



# FRF

مصنع الفجيرة للصوف الصخري  
**FUJAIRAH ROCKWOOL FACTORY**  
(Subsidiary of Fujairah Building Industries P.S.C.)

# FRF SLABS

RIGID BOARD



ENERGY  
SAVING



MOLD  
RESISTANCE



SUSTAINABLE &  
ECO FRIENDLY



ASSET  
LONGEVITY



REDUCED CARBON  
FOOTPRINT



CORROSION  
PREVENTION



THERMAL  
INSULATION



SIMPLE  
APPLICATION



UV  
RESISTANCE



ASSET  
PROTECTION

## DESCRIPTION

Fujairah Rockwool slabs conforming to ASTM C-612 and equivalent BS 3958 Part 5 and BS EN 13162 are designed for the thermal and acoustic insulation of flat or slightly curved surfaces operating at both high and low temperatures.

These slabs are produced from long, non-combustible resin bonded fibers. They are easy to cut, fit and handle.

Fujairah Rockwool slabs are ideally suited to insulate all parts of existing and new buildings including offices, homes, retail, healthcare, educational and commercial premises.

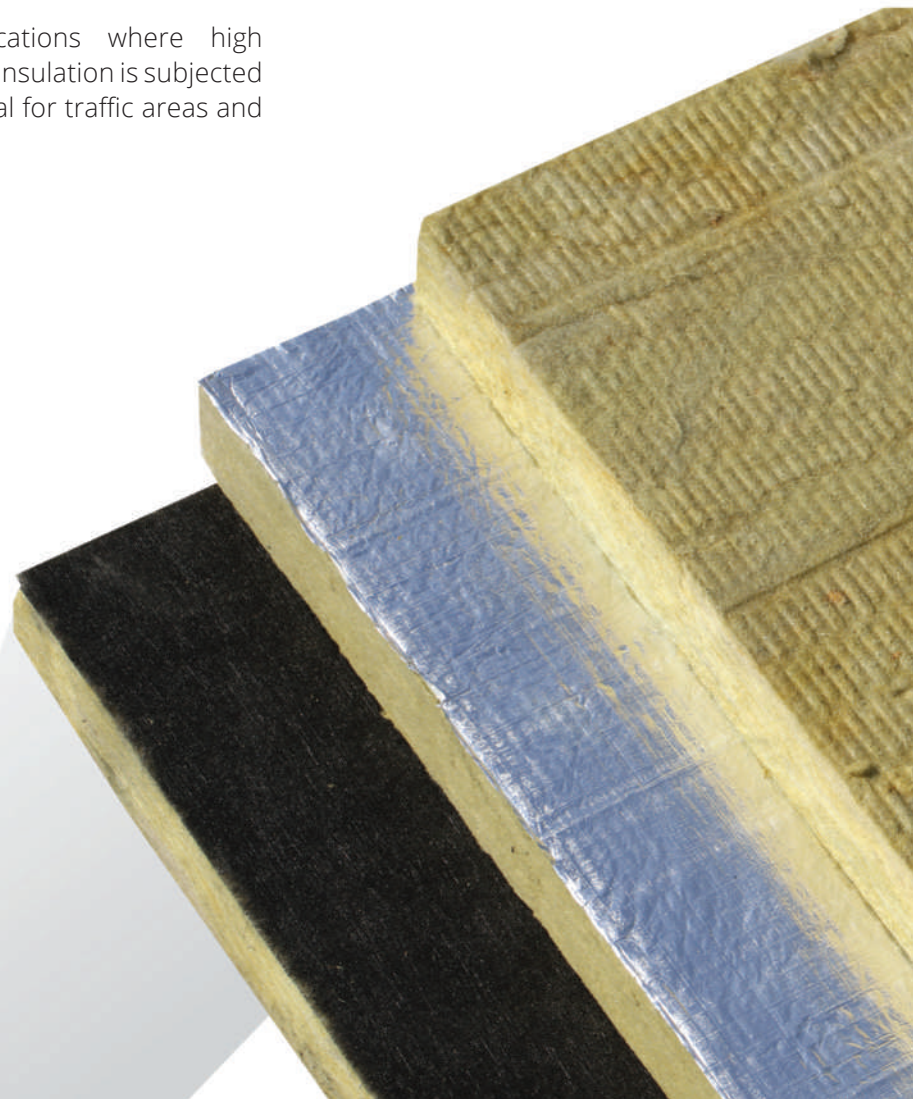
## APPLICATION

Designed for a wide range of applications, at both high and low service temperatures, and can be used on flat or slightly curved surfaces for thermal and acoustic insulation.

They are suitable for thermal insulation for cavity walls, curtain walls, sandwich panels and a variety of other applications.

It is also ideal for fire protection of steel structures and insulation of bulkheads and ship decks.

High-density slabs are suitable for applications where high compressive strength is required and where the insulation is subjected to mechanical loads and vibration. They are ideal for traffic areas and insulation of tank roofs.



## STANDARD AVAILABLE PRODUCTS

STANDARD SIZE [MTR]	STANDARD THICKNESS [MM]	STANDARD DENSITY [KG/M <sup>3</sup> ]
1.2 x 0.6	50,75,100	30,50,75,100,140

Other sizes and densities are available upon request.

Thickness from 25 – 200, Density from 30 Kg/m<sup>3</sup> to 200 Kg/m<sup>3</sup>

## NOMINAL THERMAL CONDUCTIVITY

Thermal conductivity is the main product property of thermal insulation material and Fujairah Rockwool products show remarkably low thermal conductivity values. Typical figures are shown below in accordance with ASTM C-177 / C-518.

MEAN TEMPERATURE	THERMAL CONDUCTIVITY (W/MK) FOR THE FOLLOWING DENSITIES IN KG/M <sup>3</sup>				
	30	50	80	100	140
°C					
24	0.040	0.038	0.035	0.034	0.034
35	0.043	0.040	0.036	0.035	0.035
50	0.047	0.043	0.038	0.037	0.037
100	0.059	0.053	0.046	0.044	0.043
150	0.078	0.069	0.054	0.052	0.049
200	0.098	0.085	0.066	0.061	0.058
250	0.126	0.107	0.080	0.072	0.068
300			0.096	0.084	0.080

These are typical values subjected to normal manufacturing and testing variance.

## THERMAL PERFORMANCE [R VALUE]

THICKNESS [mm]	THERMAL RESISTANCE (M <sup>2</sup> ,W/MK) AT 24° MEAN TEMPERATURE FOR THE FOLLOWING DENSITIES IN KG/M <sup>3</sup>				
	30	50	80	100	140
°C					
25	0.625	0.658	0.714	0.735	0.735
50	1.250	1.316	1.429	1.471	1.471
75	1.875	1.974	2.143	2.206	2.206
100	2.500	2.632	2.857	2.941	2.941
125	3.125	3.289	3.571	3.676	3.676
150	3.750	3.947	4.286	4.412	4.412
175	4.375	4.605	5.000	5.147	5.147
200	5.000	5.263	5.714	5.882	5.882

These are typical values subjected to normal manufacturing and testing variance.

## FACING

CODE	FACING
SXXX	Without Facing
S2XX	Aluminum Foil Facing on One Side
S22X	Aluminum Foil on Both Sides
S3XX	White Ceiling Veil on One Side
S4XX	Black Ceiling Veil on One Side
S44X	Black Ceiling Veil on Both Sides
SXXZ	Slab sealed in Black Poly Bag
SBXX	Black Aluminum Foil on One Side
SBBX	Black Aluminum Foil Facing on Both Sides



Infrared thermal vision image showing lack of thermal insulation on house or without facade insulation.

## SOUND ABSORPTION COEFFICIENTS

Typical sound absorption figures are shown below in accordance with BS 3638 & ISO 0354 and equivalent ASTM C-423. We have test certificate for 70 kg/m<sup>3</sup> and 100 kg/m<sup>3</sup> nominal densities.

The table shows the test results for their raw density in accordance with the test report.

HZ	30 kg/m <sup>3</sup>	50 kg/m <sup>3</sup>	80 kg/m <sup>3</sup>	100 kg/m <sup>3</sup>	140 kg/m <sup>3</sup>
125	0.22	0.22	0.23	0.23	0.22
250	0.6	0.62	0.64	0.66	0.66
500	0.86	0.88	0.98	1.05	1.05
1000	0.92	0.95	1.04	1.07	1.06
2000	0.99	1.02	1.03	1.05	1.01
4000	0.98	0.99	0.98	0.97	0.96
<b>NRC</b>	<b>0.80</b>	<b>0.85</b>	<b>0.90</b>	<b>0.95</b>	<b>0.95</b>



## COMPRESSIVE STRENGTH

The table below shows typical data of compression resistance in accordance with ASTM C-165 @ 10%.

DENSITY KG/M <sup>3</sup>	30	50	60	80	100	140
Compressive Resistance KPa	1.2	2.5	3.5	6	12	12



## SERVICE TEMPERATURE

Rockwool Insulation has a service temperature of 780°C when tested in accordance with DIN 52271 for 80mm thickness and 100 kg/m<sup>3</sup> density. However there is a possible deviation for lower densities.

The user is advised that it is possible that the maximum use temperature of facings and adhesives is lower than the maximum use temperature of the insulation. The user shall ensure that sufficient thickness shall be installed so none of these accessory items [facings and adhesives] are exposed to temperatures above their maximum use temperature.

FRF rock wool can withstand more than 1000°C without melting.



## FIRE PROPERTIES

Non-combustible when tested in accordance with BS-476 part 4, ASTM E-136 and BS EN ISO 1182. The products have been tested following BS EN ISO 1182 and BS EN ISO 1716 and shown a reaction to fire performance of Class A1 following BS EN 13501-1 and can be considered as non-combustible.

B.S. 476 PART 4 – Non Combustible

B.S. 476 PART 6 – Fire Propagation

B.S. 476 PART 7 – Surface Spread of Flame

CLASS A, when tested in accordance with ASTM E-84.



FRF wool fibres can withstand more than 1000°C without melting. When the temperature rises above 250°C, the binder will evaporate in the zone which is exposed to 250°C or more. But the fibres will remain intact as their inbuilt cohesiveness and layering will keep the fibres together, ensuring that the material will retain its rigidity and protect the material beneath it from being affected by the fire.

## BIOLOGICAL PROPERTIES

Rot-proof, non-hygroscopic, will not sustain vermin and will not encourage growth of bacteria, mold or fungi. No fungi growth observed when tested as per ASTM C1338

## COMPATIBILITY

Compatible with all other forms of material which it is likely to come in contact with normal industrial and building applications.

## PHYSICAL PROPERTIES

Asbestos-free and shot content is very low when tested as per ASTM C-1335 and BS 2972: Section 14.

## CHEMICAL NEUTRALITY

Chemically neutral with a pH value of 7-8 when tested in accordance with BS 2972: Section 22. It will neither cause nor promote corrosion. It meets the requirements of ASTM C-795 the standard specification for thermal insulation for use in contact with austenitic stainless steel when measured according to standard methods of ASTM C - 692 (Corrosion Test) and ASTM C -871 (Chemical Analysis). It contains low level of chlorides when tested in accordance with BS 2972: Section 21, ASTM C-871 and AGI Q 135.

## CORROSIVENESS

Corrosiveness in accordance with ASTM C665. FRF insulation material does not show corrosion when in contact with steel, greater than that observed with comparative cotton.

## WATER ABSORPTION

Water absorption <1 Kg/m<sup>2</sup> as per BS 2972 Part 2  
Water Vapor Sorption -1 % maximum

## ENERGY EFFICIENCY & BUILDING SUSTAINABILITY

Green Building Concept is based on three chief elements, i.e. Building Sustainability, Energy Efficiency and Health & Safety. At FRF Rockwool, we duly comply and support all such initiatives. Our expertise in this field enables credit point accumulation for our customers through LEED and Estidama, the two of the leading building accreditation systems in UAE.

- Green Star Compliant (VOC)
- No CFCs or HCFCs
- Zero Ozone Depletion Potential
- Low GWP
- Superior thermal insulation
- Resistance to Mould Growth
- Dubai Central Laboratories (DCL)



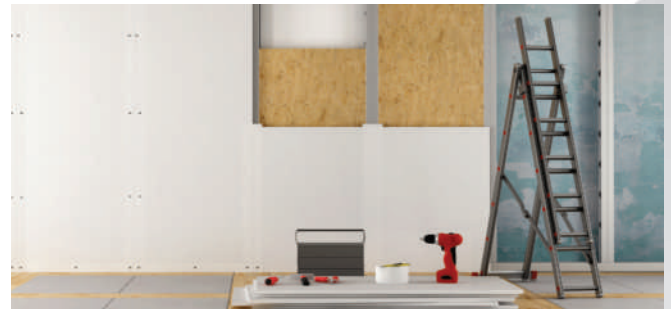
## WALL INSULATION

We provide a range of wall insulation solutions for both internal and external walls delivering thermal, & acoustic insulation and fire safety. Our insulation solutions for external wall systems cover rain screens, over-cladding, external façades, masonry cavity walls, and wood and metal frame constructions.

We also have a full portfolio of internal and separating wall insulation solutions, which prevent the transfer of noise from room to room, act as a fire barrier and deliver thermal performance.

### INTERIOR PARTITION WALL INSULATION

Insulation of interior walls isn't as common although it offers homeowners energy savings and sound-dampening benefits to enhance both comfort and privacy. The best way to insulate all walls is during the construction of the building but it is still possible to add insulation to the existing walls and making them fire resistance.



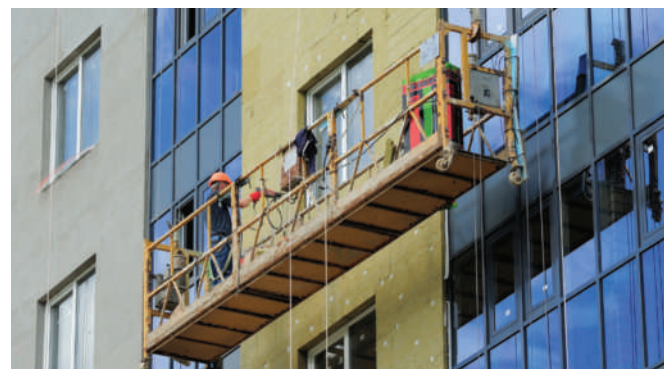
### EXTERIOR WALL INSULATION

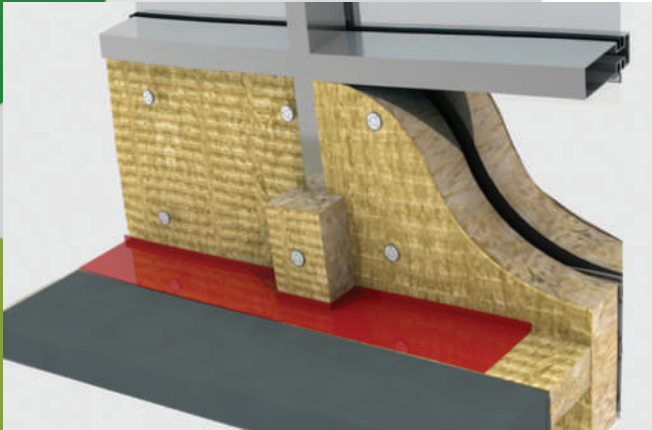
External walls are insulated by fixing insulation material to the wall and then covering it with special plasterwork or cladding. Insulating the external wall not only keeps the heat out but also improve the weatherproofing, sound resistance, increases the life of the wall and also reduces condensation on internal walls. External wall insulation can renew the appearance of outer walls by finishing it with smooth, painted, paneled or textured tiles or with brick slips for real masonry brick finish.



### CURTAIN WALL INSULATION

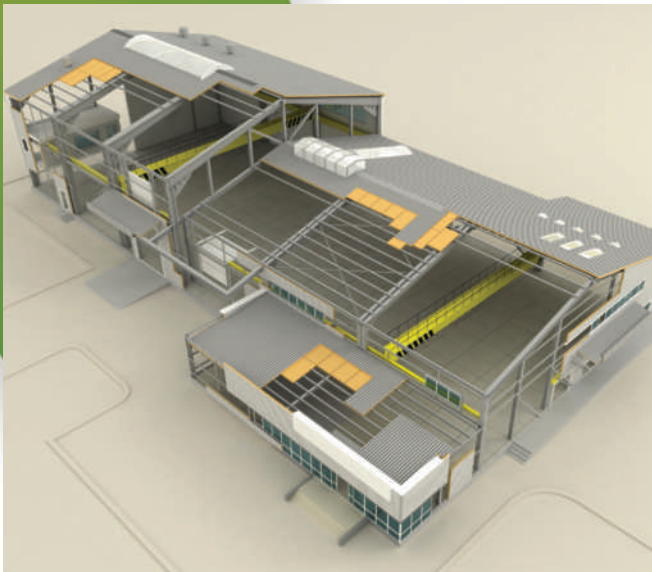
A curtain wall is usually an aluminum-framed wall, containing in-fills of metal panels, glass or thin stones and is attached to the building structure without carrying loads of building floor and roof. We provide curtain wall insulation systems for thermal acoustical, and fire protection requirements. Our pre-cut wall panels can be easily installed with additional savings and our fabricated curtain wall can also easily and quickly installed and provide substantial savings for businesses.





## FIRE STOPPING INSULATION

These days' insulation contractors are being asked to include fire stopping techniques in their scope of work. We provide materials with thermal insulation that are able to resist extreme heat of around 1000°C without spreading flames or smokes and insulation which can absorb sounds and as well as dampen vibrations. FRF panels comply with all specifications that are required for this applications.



## METAL BUILDING INSULATION

Metal building insulation by Fujairah Rockwool can be termed as another feather in our cap. This insulation material is fully capable of providing outstanding thermal, sound and fire safety. It is a light and durable material that is in use for decades now. We offer our services for products and solutions for interior and exterior walls in pre-engineered metal building construction.

Our customers have the option of going for a one or two hour, single sided or double sided fire rated assemblies. We design each product for specific building applications to facilitate our customers.



## SANDWICH WALL PANEL INSULATION

We understand that companies today are extremely eco-conscious in applying insulation material and that's why we incorporate comfort and safety features in our SWP insulation. It turns out to be a long-term investment for companies as not only it acts as a key component in any assembly for firewalls but also offers soundproofing solutions for making any environment peaceful.

# ROOF INSULATION

Insulation is the best way to make sure that the heat loss is at its minimum and energy bills are also considerably reduced. Stone wool insulation is an effective way to achieve all this as mentioned in SWP as well with protection for low-slope, steep slope and metal roofing.

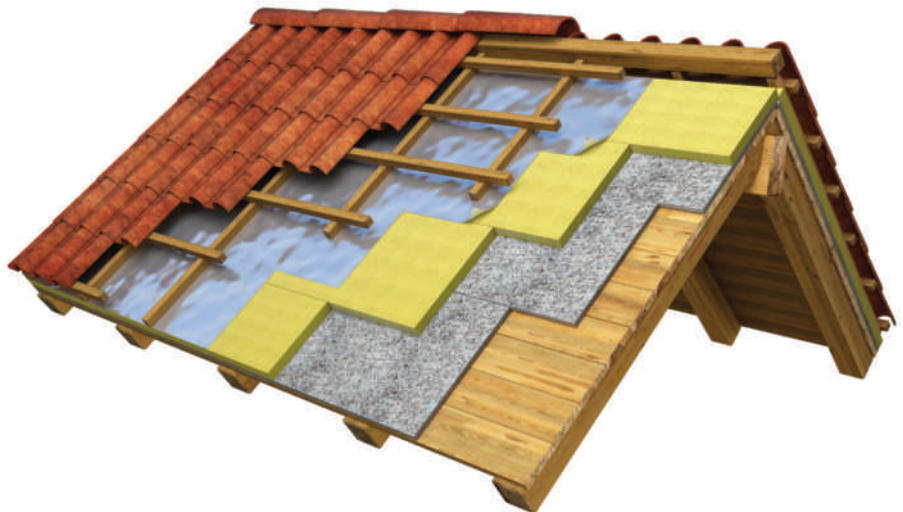


## FLAT ROOF INSULATION

Commercial construction is the main beneficiary of floor roof insulation in order to reduce heat transfer, noise pollution and offer fire resistance too. At Fujairah Rockwool, we offer solutions to meet our customer's demands in this regard with emphasis on improving the performance and lowering costs of the operations.

## PITCHED ROOF INSULATION

Applications for ceiling line or above the rafter is offered by us regarding pitched roof insulation for thermal, fire and sound protection. Residential buildings benefit from this greatly as areas which are not habitable is applied pitched roof insulation. Different solutions like: easily installable insulation rolls or blown fiber are offered by us as well as applied between the rafters. This gives our customers the option to use it in conjunction with insulation above the rafters to achieve their desired level of protection.





## METAL ROOF INSULATION

For achieving optimum functionality and performance, metal roofing offers the flexibility with design due to its thermal performance, fire resistance and acoustic properties.



## ATTIC INSULATION

Saving the heat in the winter and releasing it in summer can be achieved by our customers as our metal roof insulation offers exactly that. This is one area of your house to save energy year round very efficiently through the use of our thermal stone wool insulation. Especially in older homes, when you are trying to increase or extend the current attic, we've got a reliable solution for you in this concern.



## FLOOR & CEILING INSULATION

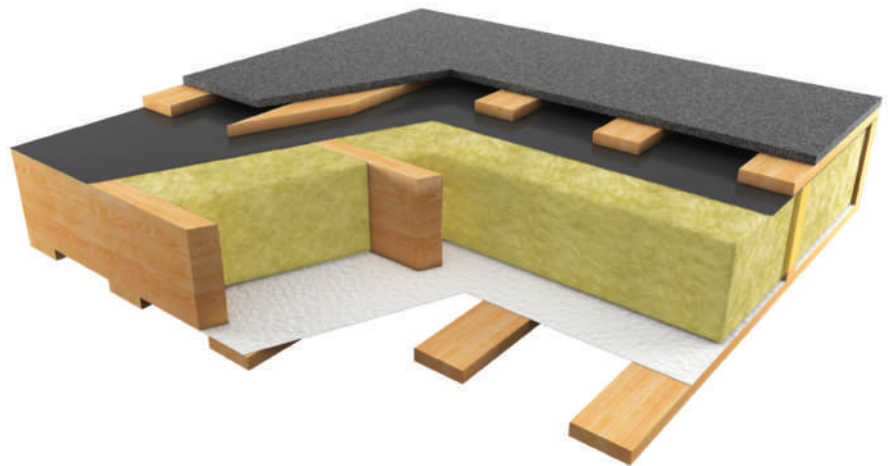
Preventing heat transfer between upper and lower floors is one way to make sure you can reduce airborne noise. Insulating floors and ceilings is the best way to achieve this smartly. At Fujairah Rockwool, we know that most of our customers need a solution regarding ceilings, ground/base floors and separating floors. Ground floor insulation is responsible for thermal performance within the building while that of separating floors and ceilings provides protection from airborne noise and acoustic insulation.

### INTERIOR FLOORS

We deal in thermal regulations in floor constructions for our customers. We offer solutions for separating floors to prevent heat transfer between the upper and lower floors.

### EXPOSED FLOOR INSULATION

Converting the unused portions of your house which are exposed to direct sunlight is very easy now as you can change an unheated porch, for example, to a living space. The application is quite simple if the under-floor area is easy to get at. After insulation, you will clearly notice that the spaces are now more comfortable with reduced incidents of frozen pipes, for example, enabling you to save a considerable amount of money spent on your energy bills.



### CEILING INSULATION

Airborne sound is radically reduced through ceiling insulation. Our insulation works by softening the effect of impact sound. It is also non-combustible to the point that it offers fire resistance of the highest level.



# FIRE PROTECTION

Fire protection at places where we experience high human traffic must be done at the planning stage. Examples are stadiums, hospitals, educational institutes, airports, etc. High-rise buildings and apartments are also prone to fires that can result in a catastrophe if there is no insulation product in place. Correct grade of building material and fire-exits are made mandatory by the regulators as minor lapses can have very dire consequences for the entire project.

It is very important to know exactly what is the difference between Mineral Rockwool and other types of insulation. An insulation product must be perfectly fire resistant and no compromise must be made on this aspect. Fujairah Rockwool produces the finest insulation material you can get from anywhere. It prevents the spread of fire/flames and helps protect the building's load bearing structure. This is a critical aspect as in case of a deadly fire, if the structural frame of a building is protected from the wrath of fire, it can give more time for the affected people to escape and ensure minimal damage to the building.

## FIRE BEHAVIOR IN A BUILDING

### REGULAR / WITH LOW-DENSITY INSULATION

### MINERAL-ROCKWOOL INSULATION [STONE WOOL]

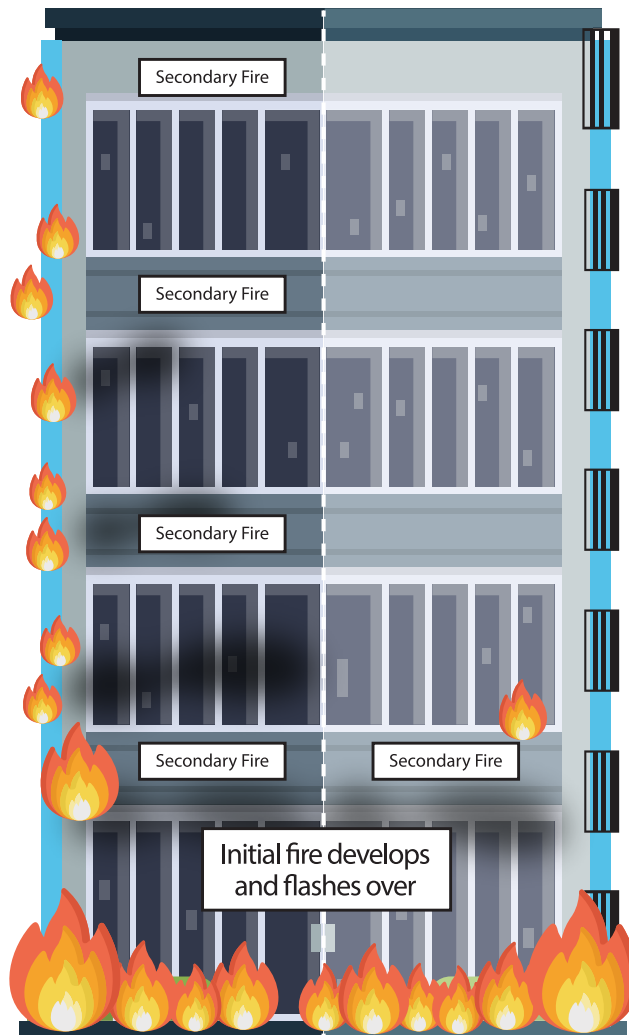
While glass breakage/fallout allows the fire to enter/exit, cladding allows/prevents spread

#### Rapid Fire Spread

Fire spreads upwards due to a **combustible cladding**, thereby contributing to the fire

Fire breaks in & out through glass

Flames break out  
Smoke / Fumes builds up



#### Restricted Fire Spread

Fire spread is restricted due to a **FIRE RETARDANT** or **NON-COMBUSTIBLE** cladding material and system

No Droplets falling down to avoid further spread and hazard to people

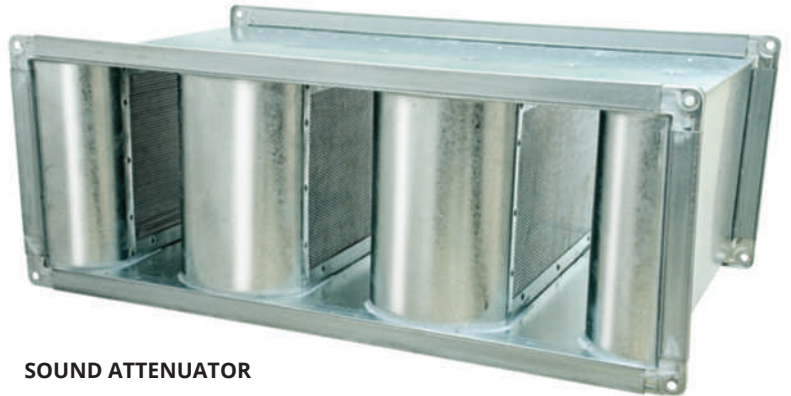
No Smoke / Toxic Fumes

Internal or External Fire Incident

## OEM APPLICATIONS

OEM products which are engineered at Fujairah Rockwool perform at their peak regarding sound and fire resistance. It doesn't matter what is your prime concern for getting our insulation products. It can be designing an acoustical panel, car muffler, HVAC or fire-door and you will get your money's worth in the form of an exceptional solution.

Take a look below for just some of the solutions we offer in this regard.



**SOUND ATTENUATOR**



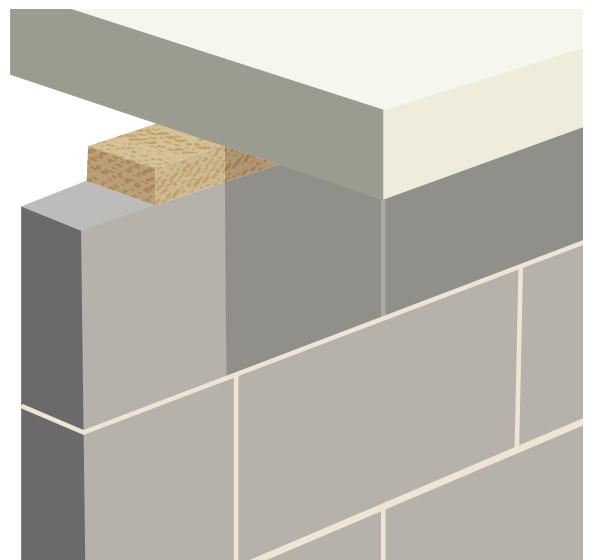
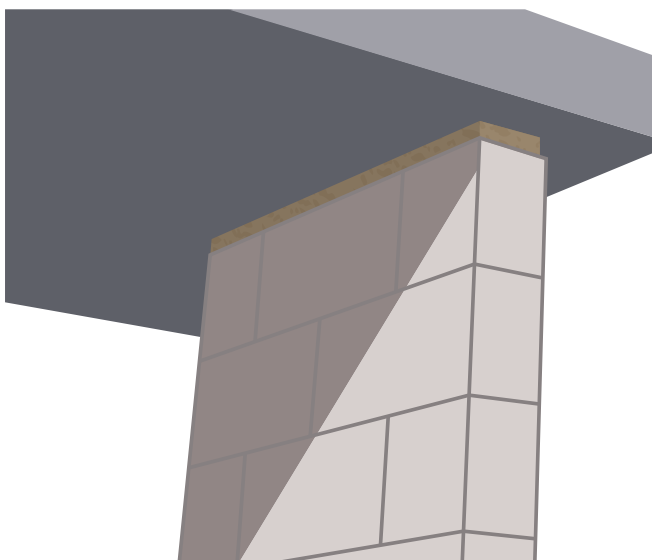
**FIRE DOOR**



**SOLAR PANEL**

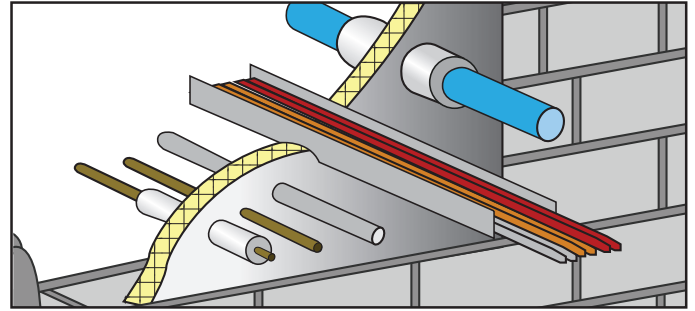
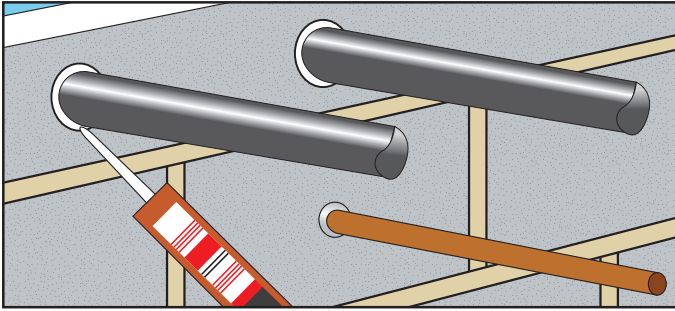
## LINEAR GAP SEALING / CAVITY FIRESTOP APPLICATIONS

Our insulation is designed to perform as a barrier in construction movement joints and long linear installations in horizontal and vertical applications. Our unique method of manufacturing, especially for ceiling cavity, provides a resilient lateral compression required to ensure a tight fit. We offer pre-assembled, a pre-cut multi-barrier designed to prevent the fire to travel between compartment floors, while also offering acoustic isolation and waterproofing and at the same time allowing for building movement.



## FIRESTOPPING SOLUTIONS FOR VOIDS IN WALLS & FLOORS

Thanks to our product's exclusive properties it provides advantages and technical characteristics that make it safe and unique for fire protection and thermal insulation by making it air seal barrier. Our comprehensive range of products is ideal for fire stopping solutions for large voids in buildings above the ceiling or below the floor and between the walls. We have developed our products to meet the most demanding firestopping insulation standards for cavities in walls and floors with an optimum balance of budget, weight and space savings as well as minimizing installation times.



## INDUSTRIAL APPLICATIONS

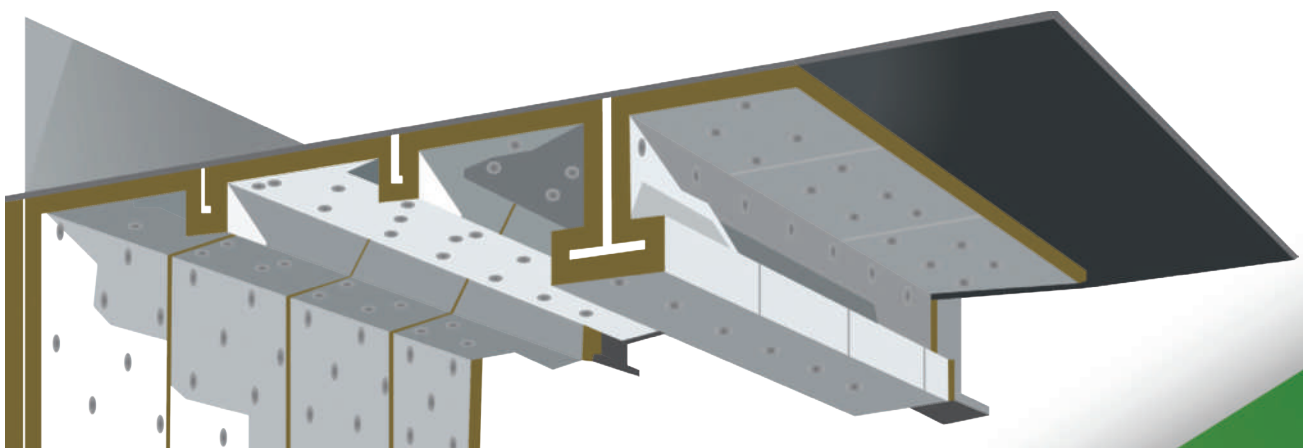
Fujairah Rockwool Factory manufactures Rockwool Slabs to meet the stringent process parameters & operating conditions of the diversified Industrial segments.

The Oil & Gas, Refining, Petrochemical Power & other Industrial Plants across the Middle East have been catered by FRF Rockwool products for more than three decades and FRF earned the reputation as **The Industry's preferred choice.**



## MARINE APPLICATIONS

It is the duty of ship owners and operators that passengers and crew are protected from harm. Fire protection is also a legal requirement to prevent any occurrence of fire and explosion onboard. We have products that fully comply with the latest international Marine Regulations and additionally provide custom-made solutions for both fire and acoustic insulation performance.

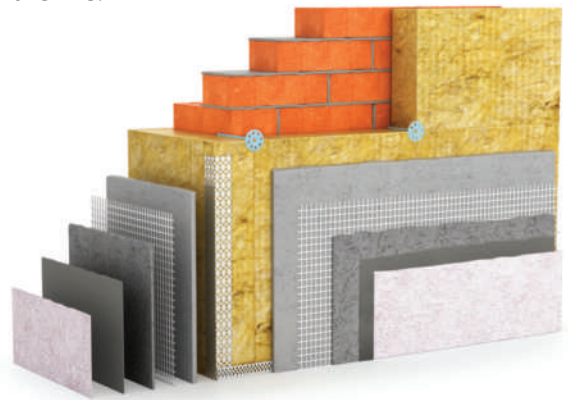


## EIFS/ETICS APPLICATIONS

FRF insulation is non-combustible and can withstand up to 780°C [Depending upon the density]. Rockwool can reduce the spread of a fire and provides valuable extra minutes to save people and property, and reduce environmental damage. New Fire code regulations restrict the use of polystyrene insulation and encourage the use of Rockwool Insulation. Time is vital for firefighters. It is essential that a structure contains as few combustible building materials as possible and include fire-resistant materials which can delay the spread of fire; providing vital extra minutes for people to escape, reduce property damage and aid firefighters to contain the fire.

Rockwool is a natural and ecological material obtained by heat treatment of basalt rocks. The strongest advantages of RW are: noncombustibility, the best vapor impermeability, soundproofing, practically non-aging with maximum possible results not only in terms of thermal insulation but in terms of soundproofing as well.

The Exterior Insulation Finishing Systems consist of a range of different components applied in a specific sequence.



## INSTALLATION RECOMMENDATION

All contact surfaces should be clean, dry and free from dust. Manual handling of the material to be done only using the suitable protective equipment. Stagger horizontal joints with fixing practice. Close butt the slabs at all horizontal and vertical joints.

## WARRANTY

With no control over installation design, workmanship, conditions of application, or accessory materials, Fujairah Rockwool factory in no way warrants the results or performance of any installation containing their products. All implied warranties, including the merchantability and fitness or warranties for a particular purpose, is also included in this warranty disclaimer. We reserve the right to change product specifications without prior notice as per our policy for continued research and development to improve our products.

We strongly urge our customers not to apply the installation methods described in this brochure without proper consultation according to your specific requirements. The final decision about the particular FRF material and installation methods should rest on the contractor, consultant, or specifier.

## MAINTENANCE

No maintenance is required. FRF Rigid Slabs have a high resistance to accidental damage from knocks and handling during installation and maintenance. Dimensionally stable under varying conditions of temperature and humidity, rot-proof, odorless, non-hygroscopic and will not sustain vermin or fungus due to its inorganic and mineral compositions. The product will maintain its thermal properties throughout the lifetime of the construction and will not age. FRF Rockwool is nontoxic and not hazardous to health.

## AVAILABILITY

Manufactured by Fujairah Rockwool Factory [FRF], a subsidiary of Fujairah Building Industries [FBI] with headquarters and production facilities located in Al Hayl, Fujairah, United Arab Emirates. FRF products are available directly from FRF as well as through a vast and reliable network of local distributors.

Special products are manufactured on request.

## PACKING

Supplied in shrink-wrapped polyethylene sheet.

## PRICING & TECHNICAL ADVICE

For further details of information on technical data, specialist product information, applications, heat loss calculations or optimum thickness, our Sales Office can be approached.

For details on price, our Sales Office can be contacted.

### Call/Mail to Inquire:

Tel: +971 9 222 2297, Email: [sales@frf.ae](mailto:sales@frf.ae)

## STORAGE

To avoid moisture, FRF Rockwool insulation products stored outside must be kept dry. We recommend products to be always stored in covered and dry areas. Fujairah Rockwool is not liable for the damage resulting from inadequate utilization, loading and offloading and mishandling of its products.





مجلس أبوظبي للجودة والمطابقة  
ABU DHABI QUALITY & CONFORMITY COUNCIL



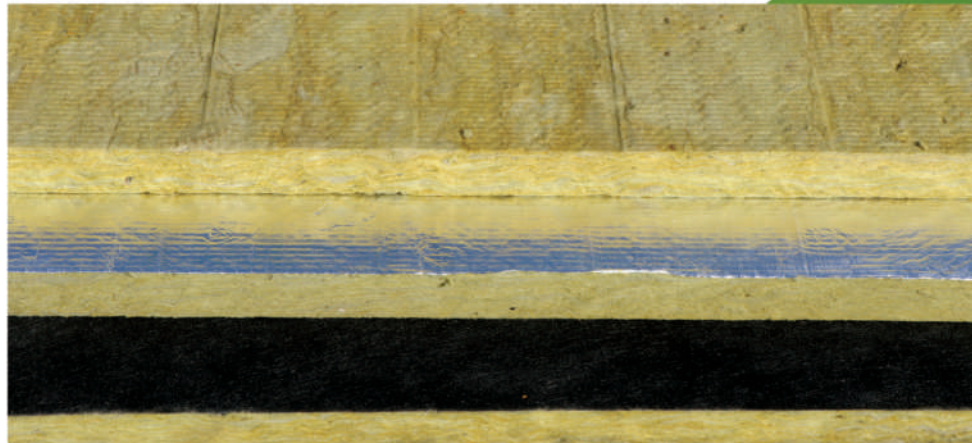
الإدارة العامة للتدقيق المدني - عجمان



بلدية دبي  
DUBAI MUNICIPALITY



Lloyd's Register



INSULATION FOR SECURING OUR FUTURE



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