b>                             | <b>11</b> |
| <b>Smart Facade sounds like the best option</b>              | <b>12</b> |
| <b>Acoustic excellence across the board</b>                  | <b>13</b> |
| <b>Outstanding fire safety performance</b>                   | <b>14</b> |
| Reaction to fire vs fire resistance                          | 15        |
| Fire spread explained  | 16        |
| <b>Building regulations for facades in New Zealand</b>       | <b>18</b> |
| Durability   | 18        |
| Fire   | 18        |
| Energy efficiency  | 19        |
| Moisture   | 19        |
| <b>Detailed Requirements: H1 Energy Efficiency</b>           | <b>20</b> |
| <b>Market leading performance for facades</b>                | <b>21</b> |
| Smart Facade product range                                   | 21        |
| Smart Facade system R-values                                 | 21        |
| <b>Product comparison</b>                                    | <b>22</b> |
| <b>Sustainability credentials</b>                            | <b>23</b> |



## THERE'S MUCH MORE TO A SMART FACADE THAN MEETS THE EYE

In New Zealand, and around the world, design and construction ideas are evolving to meet both the human and environmental demands of modern society. Facade systems, and their components, play an increasingly vital role in the holistic design of contemporary developments.

Over time, the ventilated facade has emerged as the preferred solution for contemporary exterior facings. A ventilated facade simply means that cladding stands off the weather-tight substrate of a building to create a gap that allows drainage and evaporation.

A good ventilated facade delivers two layers of protection. The first line of defence is the cladding, which reflects most of the rain and wind, and the second is the weather-tight surface, which prevents external moisture penetrating through to the building.

Smart Facade is an innovative range of non-combustible insulation engineered specifically for ventilated facade systems that can be applied to new and existing buildings.

# HOW DOES SMART FACADE WORK?

A good ventilated facade system incorporating Smart Facade high quality external insulation, fitted between the cladding and weather-tight sheathing, essentially wraps the building in a thermal layer like a well-fitted jacket.

1. Structural wall
2. Smart Facade moisture resistant, vapour open, non-combustible insulation
3. Ventilation cavity
4. Insulation fixings
5. Cladding



## Smart Facade is ideal for modern and existing buildings

As architects, product specifiers and builders look to deliver more efficient and aesthetically appealing buildings, construction regulations are becoming more stringent.

Smart Facade has been crafted to meet the strictest quality and safety requirements for premium ventilated facade solutions, and is optimised to deliver high-level thermal, fire and environmental performance.

The Smart Facade range includes 50mm, 75mm and 100mm batts that are lined with a black woven glass veil that provides an additional barrier to external conditions. The thermal performance of the insulation has a thermal conductivity of 0.032W/mK.



**Knauf Insulation**  
**Smart Facade Batt**

# THE BENEFITS OF SMART FACADE

## Reduces energy usage

Ventilated facades fitted with Smart Facade insulation provides increased level of energy efficiency when compared to traditional building exteriors.

As energy costs rise and the environmental impact of a building becomes an increasingly important design consideration, maximising energy efficiency is a key element of good building practice.

Smart Facade delivers a high level of thermally efficient insulation that will reduce heat loss in winter and reduce solar gain in summer, meaning building owners and tenants can save money on their power bills.

Lowering energy use in buildings also has the environmental benefit of reducing operational carbon emissions because spaces no longer require such high levels of heating or cooling.

## Adds extra protection and performance

In addition to creating an eye-catching and modern look, a ventilated facade that incorporates Smart Facade can deliver real functional performance in protecting the occupants from external weather elements, noise reduction, increasing workplace comfort and future-proofing the building by meeting or exceeding sustainability and energy efficiency ratings.

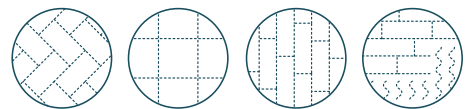
Ventilated facade systems create a thermal shell that will help keep internal temperatures stable and at comfortable working levels.

## Smart Facade fire safety

Smart Facade insulation has best in class A1 reaction to fire classification to BS EN 13501- 1, tested to EN ISO 1182 and EN ISO 1716. This reaction deems a classification of 'Non-Combustible' in accordance with NZBC C/VM2.

## Benefits of continuous external wall insulation

Choosing the right insulation and placing it in the right location is becoming one of the most important decisions in design, construction, and retrofit, as insulation has a dramatic impact on the energy efficiency of a building. To design energy-efficient buildings that will meet stringent energy codes and performance expectations, the use of continuous insulation on the exterior of the building is critical. Insulation that is uncompressed and continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior and to any opaque surface of the building envelope.



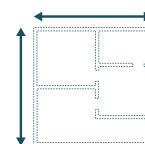
Multiple possibilities of aesthetic external finishes



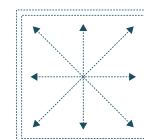
Additional long-term protection of external wall



Reduction of disturbance during building/renovation/re-cladding



More living area



Insulating from the outside preserves living space



# SMART FACADE IS A GAME-CHANGER

The creation of Smart Facade follows years of extensive research at Knauf Insulation's industry-leading testing facilities.

While Smart Facade has all the features and benefits you would expect to see from a Knauf Insulation product (easy to handle, non-combustible and low VOCs), it also boasts breakthrough engineering design features that include a unique Wind-Wash Barrier and DriTherm® Technology.

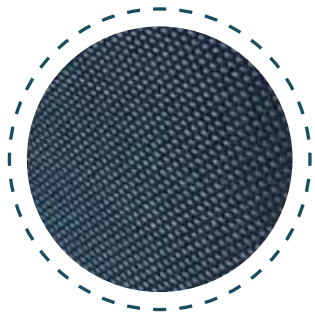
## INNOVATIVE WIND-WASH BARRIER

The woven black veil fabric facing is a hallmark of Smart Facade's unique Wind-Wash barrier design. The barrier **mitigates against windy conditions and air movement** in the ventilated facade system to deliver enhanced protection from the elements and provide additional moisture resistance. The black veil fabric facing also provides camouflaging behind open-joint facade systems.

Independent BRANZ research demonstrates that a Wind-Wash barrier (or insulation facing) significantly improves the in-situ performance of external insulation.

## DRITHERM® TECHNOLOGY

DriTherm® Technology is Knauf Insulation's unique manufacturing process in which a silicone treatment is applied to the insulation product during manufacture. DriTherm® Technology provides Smart Facade with **high-level water repellent properties** that increase moisture resistance and extend the product's durability in the ventilated facade system. This game-changing product design makes Smart Facade the superior solution for all cladding systems.



**BRANZ Appraised**  
Appraisal No. 648 [2022]

# OUTSTANDING THERMAL PERFORMANCE

Smart Facade has been engineered with inherent in-situ performance due to slabs 'knitting' together and therefore less chance of air gaps than rigid materials - e.g PU/PIR/Phenolic boards. The unique wind-wash barrier is designed to protect against UV, moisture and drafting, to maintain the integrity of the insulation's superior thermal performance.

Created from a super high density glass mineral wool, characterised by a low thermal conductivity of 0.032W/(mK), Smart Facade is one of the best performing thermal insulation materials available in modern construction.

In addition, Smart Facade is made with a water-repellent additive that enables it to maintain its integrity and thermal performance even after being exposed to wet conditions, making it a preferred choice for architects and facade engineers.

## Smart Facade has been thermally tested and approved for use

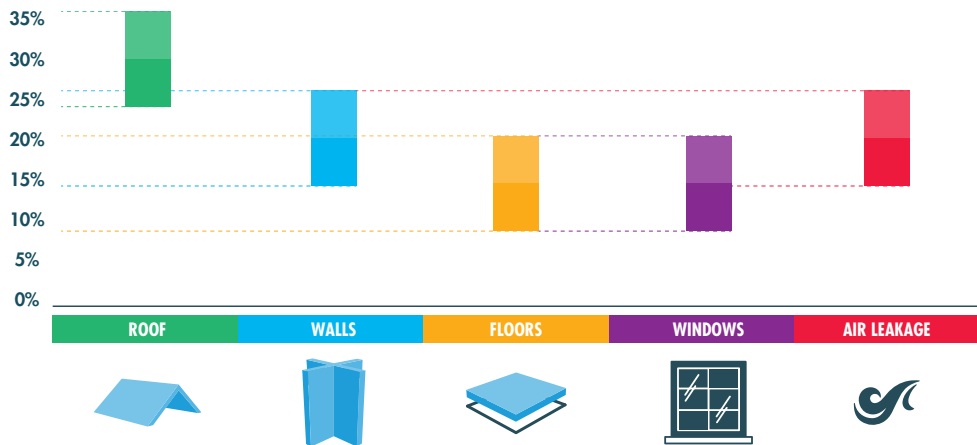
Thermal insulation materials for buildings must comply with AS/NZS 4859.1. This standard provides general criteria, technical provisions and methods of testing for materials used for thermal insulation within buildings.

Specific information must be displayed on product packaging such as nominal thickness of the product, its weight, location of manufacture and the relevant temperature for the declared thermal values (15°C for New Zealand).

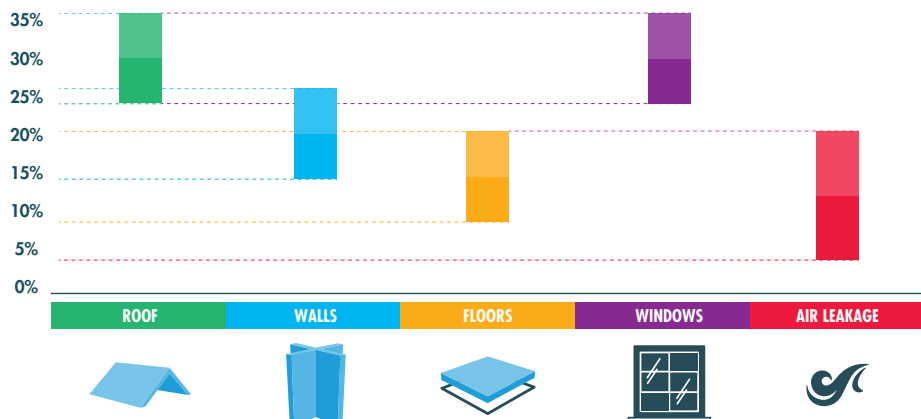
Knauf Insulation's Quality Control Laboratory located at the company's Asia Pacific manufacturing facility is recognized by the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC-MRA), for the Thermal Measurement of high-performance insulation products. Customers are assured that the process is reliable and conducted in the correct manner, so that the information provided can be relied upon about the thermal performance of products specified.



### Winter heat loss

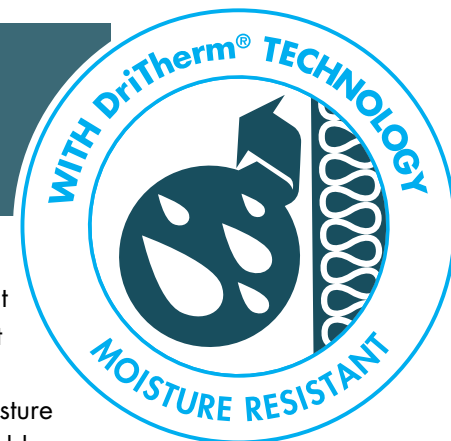


### Summer heat gain





# SMART FACADE DURABILITY AND MOISTURE RESISTANCE



When considering the design of multi-level buildings, it's important to select fit-for-purpose materials that will 'future proof' the durability and performance of the structure's envelope.

Smart Facade insulation has been engineered to perform in ventilated facade systems and incorporates Knauf Insulation's revolutionary water repellent DriTherm® Technology, making it particularly suitable for use in the New Zealand climate.

The specialised silicone treatment process of DriTherm® Technology means the insulation will not absorb moisture and is resistant to transfer of moisture. This is achieved through the use of serrated edges. In addition, the nature of glasswool material enables adjacent slabs to knit together leaving no gaps for the passage of liquid water or cold air.

The compression fit between the Smart Facade insulation slabs prevents moisture penetration and cold bridging at joints, unlike polyurethane board insulation which can be negatively affected if moisture penetrates the wall and tracks across wall ties on to the board.

In full fill applications like Smart Facade, moisture or wind driven rain is trapped at the interface of the insulation and the external leaf, therefore reducing the risk of moisture penetration affecting the inner leaf, whereas in partial fill applications wind driven rain can penetrate the open joints in the rigid insulation boards.

## A COST-EFFECTIVE SOLUTION

Smart Facade is made using glasswool, which is the most cost-effective thermal insulation for ventilated facade systems and delivers more additional benefits than other insulation alternatives.

### Additional cost savings.

Smart Facade incorporates compression technology to maximise the amount of m<sup>2</sup> per pack, which has flow-on cost savings for customers.



Faster installation means reduced labour costs



Storage savings



Transport savings (less loads per job)

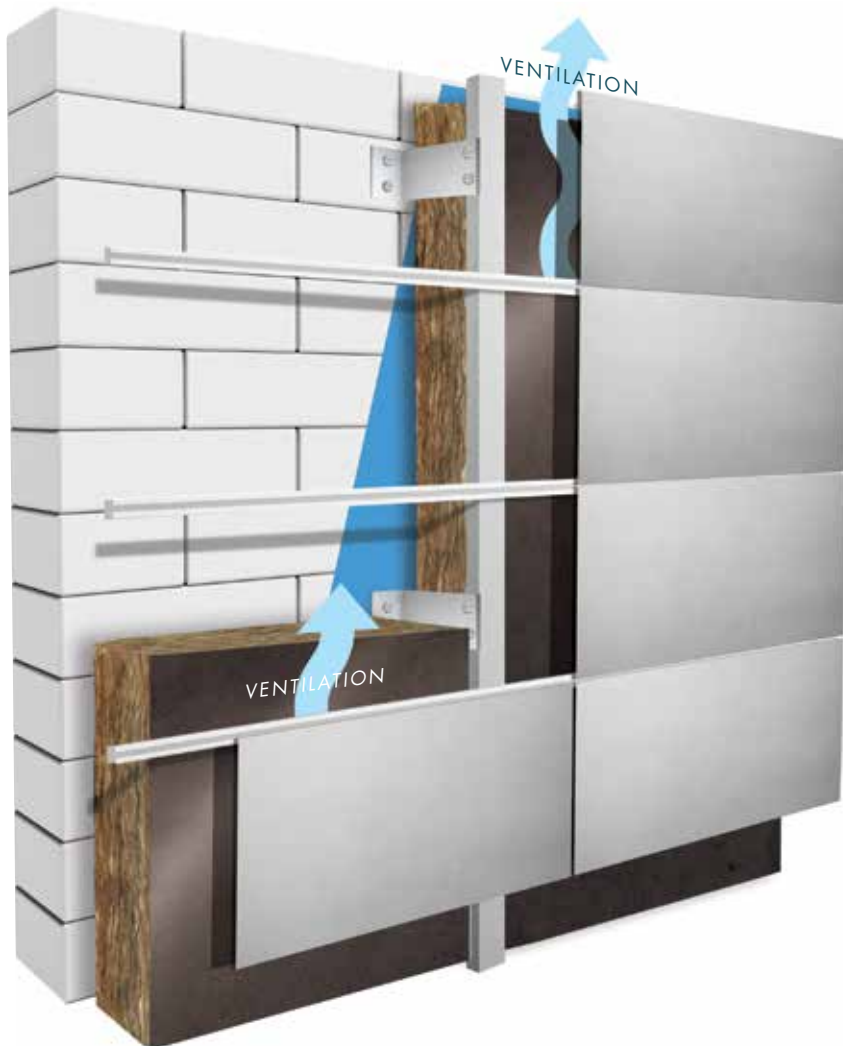
### Cost comparison for ventilated facade insulation

| Insulation type          | Unit           | Quantity | Cost   |
|--------------------------|----------------|----------|--------|
| PIR and Phenolic         | m <sup>2</sup> | 1000     | \$\$\$ |
| Rock Mineral Wool        | m <sup>2</sup> | 1000     | \$\$   |
| Glasswool (Smart Facade) | m <sup>2</sup> | 1000     | \$     |

# WHY YOUR NEXT PROJECT SHOULD INCORPORATE SMART FACADE

## Proven protection, plus thermal and acoustic performance.

Installing Smart Facade improves the thermal performance of the building, reduces the transmission of external noise, provides a barrier to moisture and increases energy savings.



### Fire safety.

Smart Facade is classified as non-combustible in accordance with EN 13501-1.



### Weather Protection.

Smart Facade provides superior protection against external conditions and allows condensation and moisture to drain out.



### Thermal insulation (heat).

Smart Facade helps keep indoor environments cool and blocks external heat that prevent the conduction of solar gains.



### Thermal insulation (cold).

Smart Facade reduces heat loss and improves indoor climate temperature.



### Sound insulation.

Smart Facade separates external cladding from load bearing structures to effectively reduce airborne noise.



### Vapour open.

Smart Facade provides a high level of vapor permeance and helps manage vapor flow, which keeps moisture from collecting on cooler surfaces.



## Installation.

Smart Facade produces uses no blowing agent or additional formaldehyde, making it easy to handle during on-site installation.



## Sustainability.

Smart Facade glasswool batts are made with up to 80% recycled glass content and contributes to several green building

## Enhanced aesthetics for open joint cladding systems

Smart Facade creates a modern architectural look with crisp, dark aesthetics in open-joint facade systems.

Architects, developers, specifiers, contractors and building owners now have an innovative & high performance option that is both innovative and attractive.

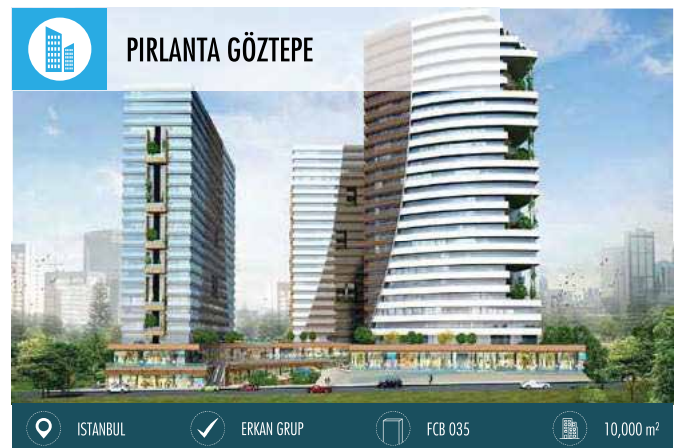


## Smart Facades in practice

Architects and developers around the world have discovered the benefits of Knauf Insulation Smart Facade and it can be seen in some of the most modern and beautiful buildings.

Sustainability and energy efficiency are key considerations when designing buildings, as well as comfort and durability. Smart Facade adds to a building's sustainability credentials and conserves energy by helping to maintain constant temperatures within, reducing the heating and cooling costs.

### Some examples:





# SMART FACADE SOUNDS LIKE THE BEST OPTION

Acoustic performance is becoming a key consideration when designing a building due to increasing urbanisation and the rise in noise levels around populated areas.

The effects of noise pollution are well-documented and include fatigue, irritation, loss of efficiency and permanent damage to hearing, with vulnerable adults and children most susceptible to its effects.

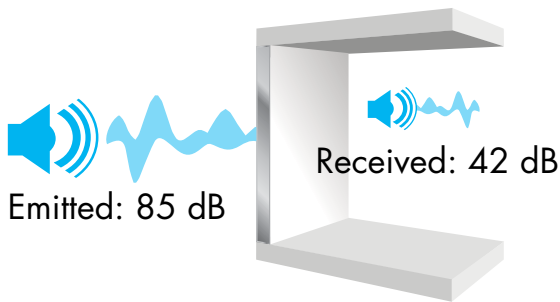
In low mass structures such as ventilated facade systems, sound absorption is a critical component in reducing the amount of unwanted noise passing through the system.

Smart Facade has been designed with excellent acoustic absorption properties, greatly improving the acoustic performance of any structure onto which it is mounted.

Additionally Smart Facade will assist in meeting environmental noise (noise heard from outside) requirements addressed in the Resource Management Act 1991 (RMA) in conjunction with the Health Act 1956. Smart Facade insulation provides excellent sound reduction properties.

## CASE 1

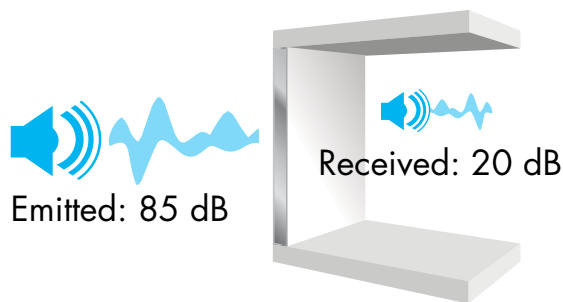
### No Insulation



$$R_{A, tr \text{ wall}} = 43 \text{ dB* stopped}$$

## CASE 2

### External Insulation

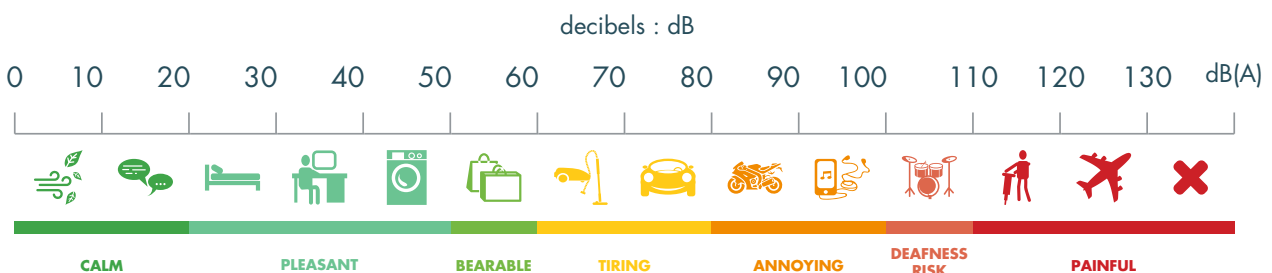


$$R_{A, tr \text{ wall} + \text{insulation}} = 65 \text{ dB* stopped}$$

$$R_{A, tr} = R_w + VS_{tr}$$

\*Estimates that may be influenced by technical, architectural or implementation constraints.

## Calibrated in decibels (dB)

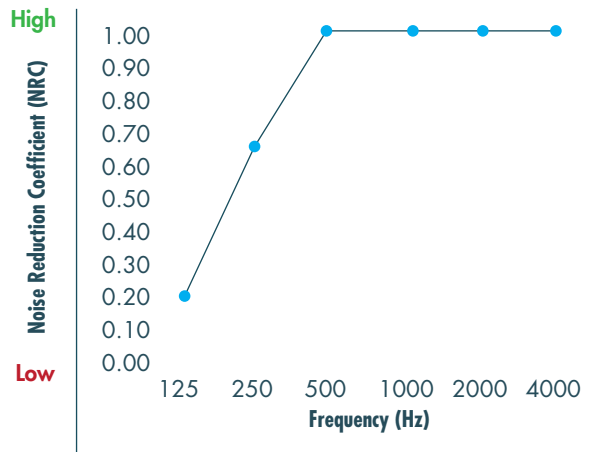


# ACOUSTIC EXCELLENCE ACROSS THE BOARD

Smart Facade insulation is engineered with excellent sound absorption properties that reduce reverberation in the ventilated facade system. The utilisation of tiny air pockets allows sound energy to be dissipated in the matrix of fibres resulting in a reduction of airborne sound.

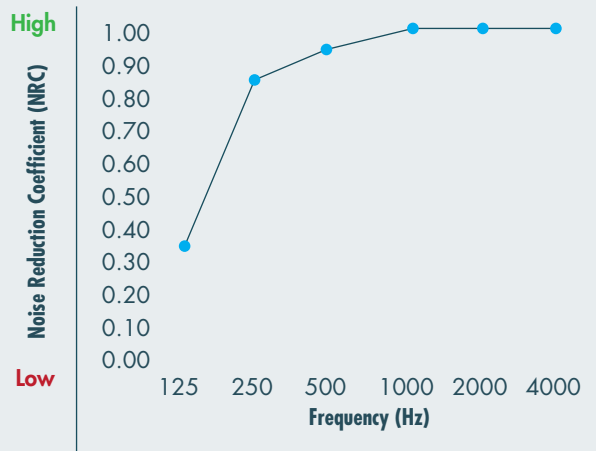
Smart Facade also reduces flanking sound transmission along the wall cavity and delivers superior acoustic performance not found in some other forms of facade insulation such as rigid foam boards that offer little to no acoustic benefit.

**50mm**



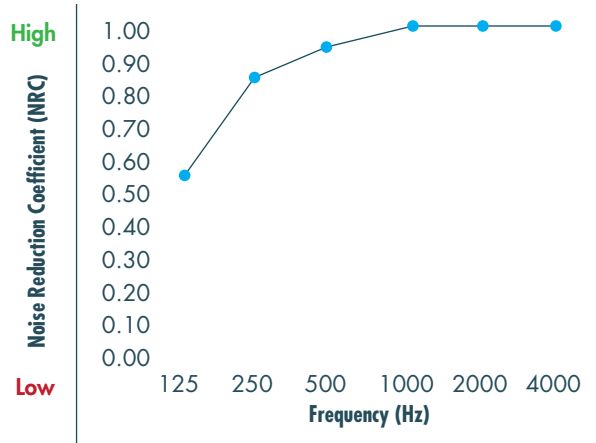
|                 |
|-----------------|
| <b>NRC</b>      |
| 0.95            |
| <b>SAA</b>      |
| 1.01            |
| <b>Standard</b> |
| ASTM C423       |

**75mm**



|                 |
|-----------------|
| <b>NRC</b>      |
| 0.95            |
| <b>SAA</b>      |
| 1.00            |
| <b>Standard</b> |
| ASTM C423       |

**100mm**



|                 |
|-----------------|
| <b>NRC</b>      |
| 0.95            |
| <b>SAA</b>      |
| 1.02            |
| <b>Standard</b> |
| ASTM C423       |

\*NRC - Noise Reduction Coefficient  
SAA - Sound Absorption Average



## SMART FACADE DELIVERS OUTSTANDING FIRE SAFETY PERFORMANCE

Over the last decade, fire safety has made headlines around the world due to a number of high-profile incidents, including several in Australia.

### **Minimising fire risk in ventilated facades is a major priority**

Ventilated facades are characterised by the thermal advantages provided by the natural circulation of air in the cavity thanks to the chimney effect. However, the chimney effect can become a critical factor in a fire situation, potentially facilitating the spread of a blaze.

One simple way to reduce the risk of fire occurring, or spreading quickly, is to incorporate non-combustible materials at the design stage of building development.

### **Smart Facade is non-combustible**

Smart Facade is classified as non-combustible insulation and will not contribute to fire spread.

Products in the Smart Facade range have the best possible A1 reaction to fire classification. According to the NZBC, non-combustibility can be assessed using either the relevant performance criteria in AS 1530.1 or EN 13501-1.

### **Smart Facade can protect building owners from higher insurance**

Insurers are becoming increasingly reluctant to offer the same level of insurance to buildings that have been built using non-compliant, combustible materials. This has serious implications for building owners, with some insurance companies setting their own standards/minimum requirements for the use of non-combustible materials, which means that even if the building is passed by the certifier the insurance premiums can still be set at a higher rate if combustible materials are used.

Building designers will now need to consider two sets of rules. One in which the Building Code allows for alternative solutions and a second where insurance companies allow for alternative solutions but add a premium to the policy.

Because Smart Facade is both non-combustible and cost-effective it makes it the ideal solution for both insurers and building owners.



# REACTION TO FIRE Vs FIRE RESISTANCE

## How is reaction to fire defined?

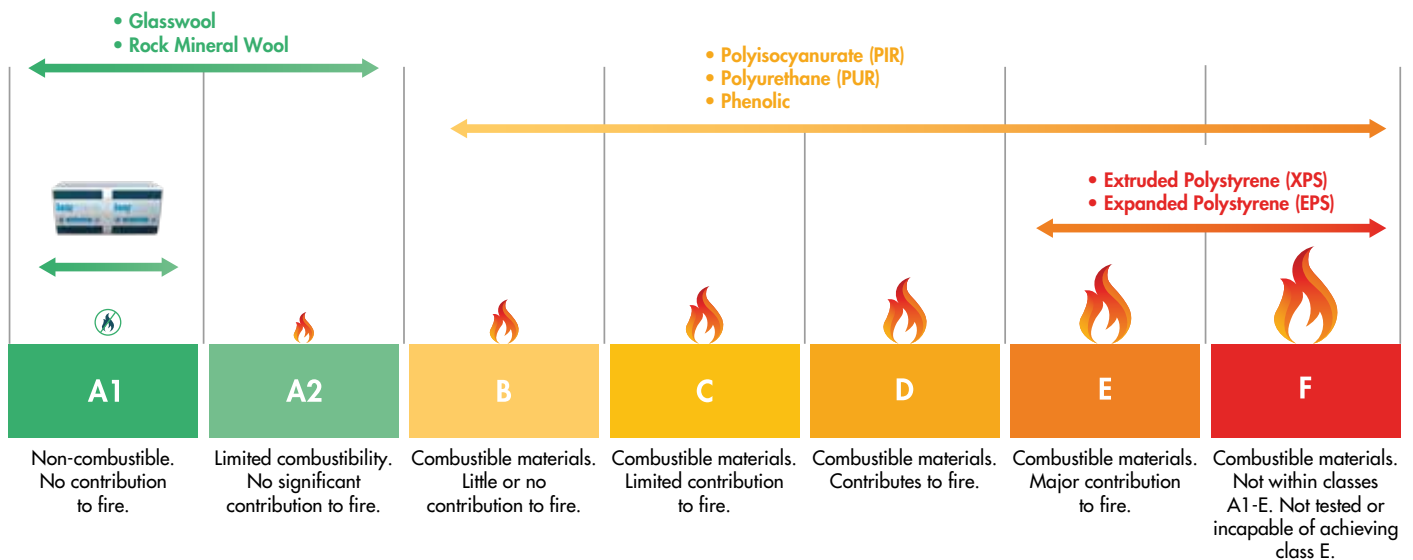
A product's reaction to fire is based on the seven levels of combustibility described in tests for the EN13501-1 European Standard (Euroclasses). The classifications start at A1 (non-combustible and doesn't burn) and A2 (limited combustibility) and go down to B, C, D, E and F.

## How is fire resistance measured?

Fire resistance is normally reported in terms of a period of time, for example 30 - 180 minutes. These classifications relate to the structural stability, integrity and thermal insulation capacity of building elements.

Put simply, this describes how elements, either in combination or individually, prevent a fire spreading, how they restrict temperature rise and how the elements' load-bearing capacity is maintained.

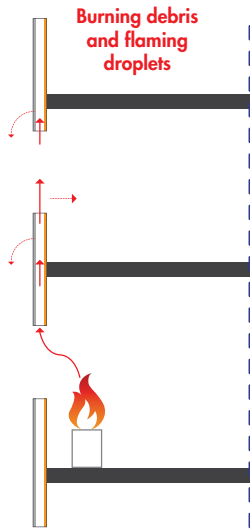
## European Reaction to Fire Classification System (Euroclasses)



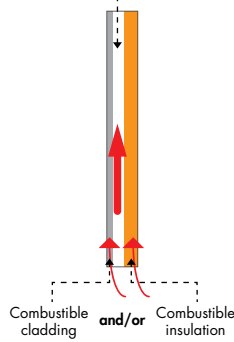
Ventilated Facade Insulation with Black Woven Facing behaviour is classified: A1, in accordance to the EN 13501-1. The products classified as A1, do not contribute to fire.

# FIRE SPREAD EXPLAINED

Fire spreads in different ways depending on where in the building it originates, and the materials (combustible or non-combustible) used in the construction of the facade system.



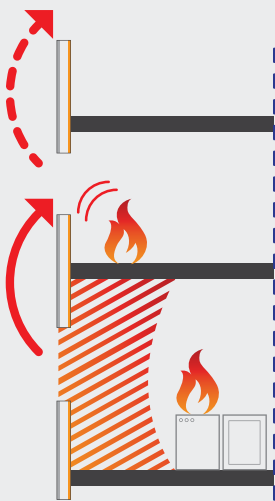
Chimney effect, increasing the speed of fire spread through the air cavity



## Fire originates indoors in close proximity to the facade system

If a fire breaks out in a room close to the external wall and enters the facade system, the chimney effect can help it quickly spread upwards.

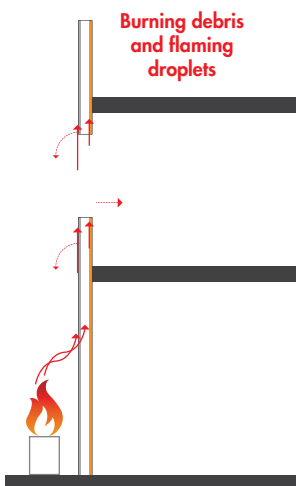
Burning debris and flaming droplets from the cladding can then cause secondary fires to ignite in the lower part of the facade system.



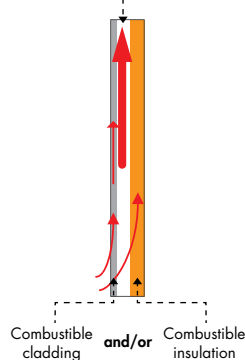
## Fire originates indoors away from the facade system

If a fire starts away from the facade system and reaches flash-over the whole room will become involved in the fire, generating significant heat flux causing flames to burst out the window.

Very often, the heat flux generated by the fire plume is enough to break the windows in the upper stories, generating secondary fires.



Chimney effect, increasing the speed of fire spread through the air cavity

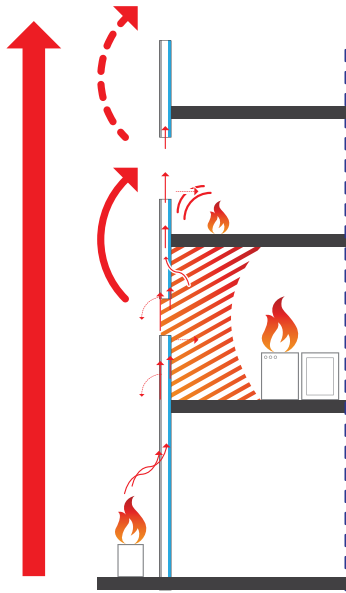


## Fire originates outdoors in the vicinity of facade system

If a fire starts outside the building near the facade system and reaches combustible cladding it can spread from the bottom up.

The use of combustible cladding means the fire has plenty of fuel to feed it and the chimney effect will increase the velocity of the fire growth. Burning debris and flaming droplets can cause secondary fires in the lower part of the facade system.

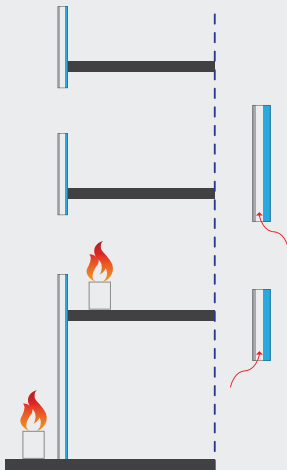
The provision of cavity barriers within external wall cladding systems is important, particularly when combustible cladding, rigid air barriers and insulation products are used.



### Fire spread with combustible insulation

Combustible insulation catches fire quickly spreading up through the facade cavity, causing burning debris and droplets to fall and cause secondary fires at ground level.

In this case, the whole facade gets involved in an intense and fast-moving fire affecting the safety of occupants and fire fighters as well as affecting buildings and areas nearby.



### Prevent fire spread with Smart Facade insulation

Always specify non-combustible insulation. Smart Facade insulation is non-combustible and doesn't contribute to the spread of fire.

Occupants have time to escape and the building is more likely to maintain its integrity as smaller areas are affected by fire.



# BUILDING REGULATIONS FOR FACADE IN NEW ZEALAND



## Durability

Confirming the use of materials that will remain functional for the minimum periods specified ( $\geq 50$  years).

B2 Durability must always be considered when demonstrating compliance with each of the clauses of the Building Code. In other words, it ensures that a building will continue to satisfy the performance of the Building Code throughout its specified intended life.

Under the clause, building materials, components and construction methods are required to be sufficiently durable. They must ensure that the building, without reconstruction or major renovation, continues to satisfy the other functional requirements of the Building Code throughout its life. B2 specifies minimum durability periods building elements must meet with only normal maintenance, being not less than 50 years.

Smart Facade insulation has been specifically developed to meet building regulations' requirements. Smart Facade if designed, used, installed and maintained in accordance with design and installation guidelines will meet the following provisions of the NZBC:

### Clause B2 DURABILITY: Smart Facade insulation products will meet these requirements.

Smart Facade will continue to satisfy the performance of the Building Code throughout its specified intended life. Knauf Insulation's BRANZ Appraisal (648) states, 'Where the building is maintained so that provisions of the NZBC E2 and E3 Clauses are met, and where the insulation is not crushed or exposed to conditions that will diminish its thermal performance, (e.g. moisture), Knauf Glasswool Insulation can expect to have a serviceable life of at least 50 years.'



## Fire

### C Protection from Fire

Safety objectives for people, other property and firefighting applied to clauses C2 to C6 of the Building Code.

This clause provides objectives that apply to clauses C2 to C6 to:

- (a) safeguard people from an unacceptable risk of injury or illness caused by fire,
- (b) protect other property from damage caused by fire, and
- (c) facilitate firefighting and rescue operations.

SCAN FOR MORE INFORMATION RELATING TO NON-COMBUSTIBLE EXTERNAL CLADDING:



### Clause C/AS2 PROTECTION FROM FIRE: Smart Facade insulation products are not combustible building materials and will contribute to meeting this requirement.

Smart Facade is classified as A1 in accordance with BS EN 13501-1.



## Energy Efficiency

Provides for the efficient use of energy and sets physical conditions for energy performance. This clause requires housing to meet a building performance index (BPI) not exceeding 1.55 (this is defined in the Verification Method and Acceptable Solution).

It requires enclosed spaces where temperature or humidity are modified to provide adequate thermal resistance and to limit uncontrollable airflow in certain buildings. It also sets out physical conditions likely to affect energy performance, and requirements for hot water systems, artificial lighting and HVAC systems.

Smart Facade insulation products will contribute to meeting these requirements. Smart Facade offers a range of thicknesses, R-values and thermal conductivities that assist in meeting and exceeding the Building Code requirements.



## Moisture

### E2 External moisture

External roof, wall claddings and external openings will prevent external moisture from causing undue dampness or damage. This clause requires buildings to be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside. It contains requirements for roofs, wall claddings and external openings to:

- Prevent water entry
- Prevent water absorption and transmission
- Prevent the accumulation of water allow for dissipation.

### E3 Internal moisture

Surfaces in wet areas must be impervious, easily cleaned, and have ventilation to meet conditions for health and safety. This Building Code clause requires buildings to be constructed to avoid fungal growth and excessive moisture. Its provisions relate to habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or accumulate. Its requirements include provisions for:

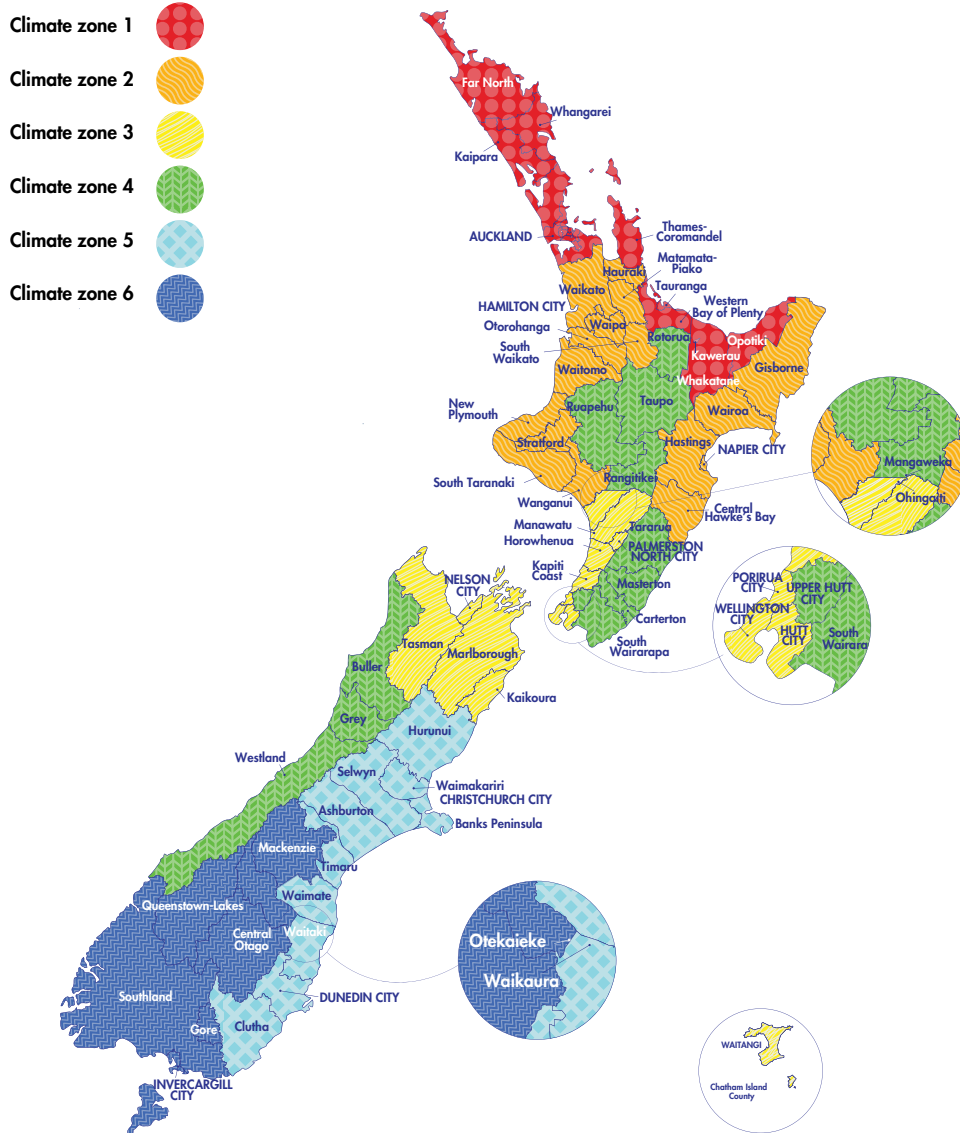
- Adequate thermal resistance
- Ventilation
- Surfaces to be impervious and easily cleaned.
- Space temperature
- Disposal of overflow water



**Clauses E2 EXTERNAL and E3 INTERNAL MOISTURE: Smart Facade insulation products will contribute to meeting these requirements by:**

Not absorbing water, allowing for water dissipation when used in ventilated cavity and contributing to maintaining thermal resistance.

# DETAILED REQUIREMENTS: H1 ENERGY EFFICIENCY



## Acceptable Solution H1/AS1

|  |  | Construction R-values (m <sup>2</sup> · K/W) |                |                |                |                |                |
|--|--|--|----------------|----------------|----------------|----------------|----------------|
|  |  | Climate zone 1                               | Climate zone 2 | Climate zone 3 | Climate zone 4 | Climate zone 5 | Climate zone 6 |
| Energy efficiency for all housing, and buildings up to 300m <sup>2</sup> | Heated Walls                                       | 2.9  | 2.9            | 2.9            | 2.9            | 2.9            | 2.9            |
|  | Walls that do not contain embedded heating systems | 2.0  | 2.0            | 2.0            | 2.0            | 2.0            | 2.0            |
| Energy Efficiency for large buildings over 300m <sup>2</sup>             | Heated Walls                                       | 2.9  | 2.9            | 2.9            | 2.9            | 2.9            | 2.9            |
|  | Walls that do not contain embedded heating systems | 2.0  | 2.0            | 2.0            | 2.0            | 2.0            | 2.0            |

# MARKET LEADING PERFORMANCE FOR FACADES

## Smart Facade product range

| R-value/ Thermal Resistance (m <sup>2</sup> K/W) | Nominal Density (kg/m <sup>3</sup> ) | Thickness (mm) | Width (mm) | Length (mm) | Area per Pack (m <sup>2</sup> ) | Pieces per Pack | Packs per MasterBag | Facing           | Water Repellency |
|--|--------------------------------------|----------------|------------|-------------|---------------------------------|-----------------|---------------------|------------------|------------------|
| R1.6   | 38.0                                 | 50             | 600        | 1200        | 6.5                             | 9               | 4                   | Woven Glass Veil | Yes              |
| R2.3   | 38.0                                 | 75             | 600        | 1200        | 4.3                             | 6               | 4                   | Woven Glass Veil | Yes              |
| R3.1   | 38.0                                 | 100            | 600        | 1200        | 3.6                             | 5               | 4                   | Woven Glass Veil | Yes              |



### Low maintenance

- Moisture resistant
- Durable
- Fit and forget
- Does not support fungal growth
- Does not sustain vermin or insects



### Freedom of creative design

- Compatible with all types of cladding
- Cost-effective solution
- Aesthetically pleasing finish
- Lightweight, requires minimal fixings



### Energy efficient buildings

- Reduced thermal bridging
- High thermal performance - 0.032 W/mK
- Reduce space heating
- Saves money on your power bill



### Healthy and comfort

- ECOSE® Technology - no added formaldehyde
- Protection from external elements
- EUCB certified bio-soluble fibre
- EUROFINs Gold certificate for indoor air comfort
- Low VOC



### Sustainability

- Made using up to 80% recycled glass
- Reduces carbon emissions
- Compression packed, reducing transport emissions
- Full Life cycle analysis conducted. Environmental Product Declaration (EPD) available for download



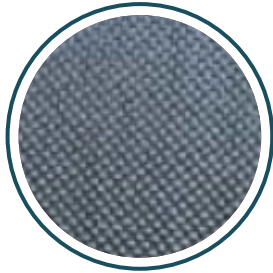
### Performance

- High thermal performance
- High acoustic performance
- Wind-wash barrier
- Non-combustible (Euroclass A1 to EN-13501-1)
- UV protected
- Vapour permeable

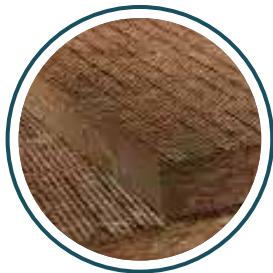


# PRODUCT COMPARISON

## How does Smart Facade compare to other types of insulation?



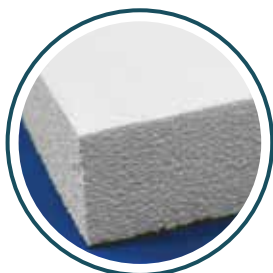
| SMART FACADE BY KNAUF INSULATION - GLASSWOOL |                                  |   |
|--|----------------------------------|---|
| THERMAL PERFORMANCE W/(m-K)                  | Thermal conductivity 0.032       | ✓ |
| FIRE PERFORMANCE                             | A1 Non-combustible to EN 13501-1 | ✓ |
| ACOUSTIC PERFORMANCE                         | Excellent Sound Absorption       | ✓ |
| EASE OF INSTALLATION                         | Easy/more resilient*             | ✓ |
| SUSTAINABILITY                               | Low Embodied Carbon              | ✓ |
| COST   | \$                               | ✓ |
| SUITABILITY FOR VENTILATED FACADES           | Suitable                         | ✓ |



| ROCK MINERAL WOOL                  |                                   |   |
|------------------------------------|-----------------------------------|---|
| THERMAL PERFORMANCE W/(m-K)        | Thermal conductivity 0.039- 0.044 | ✓ |
| FIRE PERFORMANCE                   | A1 Non-combustible                | ✓ |
| ACOUSTIC PERFORMANCE               | Excellent Sound Absorption        | ✓ |
| EASE OF INSTALLATION               | Prone to damage                   | — |
| SUSTAINABILITY                     | High Embodied Carbon              | — |
| COST                               | \$\$                              | — |
| SUITABILITY FOR VENTILATED FACADES | Suitable                          | ✓ |



| PHENOLIC AND PIR                   |   |   |
|------------------------------------|---|---|
| THERMAL PERFORMANCE W/(m-K)        | Thermal conductivity 0.020-0.031                  | ✓ |
| FIRE PERFORMANCE                   | Cs2-Combustible (C-F)                             | ✗ |
| ACOUSTIC PERFORMANCE               | Poor sound absorption                             | ✗ |
| EASE OF INSTALLATION               | Difficult to install without gaps                 | ✗ |
| SUSTAINABILITY                     | Derived from petrochemicals                       | ✗ |
| COST                               | \$\$\$  | ✗ |
| SUITABILITY FOR VENTILATED FACADES | Restricted with conditions for buildings over 25m | — |



| EPS AND XPS                        |   |   |
|------------------------------------|---|---|
| THERMAL PERFORMANCE W/(m-K)        | Thermal conductivity 0.039- 0.045                 | ✓ |
| FIRE PERFORMANCE                   | D - F   | ✗ |
| ACOUSTIC PERFORMANCE               | Poor sound absorption                             | ✗ |
| EASE OF INSTALLATION               | Difficult to install without gaps                 | ✗ |
| SUSTAINABILITY                     | High Embodied Carbon                              | ✗ |
| COST                               | \$\$  | — |
| SUITABILITY FOR VENTILATED FACADES | Restricted with conditions for buildings over 25m | ✗ |

# SUSTAINABILITY CREDENTIALS

Knauf Insulation glasswool products are made in the APAC region's brand new, state-of-the-art production facility and created with low embodied carbon.

Smart Facade has a low environmental impact because it's made using up to 80% recycled glass and with ECOSE® Technology, a binder that results in less upfront embodied carbon than traditional formaldehyde-based binders.

Smart Facade also features unique compression packaging that enables more product to be fitted in each pack, resulting in less deliveries and reducing the associated carbon emissions from transport.



## EUCEB

All glass wool products manufactured by Knauf Insulation are made of non-classified fibres (fibres that are less bio-persistent than everyday dust) and are certified by EUCEB, the European Certification Board of Mineral Wool Products, a voluntary initiative by the mineral wool industry.

Find out more at [www.euceb.org](http://www.euceb.org)



## GreenTag™

GreenTag™ is a third party, green building product rating and certification system putting certified products within the top end of the green product market.

The certification makes it easy for designers and building owners to gain rewards under Green Star and Homestar credits system. Knauf Insulation's glasswool is the first and only glasswool insulation in New Zealand to have GreenRate™ Level.

We use the most advanced packaging compression, achieving a maximum of 10:1 compression rate. This means we have more insulation per pack and more insulation can be loaded on each truck, resulting in less trucks on the roads, and less storage and handling for our customers. However, to achieve this level of compression, we have to use robust plastics that can handle the process. Using LDPE4 means that the majority of our packaging can be recycled whilst still being able to achieve maximum compression.



## ECOSE® Technology

ECOSE® Technology is a unique bio-based binder which is used in the manufacture of glasswool at Knauf Insulation. Glasswool made with ECOSE® Technology contains no added formaldehyde or phenol. This means the insulation generates very low levels of dust, increasing the comfort of those handling it. ECOSE® Technology makes it soft to touch and easy to handle.

It is made from natural raw materials that are rapidly renewable and is 70% less energy intensive to manufacture than traditional binders, so it is kinder to the environment too.

To learn more about Knauf Insulation's vision  
For A Better World visit [www.knaufinsulation.co.nz/fabw](http://www.knaufinsulation.co.nz/fabw)



## KNAUF INSULATION TECHNICAL SUPPORT

Our Technical Support Team provides personal, high level technical support. For further information, contact us via phone or email as below.



0800 562 834



info.nz@knaufinsulation.com

### Knauf Insulation Ltd

For more information please visit [www.knaufinsulation.co.nz](http://www.knaufinsulation.co.nz)

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