

FUJAIRAH  
ROCKWOOL  
FACTORY



**FRF**

مصنع  
الفجيرة  
للمصوف الصخري

# FACADE SLAB INSULATION

DESIGN  
GUIDE

Sustainable, non-combustible,  
high performance insulation solutions.





# CONTENTS

---

CLADDING AND CURTAIN WALL SYSTEMS 04

TYPICAL FAÇADE SYSTEMS 05

PERFORMANCE BENEFITS 06

PRODUCT QUALITY 08

SUSTAINABLE SOLUTIONS 09

SUPPORTING INFORMATION 10

OUR PROJECTS 11



# CLADDING AND CURTAIN WALL SYSTEMS

## CLADDING SYSTEMS

Numerous exclusive cladding systems are accessible, with insulation typically applied externally on masonry or concrete walls. This setup ensures consistent indoor temperatures, minimizing winter heat loss and summer heat absorption. Furthermore, these systems offer lightweight alternatives to traditional brick and masonry solutions, while presenting designers with extensive aesthetic choices.

## CURTAIN WALL SYSTEMS

Curtain walls typically feature a specialized lightweight frame, designed to accommodate glass panels that serve as the weatherproof exterior while permitting natural light entry. Various types of curtain walling exist, such as factory-built unitized systems with insulation behind glass, natural stone, or metal facades.

When utilizing proprietary cladding or curtain wall systems, it's essential to adhere to the manufacturer's guidelines.

## WEATHER PROTECTION

Cladding systems are engineered to maintain the structural frame and insulation dryness through the envelope design and airspace between thermal insulation and cladding panels. Drained and ventilated systems function by permitting air entry at the bottom and exit at the top. This ventilated cavity facilitates the removal of water, which enters through panel joints, utilizing both the 'stack effect' and downward flow along the rear face of the panels, ultimately exiting at the system's base. Curtain walls typically feature a waterproof and weather-resistant glass facade.



## THERMAL AND ACOUSTIC PROTECTION

The insulation layer positioned behind cladding, glass, or stone panels plays a significant role in meeting energy and green building U-value regulations. This helps maintain comfortable interior temperatures and control energy costs effectively. Additionally, due to its material properties, the insulation acts as a barrier to incoming exterior noise, reflecting or absorbing sound waves to ensure pleasant acoustic levels for occupants.

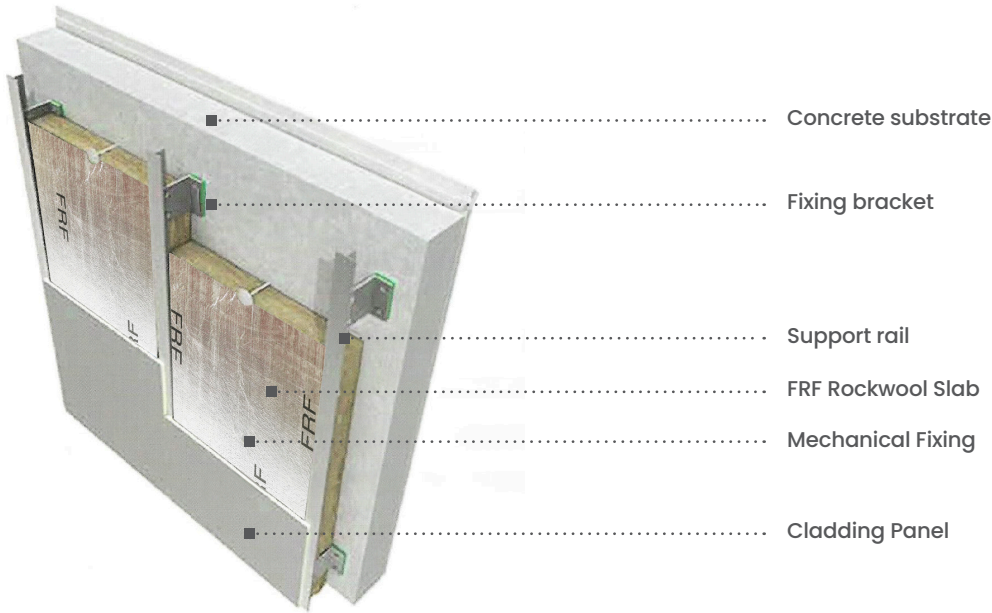
## FIRE PROTECTION

The cavity barrier must align with system performance standards, ensuring proper compartmentalization between the facade and primary substrate. Fire barriers must adhere to Civil Defense Regulations, installed at wall junctions and within fire-resisting barriers like floors, walls, or doors.

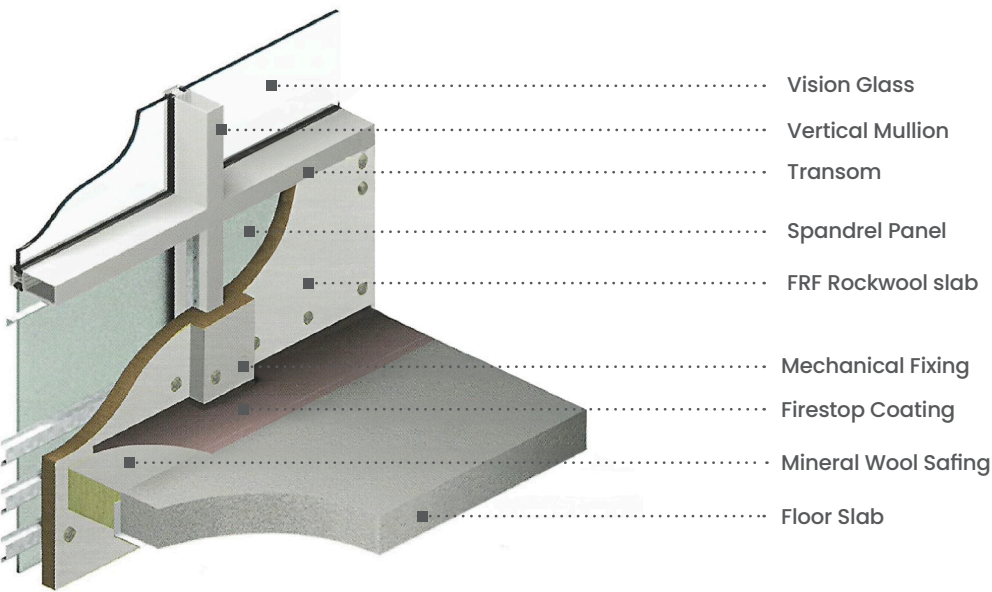
The insulation products outlined herein satisfy non-combustibility standards outlined in Fire Safety Regulations, approved for use in building envelope applications.

# TYPICAL FACADE SYSTEMS

## CONCRETE CLADDED WALL INSTALLATION



## CURTAIN WALL INSTALLATION



# PERFORMANCE BENEFITS

## FIRE PERFORMANCE



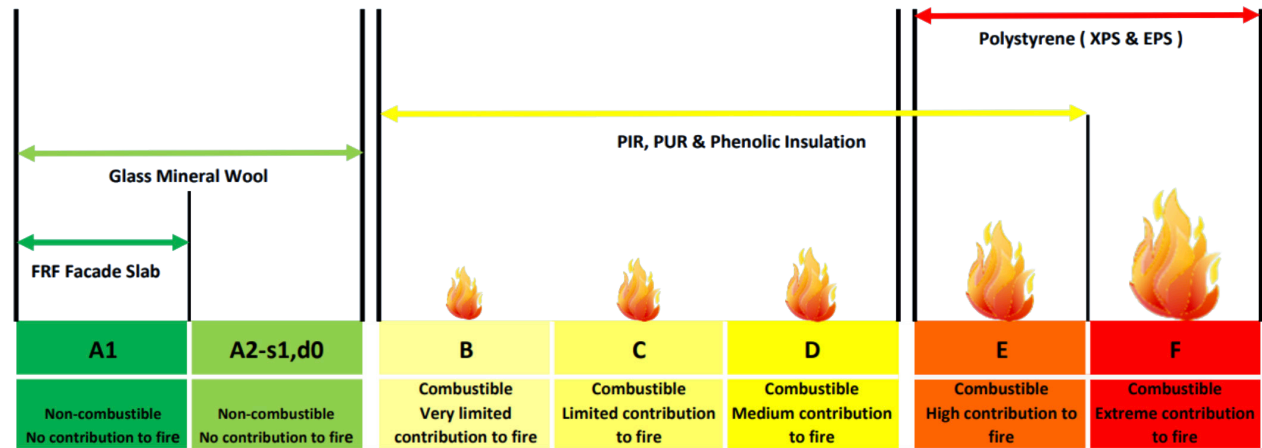
FRF Rockwool Slabs achieve the highest Euroclass reaction to fire classification according to BS EN 13501-1, rated as non-combustible with A1 ratings.

In line with the latest UAE Fire and Life Safety Regulations, materials for Cladding and Curtain Wall must meet Euroclass reaction to fire classifications of A1. Our FRF Rockwool Slab range fully complies with this requirement, applicable to various building types including super high-rise, high-rise, malls, schools, hospitals, theme parks, and industrial facilities.

Furthermore, facade assemblies must undergo system testing and meet pass criteria per NFPA 285 or BS 8414. All products must be registered with the local Civil Defense. FRF has conducted extensive testing with multiple cladding manufacturers. Contact your technical team for further details.

## EUROCLASS REACTION TO FIRE CLASSIFICATION TABLE

Materials are classified based on their contribution to fire development, ranging from the highest class A1 with no aid to fire spread, to the lowest class F with severe contribution. Façade Safety Codes prohibit the use of any combustible material classified as B or below.



Note:

The **s** and **d** part of the classification refers to the total smoke and number of droplets emitted during the first 10 minutes of exposure to fire, classed as:

- s1** - contributes little or insignificantly to smoke development
- d0** - does not create flaming particles or droplets

Flames are illustrative and the chart should only be used for guidance. Always confirm the declared Reaction to Fire Classification of a product before use

## THERMAL PERFORMANCE



FRF Rockwool Slabs are crafted with densities ranging from 30 – 140 kg/m<sup>3</sup>, featuring thermal conductivities declared between 0.034 W/mK and 0.043 W/mK, as per BS EN 13162 standards. These certified values undergo regular testing by DCL.

## ACOUSTIC PERFORMANCE



As urbanization grows and noise levels rise in populated areas, acoustic performance becomes a critical factor in building design. Our FRF Rockwool Slabs offer outstanding sound absorption, achieving a noise reduction rate of 80 to 100%. These properties significantly enhance the acoustic performance of the structure they are applied to.

## PRODUCT SPECIFICATIONS

Product	Density (kg/m3)	Facing	Thickness (mm)	LxW (m)	Thermal Conductivity (W/m.K)	R Value (m2.K/W)	NRC
S2XX	30	FS	50 to 150	1.2 x 0.6	0.043	1.163-3.488	0.8
S2XX	50	FS	50 to 150	1.2 x 0.6	0.04	1.25-3.750	0.85 - 0.9
S2XX	80	FS	50 to 150	1.2 x 0.6	0.036	1.389-4.167	0.9 - 1.0
S2XX	100	FS	50 to 150	1.2 x 0.6	0.035	1.429-4.286	0.95 - 1.0
S2XX	140	FS	50 to 150	1.2 x 0.6	0.035	1.429-4.286	0.95 - 1.0



# PRODUCT QUALITY

## PRODUCT CERTIFICATIONS

Every product mentioned in this document has undergone evaluation by independent third-party laboratories and local authorities. They are deemed suitable for use as thermal and acoustic insulation in cladding systems, curtain walls, and ventilated facades, whether on new constructions or existing reinforced concrete, masonry, or steel-frame walls.

FRF Rockwool Slabs undergo regular testing and certification by fire safety authorities, ensuring compliance with the latest building codes.



## ASSEMBLY TESTING

FRF Rockwool Slabs has undergone thorough testing according to NFPA 285 standard as part of cladding assemblies, collaborating closely with local ACP manufacturers. For further information, please reach out to our technical support team.

# SUSTAINABLE SOLUTIONS

Fujairah is abundant in natural resources and FRF using this natural resources of volcanic rocks contribute to addressing global challenges using innovative and sustainable solutions. FRF Rock mineral wool products not only foster the development of sustainable buildings but are made from naturally firesafe material free from added flame retardants or blowing agents. Our advanced production techniques ensure that all our insulation products are manufactured sustainably and keeping environmental responsibility in mind. By using FRF Rock mineral wool insulation, buildings can significantly reduce energy consumption and carbon emissions. The energy savings realized from using FRF Rock mineral wool insulation outweigh the energy expended in its production.

Traditional (mineral wool insulation with Phenol Formadehyde resin)



### Benefits for Specifiers and Installers

- Sustainable Products**
- Contribute extensively to several green building rating schemes such as LEED, ESTIDAMA, AL SA'FAT
  - High environmental standards with ISO 14000 certifications
  - Less energy intensive to make therefore more
- Meets Technical Requirements**
- Product properties meeting or exceeding requirements from DCL, SASO, UL, ASTM, NFPA, BS and ADQCC and Civil Defense from Fujairah, Dubai, Abu Dhabi & Sharjah
- Safety and Reliability**
- Meets the requirements of EN 1-13501 A1, ASTM E84 and BS 476 Class 1 & 0
  - High manufacturing quality meeting ISO 9000 standards
- User Friendly**
- Low weight, high elasticity and resistance to handling or mechanical abuse
  - Easy to cut
  - No odours





# SUPPORTING INFORMATION

## MECHANICAL DAMAGE

If mineral wool insulation experiences mechanical damage, such as changes in its physical dimensions, its thermal performance may be affected. Reductions in product thickness will lead to proportional decreases in thermal resistance.

Damage to edges and corners, preventing tight joints and closed joints, will also impact thermal performance by increasing heat loss in affected areas. Such damage can result from exposure to strong winds, suction forces, debris transportation, water jetting, or high water flow rates, such as from gutters or unintended drainage points. These physical alterations can occur in all thermal insulation products under such conditions.

It is advisable to inspect the insulation before installing rainscreen cladding, especially if it has been left exposed. This inspection ensures no damage has occurred between insulation installation and cladding application. Following extreme weather events, it's recommended to inspect all system materials for any potential damage.

## INSTALLATION

To achieve optimal outcomes, adhere to the recommended build sequence provided by the system manufacturer for the ongoing or prospective construction. Prior to installation, inspect the insulation's physical condition just before applying the rainscreen cladding, and perform any required repairs.

## HEALTH & SAFETY

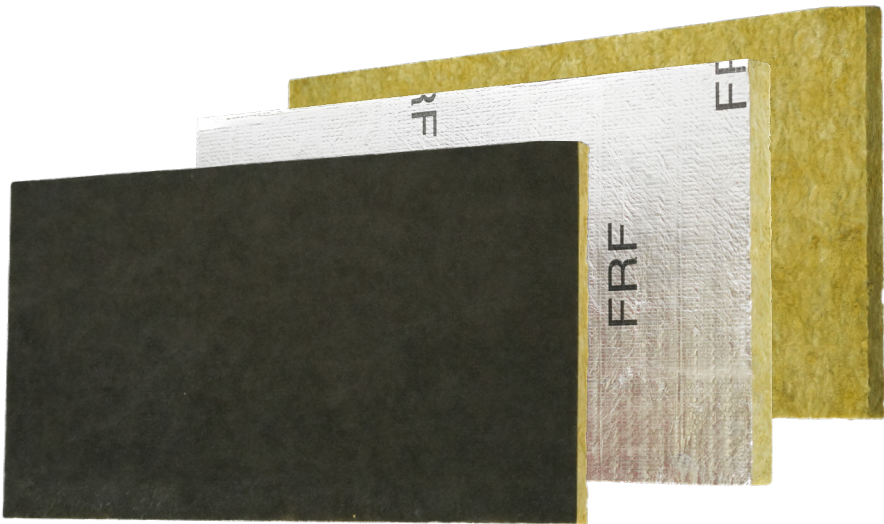
While Mineral Wool isn't categorized as a chemical irritant, some individuals may experience temporary discomfort when handling Mineral Wool products. This discomfort typically stems from the coarse fibers and tends to subside shortly after exposure ends.

Individuals prone to discomfort or those with preexisting skin conditions should utilize gloves or other appropriate protection. Loose-fitting attire is recommended to prevent constriction around the wrists and neck. When working above shoulder height, it's advisable to wear eye protection.

Inhaling any fibers doesn't pose a health risk, as the body can readily remove or dissolve them, thus avoiding the risk of asthma or respiratory illness. Nevertheless, it's wise to minimize exposure to any form of dust in the workplace.

## STORAGE

Facade Slabs are packaged in polythene packs or shrink-wrapped pallets for short-term protection. For extended on-site protection, store the product indoors or under cover, elevated off the ground. Avoid leaving the product exposed to outdoor elements.



# OUR MAJOR PROJECTS



- 1. LOUVRE MUSEUM
- 2. WARNER BROTHERS WORLD
- 3. MIRDIF CITY CENTER
- 4. DUBAI FRAME
- 5. ALOFT HOTEL
- 6. MARSA AL SEEF
- 7. ADDRESS RESIDENCE SKY VIEW



FUJAIRAH  
ROCKWOOL  
FACTORY



**FRF**

مصنع  
الفجيرة  
للمصوف الصخري

## Contact Fujairah Rockwool Factory



+971 9 222 2297



P.O. Box 211, Al Hayl, Fujairah, United Arab Emirates



frf@frf.ae



www.frf.ae

