

PROJECT MATERIAL & TECHNICAL SUBMITTAL

GRIDWALLS

PROJECT
MAG EYE MEYDAN: 546 NOS. (G+1) TOWNHOUSES

MATERIAL SUBMITTAL
ROCKWOOL INSULATION
(50mm thick x 65 kg/m³ Density)

MANUFACTURER / SUPPLIER
SAUDI ROCKWOOL / UNIGULF

SUBCONTRACTOR
GRIDWALLS



PROJECT MATERIAL & TECHNICAL SUBMITTAL

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PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 1 SCOPE OF WORKS



PROJECT MATERIAL & TECHNICAL SUBMITTAL

SUBMISSION SCOPE OF WORKS

PROJECT NAME	MAG EYE MEYDAN: 546 NOS. (G+1) TOWNHOUSE
SUBMISSION TITLE	ROCKWOOL INSULATION
LOCATION OF USE	SKYLIGHT
COUNTRY OF ORIGIN	KSA

MATERIAL LIST

Sl.No.	Material	Manufacturer	Supplier	Finish / Color
1	50 mm Thick 65 Kg/m3 Density One Side Foil Faced Insulation	Saudi Rockwool	Uni Gulf	N/A

MATERIAL SUBMITTAL TITLE: ROCKWOOL INSULATION



PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 2
**COMPLIANCE STATEMENT &
PROJECT SPECIFICATIONS**



ملاج
MAG

Construction of 546 Town houses at MAG City, Meydan



Compliance Statement

Material / Product/ Service: Rockwool Insulation			Specs Reference: - 072100 BUILDING INSULATION		
No	Description	Specified	Proposed	Compliance level	Remarks
2.5	ROCKWOOL INSULATION	Rockwool insulation made up of stable glass fibres bonded with thermosetting resins with aluminum foil facing Applications: for thermal and acoustical insulations of walls and slabs as per drawings.	50mm thick 65 Kg/m3 Density one side foil faced Saudi Rockwool Rigid slabs will be used as Thermal Insulation Material for skylight.	Comply	
1		Thickness : As indicated on drawings	Thickness will be 50 mm	Comply	
2		Density 61 kg/m ³	Density: 65 Kg/m ³	Comply	
3		Working Performance Fibre - 230°C,FSK-100°C, Vinyle- 80°C, Metal polyester-80°C	Comply	Comply	
4		Combustibility As per BS 476 (part-4), ASTM E136, Non combustible comply with authority in jurisdiction and requires flame spread testing locally acceptable.	Comply. Attached Dubai Central Laboratory Test Report in Section : 8 and DCD Certificate in Section : 9.	Comply	
5		Thermal conductivity As per BS 874, ASTM C177,518, ISO 8301,8302 and required u value is 0.56 W/m ² K as per drawings	Thermal Conductivity 0.034 Wm2k as per EN 12667. Refer Attached Data sheet in Section : 4	Comply	
6		6 Fire Safety As per BS 476(part 4) ASTM E84, 136 and flam spread – not over 25 Smoke developed – not over 50	Attache Certicate of Compliance complying with UL 732 (ASTM E84) Flame Spread Index : 0, Smoke developed Index : 0 Refer the attached Certifications in Section : 7	Comply	
7		Moisture absorptions Less than 1% by volume when test as per BS 2972 or 6676, ASTM C1104	Water Vapor absorptions will < 1 as per ASTM C1104. Refer Attached Data Sheet in Section : 4	Comply	



thermosetting resins with mineral fibers and with density 40 kg/cu.m; 90 mm thick, minimum rating R-I 1, flame – spread rating not exceeding 25, smoke developed rating not exceeding 50.

- C. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2.4 **SEPARATION LAYER (BETWEEN INSULATION AND FLOOR SCREED)**

- A. Non-woven Geotextile fabric composed of thermal bonded continuous 100% polypropylene filaments with fiber diameter 40-50 microns with the following properties: (140g/m²)

1. Tensile strength (ASTM D 4595): 8.7 KN/m
2. Elongation at break: 45%
3. Tear strength (ASTM): 340 N
4. Permeability at 20KN/nr: 2.2×10^{-4}

2.5 **ROCKWOOL INSULATION**

Rockwool insulation made up of stable glass fibres bonded with thermosetting resins with aluminum foil facing

Applications: for thermal and acoustical insulations of walls and slabs as per drawings

Physical Properties

1	Thickness	As indicated on drawings
2	Density	61 kg/m ³
3	Working Performance	Fibre - 230°C, FSK-100°C, Vinyle-80°C, Metal polyester-80°C
4	Combustibility	As per BS 476(part-4), ASTM E136, Non combustible comply with authority in jurisdiction and requires flame spread testing locally acceptable
5	Thermal conductivity	As per BS 874, ASTM C177,518, ISO 8301 ,8302 and required u value is 0.56 W/m ² K as per drawings
6	Fire Safety	As per BS 476(part 4) ASTM E84, 136 and flam spread – not over 25 Smoke developed – not over 50
7	Moisture absorptions	Less than 1% by volume when test as per BS 2972 or 6676, ASTM C1104

PART – 3– EXECUTION

3.1 **PREPARATION**





PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 3

COMPANY PROFILE



PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 3.1

**COMPANY PROFILE – SAUDI ROCKWOOL
(Manufacturer)**



Thermal Insulation



Acoustic Insulation



Fire Resistant



Environment Friendly





Company Profile

Saudi Rockwool Factory (SRWF) is a subsidiary of Zamil Industrial Investment Company.

Since 1992, we are engaged in manufacturing of high Quality Rockwool insulation products catering the needs of building (Residential & Commercial) & industrial insulation market in the GCC region.

Our first manufacturing plant was established in 1992 with the facility of producing Gray Rockwool products and later Yellow Rockwool products were introduced by SRWF to cope with the latest technology of Cupola.

Currently SRWF has two manufacturing facilities in KSA (Central region) with the combined production capacity of 65,000 tons per annum. This makes us the Largest Manufacturer of Rockwool in the GCC region. SRWF has expertise in producing wide range of Rockwool insulation products like Panel/Slabs, blankets, Mattress with wire mesh, Pipe sections and loose wool.



SRWF Rockwool insulation products help construction sector fulfill their LEED, Sustainability requirement as well achieving energy efficiency in the buildings and industrial operations.

SRWF has a wide sales network spread across the GCC through strong Dealer networks as well as dedicated SRWF offices in Riyadh, Dammam, Jeddah, Dubai & Qatar to serve the demand of Rockwool insulation of their respective regions.



Quality Management

SRWF strive to provide reliable products, on-time delivery and dependable support to meet customer's highest expectations. We listen to our customer and convince them with our performance and innovation. We supply flawless products and services to ensure our customer's highest satisfaction.

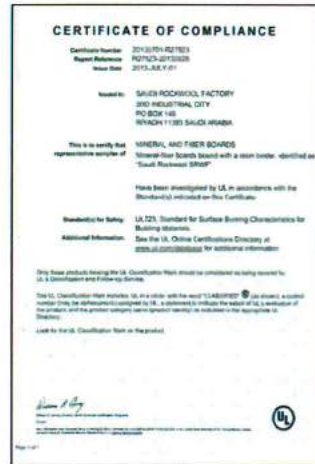
The highly equipped in-house laboratory is utilized to perform most of raw material and product testing. SRWF products are tested at regular intervals by local and International third party laboratories.

SRWF products are tested & certified for Thermal, Acoustic & Fire properties and possess various certificates like UL, CE, FM Approval, UL Green guard, DCL, SASO, Warrington (Euro Fire Classification Class A1), IMO and many more..

SRWF maintains ISO 9001 Quality system certification since 1998.

SRWF products are approved for use in buildings by Saudi Civil Defense, Dubai Civil Defense, Qatar Civil Defense and Bahrain Civil Defense.

Being an insulation manufacturer, we are committed to provide Eco-friendly insulation material to achieve Sustainability requirement of a building and help to protect & preserve the environment for our future generations.



Description

SRW Rockwool Insulation Products are manufactured melting natural rocks (Basalt) at 1600°C, making it naturally durable and stable. Rockwool fibers are Natural inorganic mineral fibers which exhibits life cycle similar to a rock.



The unique physical structure of SRWF Rockwool keeps its shape and toughness, and it is not affected by changes in temperature or humidity.

Rockwool is a highly efficient insulation and used in most of the known application requiring thermal, acoustic and fire insulation, thanks to its very low thermal conductivity, very high melting temperature and its open cell structure.

SRWF offer a complete range of product for Building Insulation applications to enhance the Energy efficiency of the building

SRWF Rockwool insulation are used under extreme conditions of temperature and it retains its insulation properties in both very low and very high (up to 750°C) temperature.

Its ability to withstand at elevated temperature makes it choice of insulation in industrial applications, like High temperature steam pipe lines, Turbine, furnace, Boilers, process equipment and pipe lines.

Features & Benefits

- Reduces Energy Consumption**
- Reduces Operating Cost**
- Increases System Efficiency**
- Excellent acoustical properties**
- Non Combustible**
- Chemically inert**
- Water repellent**
- Easy to handle and Install**
- Durable and sustainable**

Compliance

Standard	Description
ASTM C553	Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
ASTM C665	Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
ASTM C 612	Mineral Fiber Block and Board Thermal Insulation
ASTM C 592	Standard Specification for Mineral fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type)
BS-EN 13162	Thermal insulation products for buildings-Factory made mineral wool (MW) products Specification
ASTM C1104/C-1104M-00	Water Vapor sorption
ASTM E 96A	Water Vapor Permeability
UL 723 / ASTM E 84	Surface Burning Characteristics
BS EN 13501	Fire classification of construction products and building elements. Classification using test data from reaction to fire tests
ASTM E 136	Standard Test Method for behavior of material in vertical tube furnace @ 750 °C
BS 476-4	Fire tests on building materials and structures. Non-combustibility test for materials
BS 476-6	Fire tests on building materials and structures. Method of test for fire propagation for products
BS 476-7	Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products
ASTM C 423	Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

Performance

Thermal insulation and energy saving

Power / energy conservation is one of our civilization aspects for its positive role in conserving the environment and the national economy. Scientific research and studies proved that use of thermal insulation in buildings dramatically reduce the heat transfer through the walls and the roofs.

Today with the raise of energy and living costs, the most practical and cost effective way to make a house more energy efficient is by keeping it cool in summer and warm in winter and save money by lowering your electricity bills by insulating your homes.

Based on the above, rules and regulation were adopted in making thermal insulation in private or public buildings as mandatory. The thermal resistance of walls and ceiling are specified to suit the geographical region of most countries.

Professional studies proved that the thermal insulation cost in a building will not exceed 3-5% of the building cost. This amount however, will be paid back in 4-5 years as a result of the saving in the electricity bill.

Mean Temp °C	K- Value W/ m. k Density kg/m ³						
	35	40	50	70	100	120	140
- 4	0.030	0.030	0.029	0.029	0.028	0.027	0.028
10	0.034	0.034	0.033	0.032	0.032	0.031	0.031
24	0.038	0.037	0.036	0.034	0.033	0.033	0.034
35	0.040	0.039	0.037	0.036	0.036	0.035	0.034
50	0.043	0.042	0.039	0.038	0.037	0.036	0.036
100	0.051	0.050	0.049	0.047	0.044	0.043	0.042
150	-	0.061	0.057	0.055	0.052	0.051	0.048
200	0.083	0.079	0.063	0.060	0.060	0.061	0.060
250	0.120	0.110	0.085	0.073	0.068	0.066	0.065
300	0.132	0.120	0.095	0.090	0.080	0.071	0.070
350	-	-	0.120	0.106	0.097	0.094	0.091
400	-	-	-	0.122	0.112	0.108	0.102

Acoustic insulation

The Unique structure of the Rockwool makes it an ideal product as a sound absorber or acoustic insulation, with high sound absorption coefficient over a wide frequency range. The acoustical insulation can be made by installing Saudi Rockwool in wall partitions which provide significant improvement in their Sound Transmission Class (STC). High STC can be achieved by using Rockwool with different construction systems (Gypsum board, Cement boards, Concrete blocks, etc).

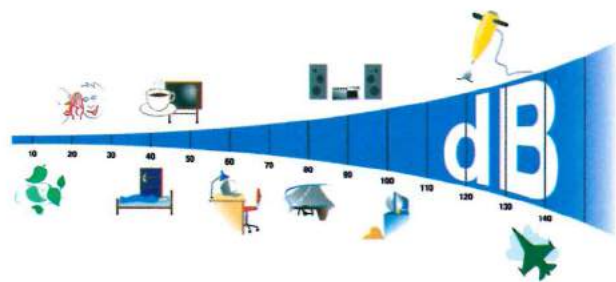
Due to its open cell structure, Saudi Rockwool has superior sound absorption properties. (NRC>0.95 For 2" Thick)



Saudi Rockwool used to decrease the reverberation time Sound Level dB of rooms (Class rooms / Studios / Theatre / Conference halls / Airport terminals) providing comfort and sound intelligibility to both sound source & receiver.

Sound Absorption of Saudi Rockwool (NRC):

Thickness mm	Density Kg/m ³	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	NRC
15	100	0.05	0.1	0.33	0.72	0.95	0.91	0.55
25	70	0.14	0.25	0.65	0.98	1.01	1.01	0.75
25	100	0.1	0.4	0.8	0.95	0.94	0.9	0.80
25	120	0.08	0.45	0.82	1.03	1.02	1.04	0.85
30	70	0.1	0.4	0.87	0.97	0.9	0.9	0.80
30	100	0.11	0.41	0.94	1.01	1.02	1.01	0.85
30	120	0.18	0.52	0.94	1.04	1.02	1.03	0.90
50	50	0.28	0.72	1.01	1.02	0.98	0.98	0.95
50	70	0.28	0.72	1.09	1.09	1.07	1.07	1.00
50	100	0.33	0.86	1.1	1.09	1.05	0.98	1.00
75	50	0.52	0.96	1.18	1.07	1.05	1.05	1.00
75	120	0.78	0.96	1.04	1.05	1.01	1.02	1.00



Non-Combustibility

SRWF Duct wrap and Duct Board insulation products are classified with Euroclass fire rating "A1" and are Non-combustible as per ASTM E 136. BS EN ISO 1182 & BS EN ISO 1716.



Surface Burning Characteristics

When tested in accordance with UL 723, ASTM E 84, "0" Spread of Flame Index

"0" Smoke developed Index.

Which makes it suitable of inside the building insulation application.

Performance

Moisture Absorption:

Less than 0.2% by volume when tested in accordance with ASTM C 1104, ASTM C 209 and EN 1609 & EN 12087. SRWF Rockwool insulations shows no sign of absorbing water by capillary attraction.



Compatible with Building materials

Saudi Rockwool is mainly consists of inorganic compounds such as silica, aluminum, calcium & ferrous, which are found in most of the construction materials (like cement, gypsum, blocks) thus it is more compatible with the building materials..

Light weight, easy to handle and install

Saudi Rockwool is produced with various densities ranging from 30 up to 200kg/m³, according to the required application, therefore the maximum density of Rockwool is equivalent to 10-15% of construction materials densities, and consequently Rockwool will cause no significant load to the building structure. Rockwool is highly flexible material and easy to install with required shape by using a simple cutter or carpenter saw.



Non Toxic

Saudi Rockwool products are certified by **UL GREENGUARD** for low volatile organic compounds. **GREENGUARD Gold** Certified products can be used to earn valuable credits for **LEED certification**. GREENGUARD products are broadly recognized and accepted by sustainable building programs and building codes around the world.

PH Neutrality

SRWF Rockwool insulation is chemically inert and compatible with all types Building material equipments and fittings. A typical extract of Rockwool insulation is netural or slightly alkanine with pH 7 to 9.

Biological

SRWF insulation Product are naturally inert & rot proof material that does not encourage or support the growth of fungi, moulds or bacteria or offer sustenance to insects, when tested as per ASTM C 1338.

Corrosion Resistant

The presence of sodium and silicate ions in the rockwool insulation has found to be inhabit to the external stress corrosion cracking caused by chloride & fluoride ions.

The Concentration of these ions was measured according to the test method of ASTM C 871, it was found that the leachable ions are within the acceptable safe zone as per ASTM C 795. Thus Saudi Rockwool do not cause or initiate or promote any kind of corrosion.



Sustainable & Environmental Friendly

Saudi Rockwool insulations are made from Natural Rock (Basalt), which has "**Zero Ozone Depletion Potential**" and "**Zero Global Warming Potential**".



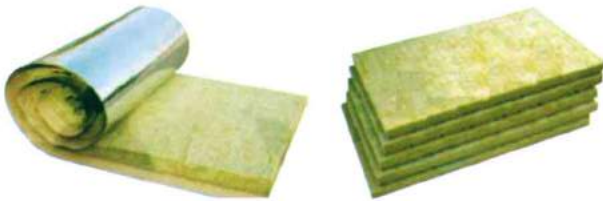
Saudi Rockwool Product types:

Saudi Rockwool products are produced by melting the pure basalt rock with the latest Technology of Cupola furnace and this will yield yellow wool products.

Panels



Blanket / Batt



Mattress



Pipe Section



Loose wool



Facing types

- Aluminium foil (FSK/FRK/O-Class/Perforated)
- BFG(Black/White)
- WOBFG
- Kraft Paper
- Bitumen Paper
- GI / SS Wire Mesh
- Metallized Aluminium foil

Application:

Commercial



Residential



Industrial



Pipe



SRW Rockwool Board /Panel

Saudi Rockwool panel are manufactured in accordance to ASTM C 612 as both rigid and semi rigid to suit wide range of compressive strength requirements as well suitable for operating temperature range up to 750°C. The Rockwool panels are suitable for thermal, acoustic & fire resistance requirement.



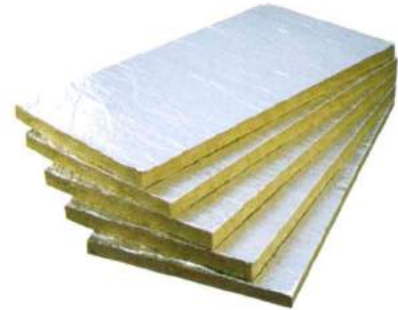
Standard Dimensions

Length (mm)	Width (mm)
1200	600

* Other dimensions are available upon special request.

Product Range

Density (Kg/m ³)	Thermal Conductivity		Thickness (mm)	Thermal Resistance Per Inch (W/m.K)
	(W/m.K)	Btu in / (h ft ² oF)		
35	0.038	0.26	25-200	0.67
40	0.037	0.26	25-220	0.69
50	0.036	0.25	25-220	0.71
60	0.035	0.24	25-220	0.73
70	0.034	0.24	25-220	0.75
80	0.034	0.24	25-200	0.75
90	0.034	0.24	25-200	0.75
100	0.033	0.23	25-200	0.77
110	0.033	0.23	25-180	0.77
120	0.033	0.23	25-160	0.77
130	0.033	0.23	25-150	0.77
140	0.034	0.24	25-140	0.75
150	0.034	0.24	25-130	0.75
160	0.034	0.24	25-120	0.75
170	0.035	0.24	25-110	0.73
180	0.035	0.24	25-110	0.73
190	0.035	0.24	25-100	0.73
200	0.035	0.24	25-100	0.73



Application

Buildings

- 1) External Facade
- 3) Curtain wall
- 4) Cavity Wall
- 5) Roof (Overdeck / Underdeck)
- 6) Floor Insulation (Acoustic / Thermal)
- 6) Kitchen Exhaust Duct
- 7) Fire Barrier / Joint Filler / Fire Wall Penetration
- 8) Acoustic Insulation of Mechanical Rooms / Equipment's.
- 9) Other Thermal, Fire & Acoustic Applications.

Industrial

- 1) Tanks
- 2) Equipment
- 3) Flange Boxes
- 4) Fire Proofing of Steel Structure / Cable trays
- 5) Acoustic Insulation of equipment's at high temperature
- 6) Chimneys

Facing types

Aluminium foil (FSK/FRK/O-Class/Perforated)
 BFG(Black/White)
 WOBFG
 Kraft Paper
 Bitumen Paper
 Metallized Aluminium foil



SRW Rockwool Blanket /Felt

Saudi Rockwool LD Blanket or felt is manufactured in accordance with ASTM C-665 and ASTM C-553 standard. These blanket are flexible light in weight faced with Aluminum foil or Kraft paper to act as a vapor barrier.

Standard Dimensions

Length (mm)	Width (mm)
5000 - 10000	1200

* Other dimensions are available upon special request.
 * Please contact us for length details.

Product Range

Density (Kg/m ³)	Thermal Conductivity		Thickness (mm)	Thermal Resitance Per Inch (m ² K/W)
	(W/mK)	Btu in / (h ft ² °F)		
35	0.038	0.26	25-100	0.67
40	0.037	0.26	25-100	0.69
50	0.036	0.25	25-100	0.71
60	0.035	0.24	25-100	0.73
70	0.034	0.24	25-100	0.75

Facing types

- Aluminium foil (FSK/FRK/O-Class/Perforated)

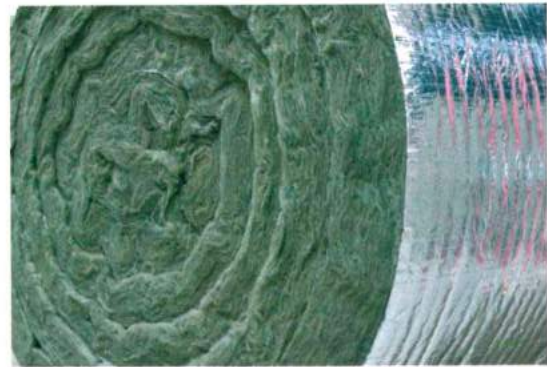
NRC –Noise Reduction Coefficient

The **Noise Reduction Coefficient (NRC)** is a scalar representation of the amount of sound energy absorbed upon striking a particular surface.

NRC of 0 indicates = perfect reflection

NRC of 1 indicates = perfect absorption

Sound Transmission Class (STC) is an integer rating of how well a building partition attenuates airborne sound.



Application

Buildings

- 1) Pre Engineered Buildings
- 3) Built-up Roofs
- 4) Acoustical Insulation Equipment's.
- 5) Other Thermal & Acoustic Applications

Density (Kg/m ³)	Thickness (mm)	NOISE REDUCTION COEFFICIENT						NRC
		Octave Frequencies (Hz)						
		125	250	500	1000	2000	4000	
40	75	0.21	0.92	1.24	1.15	1.07	1.1	1.1
50	50	0.28	0.72	1.01	1.02	0.98	0.98	0.95
	75	0.52	0.96	1.18	1.07	1.05	1.05	1
70	25	0.14	0.25	0.65	0.98	1.01	1.01	0.75
	30	0.1	0.4	0.87	0.97	0.9	0.9	0.8
	50	0.28	0.72	1.09	1.09	1.07	1.07	1



SRW Rockwool Batt

Saudi Rockwool Batt Insulation is manufactured in accordance with ASTM C-665, ASTM C-553 and ASTM C612. These Batt are flexible / semi rigid light in weight faced / unfaced Rockwool Insulation

Standard Dimensions

Length (mm)	Width (mm)
1200	600 - 1200

* Other dimensions are available upon special request.

Product Range

Density (Kg/m ³)	Thermal Conductivity		Thickness (mm)	Thermal Resistance Per Inch (W/m ² K)
	(W/m.K)	Btu in / (h ft ² °F)		
35	0.038	0.26	25-200	0.67
40	0.037	0.26	25-220	0.69
50	0.036	0.25	25-220	0.71
60	0.035	0.24	25-220	0.73
70	0.034	0.24	25-220	0.75
80	0.034	0.24	25-200	0.75
90	0.034	0.24	25-200	0.75
100	0.033	0.23	25-200	0.77
110	0.033	0.23	25-180	0.77
120	0.033	0.23	25-160	0.77
130	0.033	0.23	25-150	0.77
140	0.034	0.24	25-140	0.75
150	0.034	0.24	25-130	0.75
160	0.034	0.24	25-120	0.75

Facing types

None

Aluminium foil (FSK/FRK/O-Class/Perforated)



Application

Buildings

- 1) Built-up Roofs
- 3) Light Frame Steel Structure roofs / Walls
- 4) Dry Wall Partitions
- 5) Acoustical Insulation of Mechanical Rooms / Equipment's.
- 8) Other Thermal, Fire & Acoustic Applications.

Industrial

- 1) Tanks
- 2) Equipment
- 3) Furnace, Turbine, Blower, Reformers, Boilers
- 4) Fire Proofing of Steel Structure / Cable trays



SRW Mattress / Wiremesh Blanket

Saudi Rockwool Mattress are manufactured in accordance with ASTM C 592, BS 3958 Part-3. Saudi Rockwool mattress backed with hexagonal GI or SS wire mesh (one or both sides) to support Rockwool fibers during and after application.

Saudi Rockwool Mattress are bonded lightly with the help of thermosetting resin. Low resin content with Low VOC content makes it environment friendly and suitable for high temperature applications up to 750 °C, in industrial application and flexible to apply on flat, uneven surfaces as well pipes with large diameters.



Standard Dimensions

Length (mm)	Width (mm)
4000	1200

* Other dimensions are available upon special request.

Product Range

Density (Kg/m ³)	Thermal Conductivity		Thickness (m.m)	Thermal Range Per inch (W/m.k)
	(W/m.k)	Btu in / (h ft °F)		
70	0.034	0.24	25-220	0.75
80	0.033	0.23	25-200	0.77
90	0.033	0.23	25-200	0.77
100	0.033	0.23	25-200	0.77
110	0.033	0.23	25-180	0.77
120	0.033	0.23	25-160	0.77
130	0.033	0.23	25-150	0.77
140	0.034	0.24	25-140	0.75
150	0.034	0.24	25-130	0.75

Facing

G.I Wire Mesh
S.S Wire Mesh

Applications

Buildings

- 1) Kitchen Exhaust Duct
- 3) Fire Proofing
- 4) Fire Stop / Fire Barrier
- 5) Acoustical Insulation of Mechanical Rooms / Equipment's.
- 8) Other Thermal, Fire & Acoustic Applications.

Industrial

- 1) Tanks
- 2) Equipment
- 3) Furnace, Turbine, Blower's Reformers, Boilers
- 4) Pipe Lines
- 5) Fire Proofing of Steel Structure / Cable trays
- 5) Acoustic Insulation of equipment's at high temperature



Cavity Wall System

A void/Gap formed by two walls either of the following components i.e. Precast panels, Concrete Block wall and Concrete walls.

SRWF Cavity Panels

Rigid Non combustible Rockwool Board Insulation with excellent thermal and acoustic properties suitable for Cavity Wall insulation.

SRW Cavity Panel are manufactured in conformance to ASTM C 612, BS 3958 Part -5, and other various international standards as well to BS EN 13162 : 2012 "Specification for factory-made mineral wool products".

SRWF Cavity Panels are available in wide range to serve the purpose of thermal requirement for external wall



Density

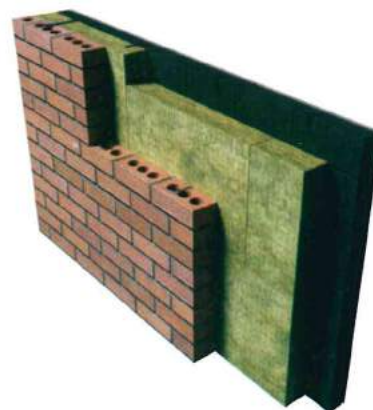
35 – 128 Kg/m³

Thickness

50 – 200 mm

Facing

None
Aluminum Foil (FSK/FRK)
BFG



Thermal Properties

			R-Value												U-Value											
Density	Thermal Conductivity		Thickness (mm)									Thickness (inch)			Thickness (mm)						Thickness (inch)					
	(kg/m ³)	(W/m.K)	(Btu in / (h ft ² °F))	50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5
35	0.038	0.26	1.32	1.58	1.84	2.11	2.63	3.16	3.95	8	11	15	19	23	0.76	0.63	0.54	0.48	0.38	0.32	0.25	0.13	0.09	0.07	0.05	0.04
40	0.037	0.26	1.35	1.62	1.89	2.16	2.70	3.24	4.05	8	12	16	20	24	0.74	0.62	0.53	0.46	0.37	0.31	0.25	0.12	0.08	0.06	0.05	0.04
50	0.036	0.25	1.39	1.67	1.94	2.22	2.78	3.33	4.17	8	12	16	20	24	0.72	0.60	0.51	0.45	0.36	0.30	0.24	0.12	0.08	0.06	0.05	0.04
70	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
100	0.033	0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
Units			m ² .K/W									(h ft ² °F)/ Btu			W/m ² .K						Btu/(h ft ² °F)					

Ventilated Façade / Stone Cladding

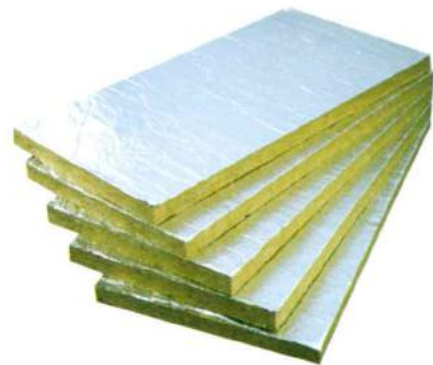
A ventilated facade is a cladding system with an air cushion or cavity immediately behind which provides with a drainage, ventilation and thermal solution. It is usually an external cladding system mechanically fastened or bonded to a framework behind fixed to the external wall of a new or existing building..



SRW Thermal Board

Rigid Non combustible, water repellent grade Rockwool Rigid Board Insulation for external ventilated facade system. Rockwool insulation is dimensionally stable and best suitable for external envelope system in comparison to organic foam insulation.

SRW Thermal Board are manufactured in conformance to ASTM C 612, BS 3958 Part-5, and other various international standards and comply to the requirement of BS EN 13162 : 2012



Density

50 – 160 Kg/m³

Thickness

50 – 200mm

Facing

None
Aluminum Foil (FSK/FRK)
BFG



Thermal Properties

			R-Value								U-Value												
Density (kg/m ³)	Thermal Conductivity		Thickness (mm)						Thickness (inch)		Thickness (mm)						Thickness (inch)						
	(W/m.K)	Btu.in/(h.ft ² .°F)	50	60	70	80	100	120	150	2	3	50	60	70	80	100	120	150	2	3	4	5	6
50	0.036	0.25	1.39	1.67	1.94	2.22	2.78	3.33	4.17	8	12	0.72	0.60	0.51	0.45	0.36	0.30	0.24	0.12	0.08	0.06	0.05	0.04
70	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
100-130	0.033	0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
140-160	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
Units			m ² .K/W						(h.ft ² .°F)/Btu		W/m ² .K						Btu/(h.ft ² .°F)						

Curtain Wall

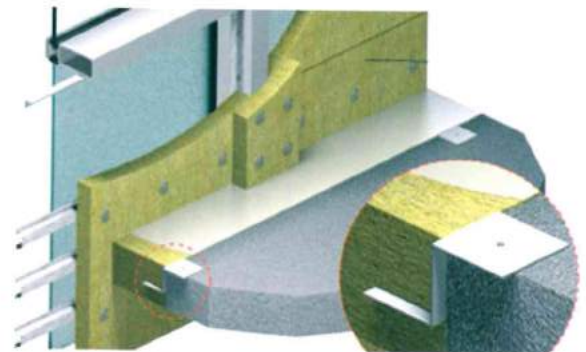
A curtain wall system is an outer covering of a building in which the outer walls are non-structural, keep the weather out and the occupants in.

SRW Thermal & Fire Board

Rigid / Semi Rigid Non combustible Rockwool Board Insulation with excellent thermal and acoustic properties suitable for Curtain Wall systems.

SRW Thermal & Fire Board are used in combination at curtain wall system, Thermal Board as thermal barrier to prevent heat gain to the building and fire board in the Gap between the slab and the curtain wall.

SRW Thermal Boards & Fire Boards are manufactured in conformance to ASTM C 612, BS 3958 Part -5, and other various international standards as well comply to the requirement to BS EN 13162 : 2012 "Specification for factory-made mineral wool products". And achieves Euroclass fire classification "A1".



Density

Thermal Board :- 50 - 128 Kg/m³
 Fire Board :- 64 - 200 Kg/m³

Thickness

50 - 200mm

Facing

Aluminium foil (FSK/FRK/O-Class)
 None

Thermal Properties

Density (Kg/m ³)	Thermal Conductivity (W/m.K) Btuin / (h ft ² °F)		R-Value												U-Value											
			Thickness (mm)						Thickness (inch)						Thickness (mm)						Thickness (inch)					
			50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5	6
50	0.036	0.25	1.39	1.67	1.94	2.22	2.78	3.33	4.17	8	12	16	20	24	0.72	0.60	0.51	0.45	0.36	0.30	0.24	0.12	0.08	0.06	0.05	0.04
70	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
100-128	0.033	0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
Units			m ² .K/W						(h ft ² °F)/Btu						W/m ² .K						Btu/(h ft ² °F)					

ETICS / EIFS

Modern, high-quality external thermal insulation composite system (ETICS/EIFS).

SRW Thermal Board

High Density Rigid Non combustible Rock wool Board Insulation with excellent thermal and acoustic properties suitable for ETICS / EIFS systems.

ETICS / EIFS systems create thermal envelope external to the building without any thermal bridges. Most advanced external wall insulation systems prevent building from exposure to weather conditions, resulting in increased building life.

SRW Thermal Board are manufactured in conformance to ASTM C 612, BS 3958 Part - 5, and other various international standards as well as comply to the requirement to BS EN 13162 : 2012 "Specification for factory-made mineral wool products".

Rockwool High Density Thermal Board has high compressive strength & high impact sound absorption capacity.



Density

Min. 100 - 200kg/m³

Thickness

50 - 150 mm

Facing

None

Thermal Properties

Density	Thermal Conductivity		R-Value												U-Value											
			Thickness (mm)						Thickness (inch)						Thickness (mm)						Thickness (inch)					
			50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5	6
(kg/m ³)	(W/m.K)	Btu in/(h-ft ² -°F)	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
100 - 130	0.033	0.23	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
140 - 160	0.034	0.24	1.43	1.71	2.00	2.29	2.86	3.43	4.29	8	12	16	21	25	0.70	0.58	0.50	0.44	0.35	0.29	0.23	0.12	0.08	0.06	0.05	0.04
170 - 200	0.035	0.24	m ² .K/W						(h ft ² °F)/ Btu						W/m ² .K						Btu/(h ft ² °F)					

Partition Wall / Dry Wall System

Partition wall system is a non load bearing separation wall which separates two interior spaces / rooms.

SRWF Acoustic Batt/Panel

Flexible / Semi Rigid / Rigid Non combustible Rockwool Insulation with excellent acoustic and Fire properties suitable for Partition Wall insulation.

SRW Acoustic Batt/Panel are manufactured in conformance to ASTM C 665, ASTM C 553 or ASTM C 612 and other various international standards.

SRWF Acoustic Batt/Panel are suitable for Acoustic Insulation for Home Theatres, Conference Hall and other Acoustic Application.



Density

35 – 100K g/m³

Thickness

50 – 150mm

Facing

None
BFG
WOBFG



NRC –Noise Reduction Coefficient

The **Noise Reduction Coefficient (NRC)** is a scalar representation of the amount of sound energy absorbed upon striking a particular surface.

NRC of 0 indicates = perfect reflection
NRC of 1 indicates = perfect absorption

Sound Transmission Class (STC) is an integer rating of how well a building partition attenuates airborne sound.

Density (kg/m ³)	Thickness (mm)	NOISE REDUCTION COEFFICIENT						NRC
		Octave Frequencies (Hz)						
		125	250	500	1000	2000	4000	
40	75	0.21	0.92	1.24	1.15	1.07	1.1	1.1
50	50	0.28	0.72	1.01	1.02	0.98	0.98	0.95
	75	0.52	0.96	1.18	1.07	1.05	1.05	1
70	25	0.14	0.25	0.65	0.98	1.01	1.01	0.75
	30	0.1	0.4	0.87	0.97	0.9	0.9	0.8
	50	0.28	0.72	1.09	1.09	1.07	1.07	1
100	15	0.05	0.1	0.33	0.72	0.95	0.91	0.55
	25	0.1	0.4	0.8	0.95	0.94	0.9	0.8
	30	0.11	0.41	0.94	1.01	1.02	1.01	0.85
	50	0.33	0.86	1.1	1.09	1.05	0.98	1

Thermal Properties

Density (kg/m ³)	Thermal Conductivity (W/m.K) Btuin/(h.ft ² .°F)		R-Value												U-Value											
			Thickness (mm)									Thickness (inch)			Thickness (mm)						Thickness (inch)					
			50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5	6
35	0.038	0.26	1.32	1.58	1.84	2.11	2.63	3.16	3.95	8	11	15	19	23	0.76	0.63	0.54	0.48	0.38	0.32	0.25	0.13	0.09	0.07	0.05	0.04
40	0.037	0.26	1.35	1.62	1.89	2.16	2.70	3.24	4.05	8	12	16	20	24	0.74	0.62	0.53	0.46	0.37	0.31	0.25	0.12	0.08	0.06	0.05	0.04
50	0.036	0.25	1.39	1.67	1.94	2.22	2.78	3.33	4.17	8	12	16	20	24	0.72	0.60	0.51	0.45	0.36	0.30	0.24	0.12	0.08	0.06	0.05	0.04
70	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
100	0.033	0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
Units			m ² .K/W									(h ft ² .°F)/ Btu			W/m ² .K						Btu/(h ft ² .°F)					

Wall Penetration / Firestop

Openings through the walls for Pipes, fittings, cable trays to pass through are called wall penetration joints and fire propagation through these joints is of major concern.

SRWF Fire Board

Non combustible, water repellent grade Rockwool board Insulation. The product is suitable to achieve up to 4 hrs of fire rating when installed with in the cavity formed between wall and the components passing through the wall respective to thickness of the wall. The product is suitable to be used with various type of fire rated sealants.

SRW Thermal Board are manufactured in conformance to ASTM C 612, BS 3958 Part-5, and other various international standards and comply to the requirement of BS EN 13162 : 2012.

Density

64 - 200 Kg/m³

Thickness

50 -150 mm

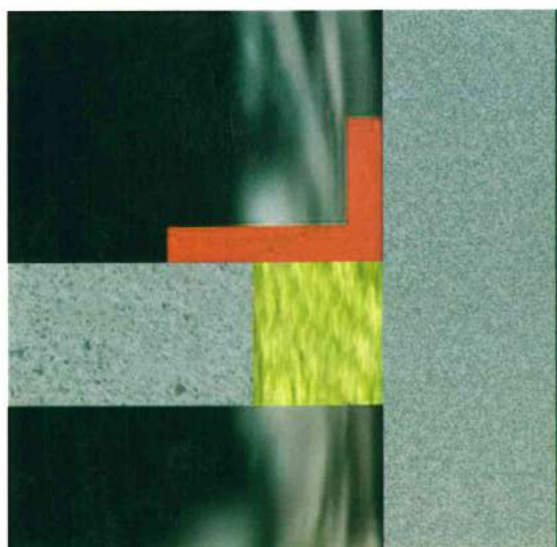
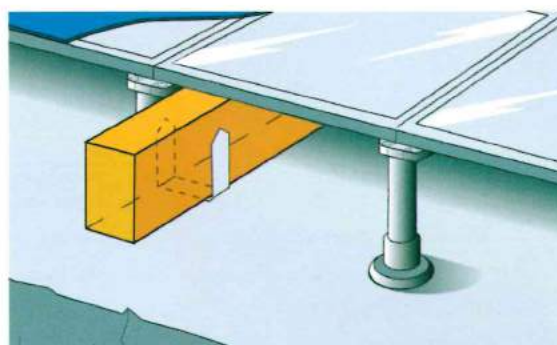
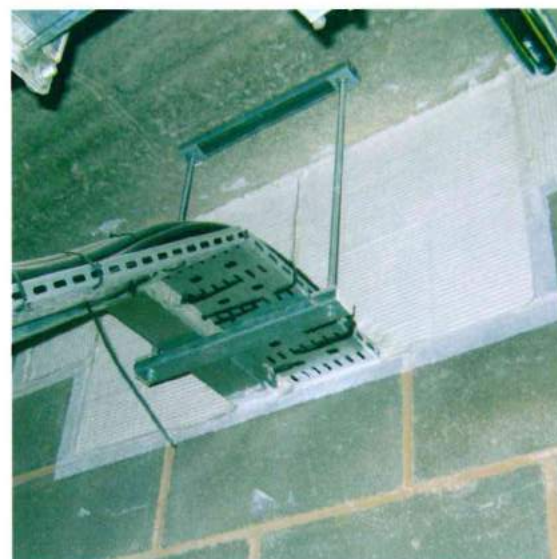
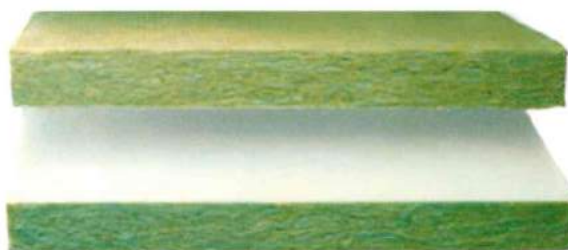
Facing

None
Intumescent Fire Proof Coating

Fire Rating System Integrity

Thickness (mm)	Filled with Rockwool
50	1 hr
100	2 hr
150	3 hr
200	4 hr

*Density :- 100 Kg/m³ and also depend on the wall system



Linear Gap Sealing System

A gap formed between the top of the wall and the bottom of the roof/ceiling slabs are named as linear Gap.

SRW Rockwool Gap filler Board

SRW fire board products are recommended to prevent the passage fire & smoke to transfer from one compartment to other through the linear Gap.

SRW Gap filler board are Semi Rigid / Rigid Non-combustible Rockwool Insulation with compressibility suitable for application with in Linear Gap, and manufactured in conformance to ASTM C 612 and other international standards.

SRWF Rockwool Panel / Board has the ability to be compressed and filed within the gap to prevent transfer of Fire and smoke through the gap. It also acts as a barrier for sound.

Density

64 - 160 Kg/m³

Thickness

25 - 100 mm

Facing

None

Fire Rating System Integrity

Thickness (mm)	Uncoated Rockwool
50	1 hr
100	2 hr
150	3 hr
200	4 hr

*Thickness on insulation shall be considered in the direction of Fire



Soffit

Underside of an architectural structure such as an arch, a balcony, or overhanging eaves

SRW Acoustic Fire Board

SRW Rock Soffit Board a Rigid Non combustible Rockwool Board Insulation for Concrete Soffit & similar insulation of Buildings.

SRW Rock Soffit Board are manufactured in conformance with ASTM C 612 , BS en 3958 Part - 5 and other various international standards.

Density

Min.70 - 128 Kg/m³

Thickness

50 – 150 mm

Facing

- None
- BFG (Black/White)
- WOBFG
- Aluminum Foil (FSK/FRK)



NRC –Noise Reduction Coefficient

The **Noise Reduction Coefficient (NRC)** is a scalar representation of the amount of **sound** energy absorbed upon striking a particular surface.

- NRC** of 0 indicates = perfect reflection
- NRC** of 1 indicates = perfect absorption

Sound Transmission Class (STC) is an integer rating of how well a building partition attenuates airborne **sound**.

Density	Thickness	NOISE REDUCTION COEFFICIENT						NRC
		Octave Frequencies (Hz)						
(Kg/m ³)	(mm)	125	250	500	1000	2000	4000	
70	25	0.14	0.25	0.65	0.98	1.01	1.01	0.75
	30	0.1	0.4	0.87	0.97	0.9	0.9	0.8
	50	0.28	0.72	1.09	1.09	1.07	1.07	1
	15	0.05	0.1	0.33	0.72	0.95	0.91	0.55
100	25	0.1	0.4	0.8	0.95	0.94	0.9	0.8
	30	0.11	0.41	0.94	1.01	1.02	1.01	0.85
	50	0.33	0.86	1.1	1.09	1.05	0.98	1

Thermal Properties

Density	Thermal Conductivity	R-Value										U-Value													
		Thickness (mm)					Thickness (inch)					Thickness (mm)					Thickness (inch)								
(kg/m ³)	(W/m.K) / (Btu-in/(h.ft ² .°F))	50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5	6
70	0.034 / 0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
100 - 128	0.033 / 0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
Units		m ² .K/W					(h ft ² °F)/Btu					W/m ² .K					Btu/(h ft ² °F)								

Concrete roof

A roof is part of a building envelope. It is the covering on the uppermost part of a building or shelter which provides protection from weather, notably rain or snow, but also heat, wind and sunlight.

SRW Rockwool HD Roof Board

SRW HD roofing board are suitable to insulate the roof, the high density roof board are designed to have high compressive strength which complies the requirement of ASTM C 726.

SRW HD Roof Boards are manufactured in accordance with ASTM C 612, BS 3958 Part - 5 and other international standards and comply to the requirement of BS EN 13162 : 2012.



Density

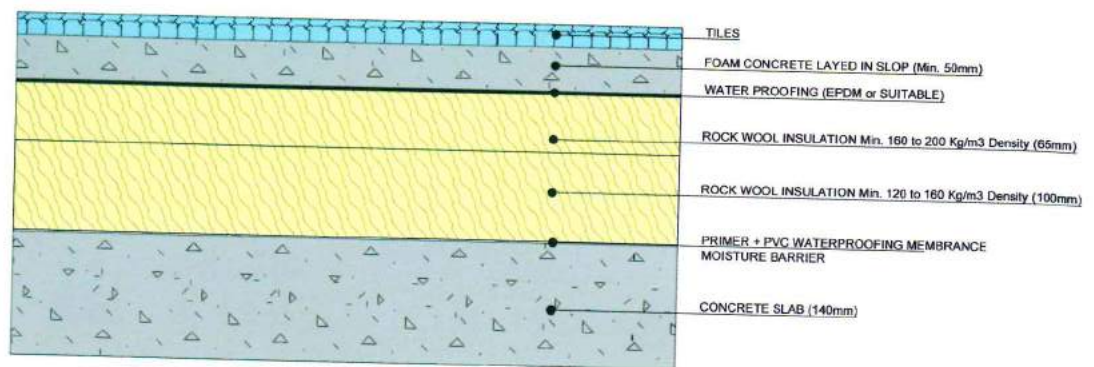
Min. 120 – 200 Kg/m³

Thickness

50-150 mm

Facing

None
Bitumen
PE



Thermal Properties

Density (Kg/m ³)	Thermal Conductivity (W/m.K) Btu.in / (h.ft ² .°F)		R-Value												U-Value											
			Thickness (mm)						Thickness (inch)						Thickness (mm)					Thickness (inch)						
			50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5	6
120-130	0.033	0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
140-160	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
170-200	0.035	0.24	1.43	1.71	2.00	2.29	2.86	3.43	4.29	8	12	16	21	25	0.70	0.58	0.50	0.44	0.35	0.29	0.23	0.12	0.08	0.06	0.05	0.04
Units			m ² .K/W						(h.ft ² .°F)/ Btu						W/m ² .K					Btu/(h.ft ² .°F)						

Steel Structure / Built-Up Roof system

A roofing system constructed with the help of steel structural framing member like trusses, purlins & metal sheets. They are used in almost every industrial and airport terminal building and can also be used in residential and educational buildings. They make for an extremely light, strong, economical, and waterproof roof. Commonly used metals are mild steel, aluminum, and stainless steel. Steel roofing sheets need to be protected from corrosion, and are usually galvanized or coated with other protective layers. The sheets are quite thin, as much as 0.5mm in the case of steel, and 1mm in aluminum. They therefore require insulation and other layers to be incorporated.



SRW Flexible Blanket / Batt / Panels

Flexible / Semi Rigid / Rigid Non combustible Rockwool Insulation with excellent acoustic & Fire properties suitable for Roofing systems single skin / Double Skin, Standing seam. The products are available in wide range of thickness and density with type of facings or without facing. Depends on type of applications products are customized to provide compressibility or rigidity as desired.

It's Stable thermal performance irrespective of climate driven mean temperature, thermal performance remain stable and unmatched compare to other foam insulations..

SRW Rockwool Blankets / Batt Insulation are manufactured in conformance to ASTM C 665, ASTM C 553 or ASTM C 612 and other various international standards.

Density

30 – 160 Kg/m³

Thickness

50 – 200 mm

Facing

Aluminium Foil / None

Thermal Properties

NRC – Noise Reduction Coefficient

The **Noise Reduction Coefficient (NRC)** is a scalar representation of the amount of **sound** energy absorbed upon striking a particular surface.

NRC of 0 indicates = perfect reflection

NRC of 1 indicates = perfect absorption

Sound Transmission Class (STC) is an integer rating of how well a building partition attenuates airborne **sound**.

Density (Kg/m ³)	Thickness (mm)	NOISE REDUCTION COEFFICIENT						NRC
		Octave Frequencies (Hz)						
		125	250	500	1000	2000	4000	
40	75	0.21	0.92	1.24	1.15	1.07	1.1	1.1
	50	0.28	0.72	1.01	1.02	0.98	0.98	0.95
50	75	0.52	0.96	1.18	1.07	1.05	1.05	1
	25	0.14	0.25	0.65	0.98	1.01	1.01	0.75
	30	0.1	0.4	0.87	0.97	0.9	0.9	0.8
70	50	0.28	0.72	1.09	1.09	1.07	1.07	1
	15	0.05	0.1	0.33	0.72	0.95	0.91	0.55
100	25	0.1	0.4	0.8	0.95	0.94	0.9	0.8
	30	0.11	0.41	0.94	1.01	1.02	1.01	0.85
	50	0.33	0.86	1.1	1.09	1.05	0.98	1

Density (kg/m ³)	Thermal Conductivity (W/m.K) R _{si} in / (h ft ² °F)		R-Value												U-Value											
			Thickness (mm)						Thickness (inch)						Thickness (mm)						Thickness (inch)					
			50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5	6
40	0.037	0.26	1.35	1.62	1.89	2.16	2.70	3.24	4.05	8	12	16	20	24	0.74	0.62	0.53	0.46	0.37	0.31	0.25	0.12	0.08	0.06	0.05	0.04
50	0.036	0.25	1.39	1.67	1.94	2.22	2.78	3.33	4.17	8	12	16	20	24	0.72	0.60	0.51	0.45	0.36	0.30	0.24	0.12	0.08	0.06	0.05	0.04
70	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
100-130	0.033	0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04
140-160	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04
Units			m ² .K/W						(h ft ² °F)/Btu						W/m .K						Btu/(h ft ² °F)					

Sandwich Panels

A **sandwich panel** is a prefabricated structure made of three layers, low density core inserted in between two relatively thin skin layers. This **sandwich** setup allows to achieve excellent mechanical performance at minimal weight. Sandwich panels are used in applications where high structural rigidity and low weight are required.



sandwich panels are used in facades, roofs, partition walls and ceilings. The most typical applications include industrial and commercial buildings, sports halls, warehouses and power plants. The panels are also suitable for food industry construction

Sandwich panels with Rockwool Insulation core are a combination of thermal as well fire resistance which also perform as acoustic barrier. the acoustic performance of the sandwich panel enhanced with perforated skin sheet.



SRW Sandwich Board

Rockwool Panels for Sandwich Panels applications are manufactured with utmost care to maintain the fiber orientations, while applying between the two skins sheets the orientation of the fiber shall remain perpendicular to give max. possible compressive strength.



SRW Rockwool Sandwich Board are manufactured in conformance to ASTM C 612, BS 3958 Part -5, and other various international standards as well comply to the requirement to BS EN 13162 : 2012 "Specification for factory-made mineral wool products".

Facing

None

Thickness

30 - 200 mm

Density

100 - 200 Kg/m³

Thermal Properties

			R-Value												U-Value														
Density (kg/m ³)	Thermal Conductivity		Thickness (mm)									Thickness (inch)						Thickness (mm)						Thickness (inch)					
	(W/m.K)	(Btu in / (h ft ² °F))	50	60	70	80	100	120	150	2	3	4	5	6	50	60	70	80	100	120	150	2	3	4	5	6			
100-130	0.033	0.23	1.52	1.82	2.12	2.42	3.03	3.64	4.55	9	13	17	22	26	0.66	0.55	0.47	0.41	0.33	0.28	0.22	0.11	0.08	0.06	0.05	0.04			
140-160	0.034	0.24	1.47	1.76	2.06	2.35	2.94	3.53	4.41	8	13	17	21	25	0.68	0.57	0.49	0.43	0.34	0.28	0.23	0.12	0.08	0.06	0.05	0.04			
170-200	0.035	0.24	1.43	1.71	2.00	2.29	2.86	3.43	4.29	8	12	16	21	25	0.70	0.58	0.50	0.44	0.35	0.29	0.23	0.12	0.08	0.06	0.05	0.04			
Units			m ² .K/W									(h ft ² °F)/ Btu						W/m ² .K						Btu/(h ft ² °F)					

FIRE DOOR

A fire door is a door with a fire-resistance rating (sometimes referred to as a fire protection rating for closures) used as part of a passive fire protection system to reduce the spread of fire and smoke. Both the door leaf (the swinging panel of the door) and the door frame are required to meet the guidelines of the Fire Rated testing methods to achieve the rated fire rating.

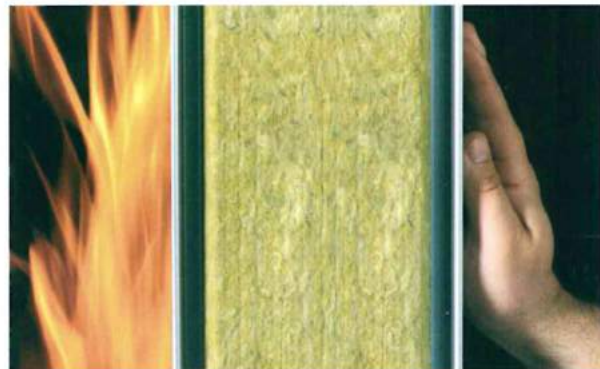
Rockwool plays a major role creating non-combustible on non-conductive core between outer and inner skins of the door leaf and the door frame. Rockwool high operating as well high melting temperature makes it the choice of OEM's engaged in the manufacturing of Fire rated doors.



SRWF Fire Board

High density Rockwool insulation fire boards are non-combustible to ASTM E 136, and as per BS En 1182, has Euroclass fire classification "A1". Class "O" fire rating in accordance with BS 476 Part-7.

SRW Rockwool Sandwich Board are manufactured in conformance to ASTM C 612, BS 3958 Part -5, and other various international standards as well comply to the requirement to BS EN 13162 : 2012 "Specification for factory-made mineral wool products".



Density

64 - 200 Kg/m³

Thickness

40 - 150 mm

Facing

None



Hourly Ratings

Steel fire doors are "rated" by time (in minutes or hours) that a door can withstand exposure to fire test conditions. Basically Fire door assemblies have 5 ratings:

20 minute

45 minute

1 hour

1-1/2 hour

3 hour

The rating of a fire door assembly is based on the lowest rated component.

Ceiling Tiles

Ceiling tiles are structure hanging just below the roof that attach directly to an existing drywall or plaster ceiling. Ceiling tiles offer an affordable way to add beauty. If ceiling tiles are acoustically absorbent and non-combustible can help maintain internal acoustic and prevent propagation of fire in case of fire.

SRW Ceiling Insulation

SRW Rockwool ceiling Insulation are available in Semi Rigid & Rigid forms with conformity to ASTM C 612, available with BFG / WOBFG facings for acoustical requirement on one side and Aluminum Foil facing on other side. SRW Rockwool ceiling Insulation have excellent acoustic properties along with high melting temperature which makes ceilingacoustical and fire proof and acts as passive fire protector.

Density

35 – 100Kg/m³

Thickness

25 - 100mm

Facing

Aluminum
BFG
WOBFG

NRC –Noise Reduction Coefficient

The **Noise Reduction Coefficient (NRC)** is a scalar representation of the amount of sound energy absorbed upon striking a particular surface.

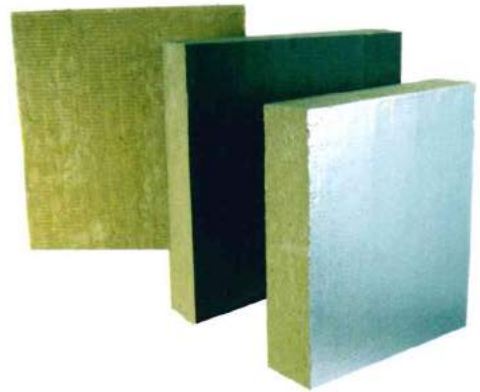
NRC of 0 indicates = perfect reflection

NRC of 1 indicates = perfect absorption

Sound Transmission Class (STC) is an integer rating of how well a building partition attenuates airborne sound.

Thermal Properties

Density (kg/m ³)	Thermal Conductivity (W/m.K) Btu in / (h ft ² °F)		R-Value						U-Value									
			Thickness (mm)			Thickness (inch)			Thickness (mm)			Thickness (inch)						
			50	60	70	80	100	2	3	4	50	60	70	80	100	2	3	4
35	0.038	0.26	1.32	1.58	1.84	2.11	2.63	8	11	15	0.76	0.63	0.54	0.48	0.38	0.13	0.09	0.07
40	0.037	0.26	1.35	1.62	1.89	2.16	2.70	8	12	16	0.74	0.62	0.53	0.46	0.37	0.12	0.08	0.06
50	0.036	0.25	1.39	1.67	1.94	2.22	2.78	8	12	16	0.72	0.60	0.51	0.45	0.36	0.12	0.08	0.06
70	0.034	0.24	1.47	1.76	2.06	2.35	2.94	8	13	17	0.68	0.57	0.49	0.43	0.34	0.12	0.08	0.06
100	0.033	0.23	1.52	1.82	2.12	2.42	3.03	9	13	17	0.66	0.55	0.47	0.41	0.33	0.11	0.08	0.06
Units		m ² .K/W						(h ft ² °F)/Btu			W/m ² .K			Btu/(h ft ² °F)				



Density (kg/m ³)	Thickness (mm)	NOISE REDUCTION COEFFICIENT						NRC
		Octave Frequencies (Hz)						
		125	250	500	1000	2000	4000	
40	75	0.21	0.92	1.24	1.15	1.07	1.1	1.1
	50	0.28	0.72	1.01	1.02	0.98	0.98	0.95
50	75	0.52	0.96	1.18	1.07	1.05	1.05	1
	25	0.14	0.25	0.65	0.98	1.01	1.01	0.75
70	30	0.1	0.4	0.87	0.97	0.9	0.9	0.8
	50	0.28	0.72	1.09	1.09	1.07	1.07	1
100	15	0.05	0.1	0.33	0.72	0.95	0.91	0.55
	25	0.1	0.4	0.8	0.95	0.94	0.9	0.8
	30	0.11	0.41	0.94	1.01	1.02	1.01	0.85
	50	0.33	0.86	1.1	1.09	1.05	0.98	1

Insulated Red Bricks/Blocks

Bricks with insulation are referred as insulated Bricks or Blocks. Insulation bricks are mainly used for insulation in a building to reduce heat loss.

SRW Rockwool Panels

SRW Rockwool Panel manufactured in conformity to ASTM C 612 are customized to the size desired by Brick Manufacturers. We have a wide range of density and thickness suitable to their requirements.



Density

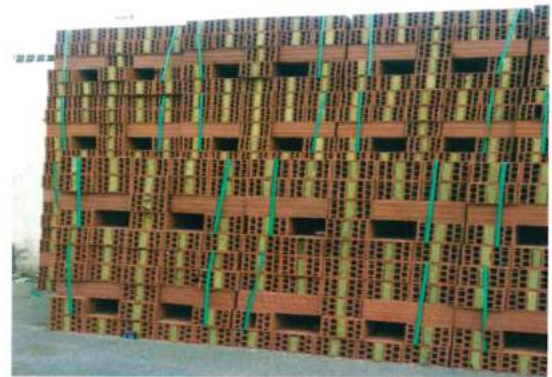
35 – 100Kg/m³

Thickness

50 – 100mm

Facing

None



NRC –Noise Reduction Coefficient

The **Noise Reduction Coefficient (NRC)** is a scalar representation of the amount of sound energy absorbed upon striking a particular surface.

NRC of 0 indicates = perfect reflection

NRC of 1 indicates = perfect absorption

Sound Transmission Class (STC) is an integer rating of how well a building partition attenuates airborne **sound**.

Density (Kg/m ³)	Thickness (mm)	NOISE REDUCTION COEFFICIENT						NRC
		Octave Frequencies (Hz)						
		125	250	500	1000	2000	4000	
40	75	0.21	0.92	1.24	1.15	1.07	1.1	1.1
	50	0.28	0.72	1.01	1.02	0.98	0.98	0.95
50	75	0.52	0.96	1.18	1.07	1.05	1.05	1
	25	0.14	0.25	0.65	0.98	1.01	1.01	0.75
70	30	0.1	0.4	0.87	0.97	0.9	0.9	0.8
	50	0.28	0.72	1.09	1.09	1.07	1.07	1
100	15	0.05	0.1	0.33	0.72	0.95	0.91	0.55
	25	0.1	0.4	0.8	0.95	0.94	0.9	0.8
	30	0.11	0.41	0.94	1.01	1.02	1.01	0.85
	50	0.33	0.86	1.1	1.09	1.05	0.98	1

Thermal Properties

Density (Kg/m ³)	Thermal Conductivity (W/m.K) (Btu in / (h ft ² °F))		R-Value									U-Value							
			Thickness (mm)						Thickness (inch)			Thickness (mm)					Thickness (inch)		
			50	60	70	80	100	2	3	4	50	60	70	80	100	2	3	4	
35	0.038	0.26	1.32	1.58	1.84	2.11	2.63	8	11	15	0.76	0.63	0.54	0.48	0.38	0.13	0.09	0.07	
40	0.037	0.26	1.35	1.62	1.89	2.16	2.70	8	12	16	0.74	0.62	0.53	0.46	0.37	0.12	0.08	0.06	
50	0.036	0.25	1.39	1.67	1.94	2.22	2.78	8	12	16	0.72	0.60	0.51	0.45	0.36	0.12	0.08	0.06	
70	0.034	0.24	1.47	1.76	2.06	2.35	2.94	8	13	17	0.68	0.57	0.49	0.43	0.34	0.12	0.08	0.06	
100	0.033	0.23	1.52	1.82	2.12	2.42	3.03	9	13	17	0.66	0.55	0.47	0.41	0.33	0.11	0.08	0.06	
Units			m ² .K/W						(h ft ² °F)/Btu			W/m ² .K					Btu/(h ft ² °F)		

Tank & Equipment Insulation

Tanks & Equipment are also integral part of any process industry. Equipment like turbine, furnace, reformers, boilers, ESP, Chimneys for any specific task, while tanks for the purpose of storing either raw material or finished products. Some times the storage of material demands to maintain specific temperature above or below ambient. And equipment also operate below or above ambient, may be very high temperature up to 650 °C or more.

An efficient insulation system can help maintain the process temperature and reduces the heat gain or loss to its minimal level.

Energy efficiency, dependability and reliability under variable conditions of temperature, along with functionality of the process control, as well as mechanical durability are primary requirements from Pipe Insulation. Rockwool thermal insulation for piping plays a substantial role in satisfying these requirements.

SRW Rockwool Board and Lightly resin bonded Mattresses are most prominent & economical Insulation solution for Equipment and Tanks

SRW Rockwool Board / Mattresses

SRW Rockwool Board/ Mattress are made from non-combustible, inorganic rock fibers and are suitable for the insulation on operating at temperature ranges between -20 to +750 °C and are non-combustible to ASTM E 136, and as per BS EN 1182, has Euroclass fire classification "A1" & Class "O" fire classification in accordance with BS 476 Part-7

SRW Rockwool Thermal Boards are manufactured in conformance to ASTM C 612, BS 3958 Part -5, and other various international standards.

SRW Rockwool Lightly resin Bonded Wire mesh Blankets are manufactured in conformance to ASTM C 592 , BS 3958 Part -3..

Thickness

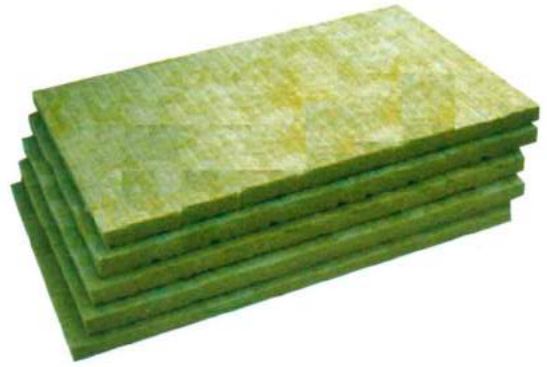
SRW Rockwool Thermal Boards :- 50 - 200 mm

SRW Rockwool Mattresses :- 30 - 120mm

Density

SRW Thermal Boards :- 50 - 200kg / m³

SRW Mattress :- 80 - 150 Kg / m³



Facing

SRW Thermal Boards :- None

SRW Mattress :- SS Wire Mesh / GI Wire Mesh

Pipe Insulation

Pipes network are integral part of any process industry like, refineries, fertilizers, cement plants, chemical process plants and power plants. Pipe networks transport types of fluid at different operating temperatures, though maintaining process temperature throughout the length of the pipes is challenging task. Some times the length of the pipe is in kilometers.

An efficient insulation system can help maintain the process temperature and reduces the heat gain or loss to its minimal level.

Energy efficiency, dependability and reliability under variable conditions of temperature, along with functionality of the process control, as well as mechanical durability are primary requirements from Pipe Insulation. Rockwool thermal insulation for piping plays a substantial role in satisfying these requirements.



SRW Rockwool Pipe Sections / Mattress

SRW Rockwool Pipe Section / Mattress are made from non-combustible, inorganic rock fibers and are suitable for the insulation on pipes operating at temperatures ranges between -20 to +750 °C. Rockwool Pipe sections are non-combustible to ASTM E 136, and as per BS EN 1182, has Euroclass fire classification "A1" & Class "O" fire classification in accordance with BS 476 Part-7.

Pipe diameter up to 24"

SRW Rockwool Pipe Sections are manufactured in conformance to ASTM C 547, BS 3958 Part -4, and other various international standards. SRW Pipe Sections are available up to 24" of pipe diameters. Pipe Sizes above shall be insulated with SRW Rockwool Mattresses.

Thickness

50 - 150mm

Density

100 - 150 Kg/m³

3

Facing

None / Aluminum Foil (FSK/FRK)

Product Range

Density (Kg/m ³)	Pipe Size inch	Pipe insulation ID (mm)	Thickness (mm)		Length (mm)
			Min	Max	
100 - 150	1/2	22	25	70	1200
	3/4	27	25	70	
	1	34	25	80	
	1 1/4	43	25	80	
	1 1/2	49	25	80	
	2	61	25	80	
	2 1/2	74	25	80	
	3	90	25	80	
	4	115	25	90	
	5	143	30	150	
	6	170	30	150	
	8	221	30	150	
	10	275	40	150	
	12	326	40	150	
	14	358	40	150	
	16	409	40	150	
18	460	40	150		
20	510	40	150		
22	561	40	150		
24	612	40	150		

* ID - Inner Diameter

Pipe diameter above 24"

SRW Rockwool Lightly resin Bonded Wire mesh Blankets are manufactured in conformance to ASTM C 592 , BS 3958 Part -3..

Thickness

30 - 120mm

Density

80 - 150 Kg / m³

Facing

SS Wire Mesh

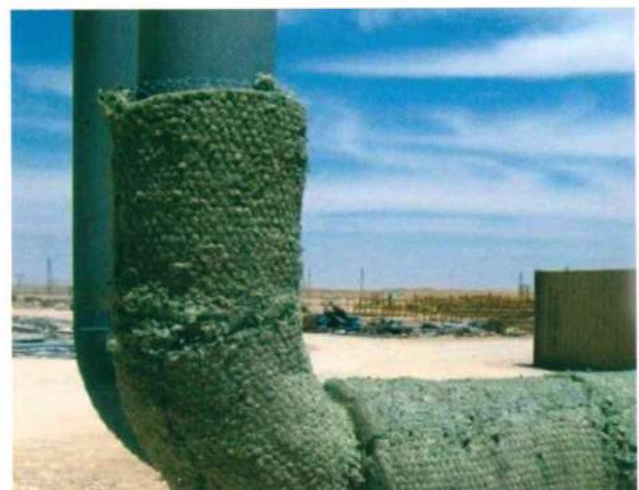
GI Wire Mesh

Thermal Calculations:

SRW factory provides thermal calculations using special software that complies with ASTM C-680 to calculate the suitable insulation thickness, heat loss, insulation efficiency, condensation and control thickness based on process temp, ambient climate conditions, type and geometry of insulated surface.

Variable Insulation Thickness(mm)	Surface Temp (°C)	Heat Loss (W/m)	Efficiency (%)
Bare	496.30	9254.00	-
15.00	150.50	992.40	89.28
25.00	110.60	688.60	92.56
40.00	91.40	541.40	94.15
50.00	80.30	454.50	95.09
65.00	72.30	390.80	95.78
80.00	67.40	351.30	96.20
90.00	63.80	321.40	96.53
100.00	60.40	292.90	96.83
115.00	60.40	292.90	96.83
125.00	58.30	274.90	97.03
140.00	56.50	259.90	97.19
150.00	55.10	247.20	97.33
165.00	53.90	236.40	97.45
175.00	52.90	227.00	97.55
190.00	52.00	218.70	97.64
200.00	51.20	211.30	97.72
215.00	50.50	204.80	97.79
225.00	49.90	198.90	97.85
240.00	49.30	193.60	97.91
250.00	48.80	188.70	97.96

System Application = Pipe - Horizontal, Dimension Standard = ASTM C 585 Rigid
 Calculation Type = Heat Loss Per Hour Report, Process Temperature = 500
 Ambient Temperature = 40.0, Wind Speed = 3
 Nominal Pipe Size = 115, Bare Metal = Steel, Bare Surface Emittance = 0.8
 Insulation Layer 1 = 850F Mineral Fiber PIPE, Type I, C547-11
 Outer Jacket Material = Aluminium, oxidized, in service, Outer Surface
 Emittance = 0.1



Approvals

Saudi Civil defense, Saudi Aramco, Sabic, Ministry of Defense and Aviation, Ministry of Higher Education, Ministry of Interior, Ministry of Water, Institute of Public Administration, Maaden Aluminium, Manafia Gas Facilities, Petro Rabigh, Sadara, Saudi Arabia National Guard Housing (SANG), Saudi Railway Organization, Saudi Binladen Group (SBG), Zuhair Fayeze Partnership, Saudi Oger Ltd, Dar Al-handasah, Capatial Market Authority - Saudi, Military Industrial General Establishment - Saudi, The General Organization for Social Insurance (GOSI), Saudi Border Guard, King Abdullah Financial District (KAJD)

Other Countries:

Dubai Central Laboratories
 Dubai Municipality
 Ministry of Health & Water, Kuwait
 Qatar Petroleum
 Qatar Civil Defense
 Bahrain Civil Defense
 Kuwait National Petroleum company
 ORPIC (JSRS)



Reference Projects

Industrial (Oil & Gas / Power plant)

Ras Al Khair Desalination and Power plant, Shuqaiq Power plant, Shaybah Desalination and Power plant, Marafiq Yanbu Desalination and Power plant, Power Plant 9 (PP9), Power Plant 10 (PP10), Power Plant 11 (PP11), Rabigh Power Plant, Jubail Oil Refinery, Jazan Refinery, Yanbu Refinery, Najran Refinery

Other countries:

Gas Qatar, Qatar Oil, Kuwait National Petroleum Company, Baghdad Oil Refinery

Cement Factories

Riyadh, Najran, Turaif, Jazan, Rabigh and Yanbu

Airports Projects

King Abdulaziz International Airport, Jeddah
 King Khalid International Airport, Riyadh
 Terminal 5, Riyadh
 Prince Mohammad Bin Abdulaziz International Airport, Madinah
 Jizan Regional Airport
 Tabuk Regional Airport
 Al-Ahsa International Airport
 Abha Regional Airport
 Turaif Domestic Airport

Other Countries:

Dubai International Airport, Abu Dhabi International Airport
 Doha International Airport, Cairo Airport Terminal, Egypt
 Hurgada International Airport, Egypt, Sharm Al Sheikh Airport, Egypt, Lagos International Airport, Nigeria, Karachi International Airport, Pakistan



Office & Government

Jabal Omar Development Projects, King Abdullah Financial District (KAFD), King Abdullah Petroleum Studies and Research Centre (KAPSARC), Information Technology and Communication Complex (ITCC), Aramco Maintenance, Al Haramain High Speed Rail, SANG Housing, King Abdulaziz Museum, Modon Dammam 2nd Industrial City, Modon Jeddah 3rd Industrial City, GOSI Olaya Tower, Ministry of Defense & Aviation, KAP Projects, SANG Villas

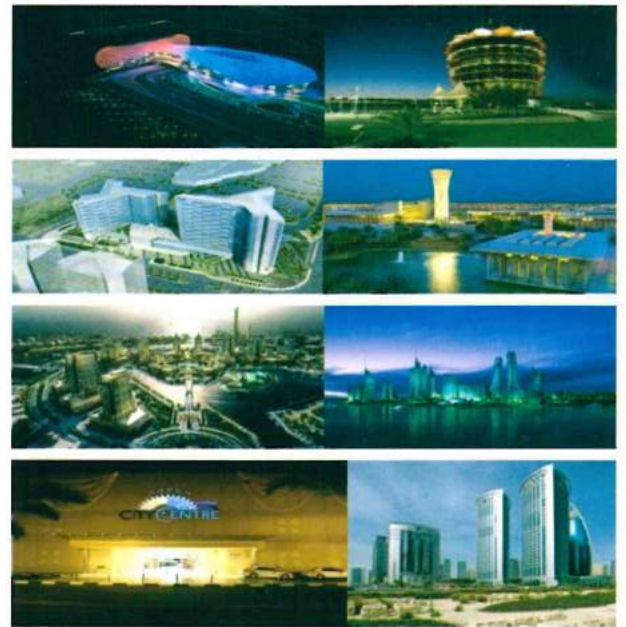
Other Countries:

Sheikh Jaber Al Ahmad International Stadium Project, Kuwait

Bahrain Financial Harbour

Central Bank, Egypt

Saudi Embassy, Egypt



Commercial & Residence

Riyadh Metro, Kingdom Tower, Faisalia Tower, Olayah Tower, Garnada Mall, Tamkeen Tower, Dream Tower, Rafal Tower, Blue Tower, Al Rashid Tower, Al Majdol Tower, Al Johara Tower, Hilton Hotel, Movenpick, Holiday Inn, Yanbu IPA Housing, Granada Business & Housing Park, Makkah Clock Tower, Expand Dahrn Villas, Royal Commission Projects

Other Countries:

Burj Khalifa, Dubai

Dubai Maritime City

Bahrain International Circuit

World Trade Centre, Bahrain

City Centre, Bahrain

Bahrain Pearl Tower

Al Moayyed Tower, Bahrain

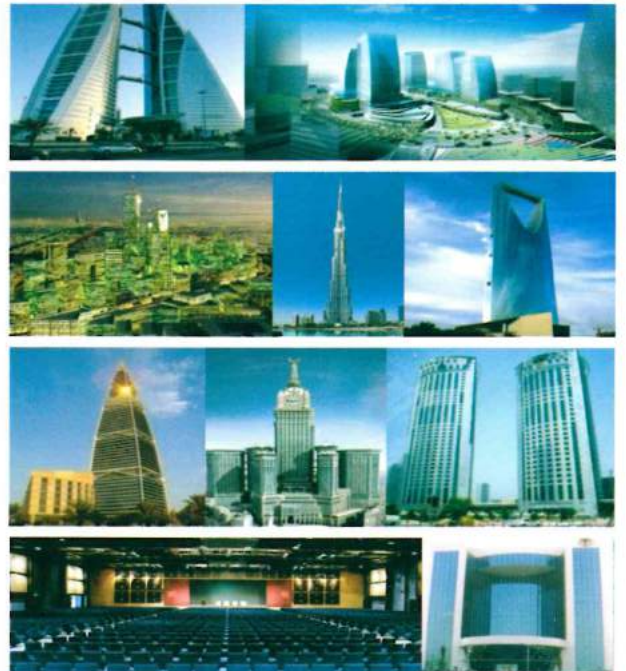
Qurum City Centre, Muscat

Al Fardan Residence, Doha

City Centre Expansion, Doha

Mina Al Ahmadi, Kuwait

Egyptian Media Production



Educational & Medical

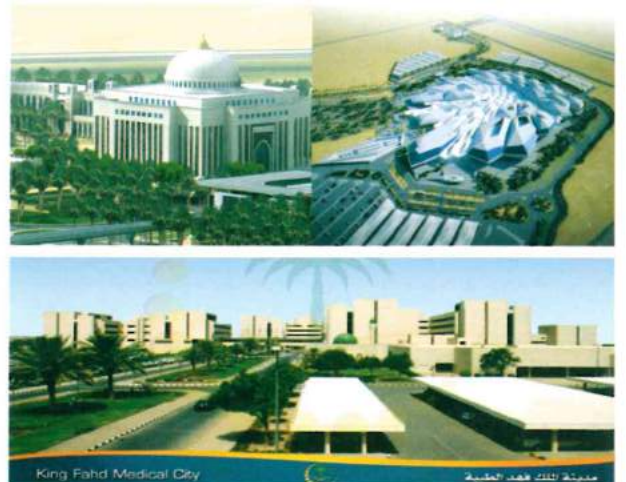
Princess Nora University, King Saud University, King Abdulaziz University (KAU), Imam University, King Khalid University (KKU), Hail University, King Abdulaziz City for Science and Technology, Al Kharj University, Jazan University, Taif University, Islamic University, Taibah University, Om al Qura University, Al Qassim University, Baha University, Tabuk University, Najran University, King Faisal University, Kuwait National Library

SANG Hospitals, King Faizal Medical City, King Saud Medical City, Dallah Hospital, Dr Suleiman Al Habeeb Hospital, Kingdom Medical Center, Al Mouwasat Hospital Specialized Center City Hospital, Shemashi Hospital King Fahad Medical City, Abha Hospital, Taif Hospital Saudi German Hospitals

American Hospital, Kuwait

Amuma Hospital, Kuwait

International Hospital, Kuwait



STC calculation with diferent Systems

Example 1

System description:

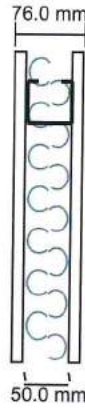
Panel 1 Outer layer: 1 x 12.5 mm Gypsum platerboard
($m=10.0 \text{ kg/m}^2$, $f_c=2620 \text{ Hz}$, damping=0.01)

Cavity: Steel stud @ 600 mm, Infill Saudi Rockwool
Thickness 50 mm

Panel 2 Inner layer: 1 x 12.5 mm Gypsum plasterboard
($m=10.0 \text{ kg/m}^2$, $f_c=2620 \text{ Hz}$, damping=0.01)

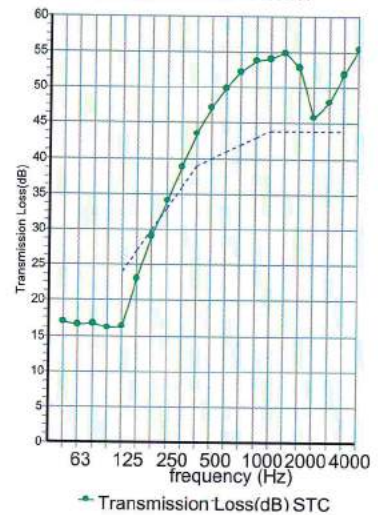
Mass-air-mass resonant frequency = 120Hz

frequency (Hz)	TL (dB)	TL(dB)
50	17	17
63	17	
80	17	
100	16	17
125	16	
160	23	
200	29	32
250	34	
315	39	
400	43	46
500	47	
630	50	
800	52	53
1000	54	
1250	54	
1600	55	49
2000	53	
2500	46	
3150	48	51
4000	52	
5000	55	



STC 40
OITC 28

Panel size 2.7x4mm



Example 2

System description:

Panel 1 Outer layer: 1 x 9.0 mm Cemboard ($m=11.7 \text{ kg/m}^2$,
 $f_c=3111 \text{ Hz}$, damping=0.01)

Cavity: Steel stud @ 600 mm, Infill Saudi Rockwool
Thickness 50 mm

Panel 2 Inner layer: 1 x 9.0 mm CemBoard ($m=11.7 \text{ kg/m}^2$,
 $f_c=3111 \text{ Hz}$, damping=0.01)

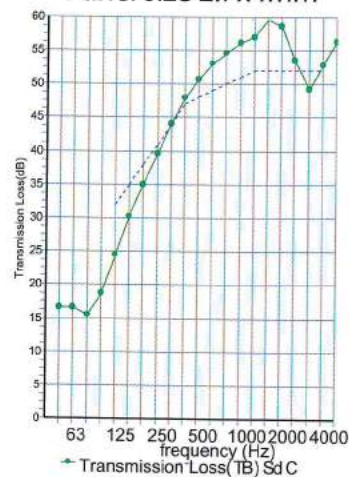
Mass-air-mass resonant frequency = 91Hz

frequency (Hz)	TL (dB)	TL (dB)
50	17	16
63	17	
80	15	
100	19	22
125	24	
160	30	
200	35	38
250	40	
315	44	
400	48	50
500	51	
630	53	
800	55	56
1000	56	
1250	57	
1600	60	56
2000	59	
2500	54	
3150	49	52
4000	53	
5000	56	



STC 48
OITC 31

Panel size 2.7x4mm



Example 3

System description:

Panel 1 Outer layer: 1 x 12.5 mm Gypsum plasterboard
($m=10.0 \text{ kg/m}^2$, $f_c=2620 \text{ Hz}$, $damping=0.01$)

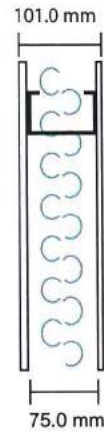
Cavity: Steel stud @ 600 mm, Infill Saudi Rockwool

Thickness 50 mm

Panel 2 Inner layer: 1 x 12.5 mm Gypsum plasterboard
($m=10.0 \text{ kg/m}^2$, $f_c=2620 \text{ Hz}$, $damping=0.01$)

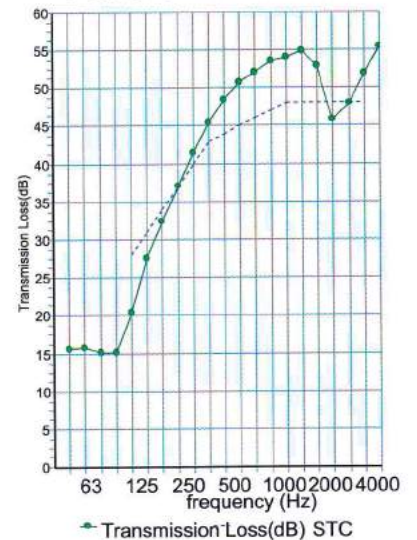
Mass-air-mass resonant frequency = 98Hz

frequency (Hz)	TL (dB)	TL (dB)
50	16	15
63	16	
80	15	
100	15	19
125	20	
160	27	
200	32	
250	37	35
315	41	
400	48	
500	51	
630	53	48
800	55	
1000	56	
1250	57	
1600	60	19
2000	59	
2500	54	
3150	49	
4000	53	51
5000	56	



STC 44
OITC 29

Panel size 2.7x4mm



Example 4

System description:

Panel 1 Outer layer: 2 x 12.5 mm Gypsum plasterboard
($m=20.0 \text{ kg/m}^2$, $f_c=2620 \text{ Hz}$, $damping=0.01$)

Cavity: Steel stud @ 600 mm, Infill Saudi Rockwool

Thickness 75 mm

Panel 2 Inner layer: 2 x 12.5 mm Gypsum plasterboard
($m=20.0 \text{ kg/m}^2$, $f_c=2620 \text{ Hz}$, $damping=0.01$)

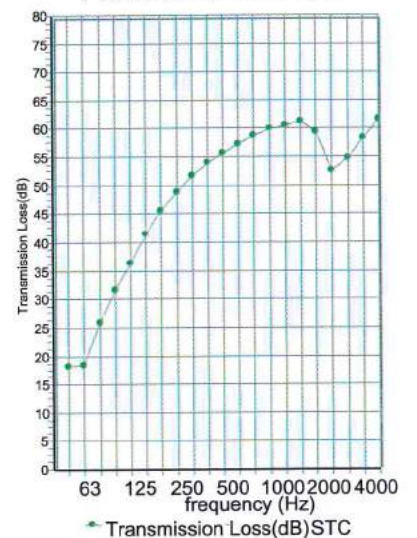
Mass-air-mass resonant frequency = 60Hz

frequency (Hz)	TL (dB) TL (dB)	(dB)
50	18	20
63	18	
80	26	
100	32	35
125	36	
160	41	
200	45	
250	49	48
315	52	
400	54	
500	56	
630	57	55
800	59	
1000	60	
1250	60	
1600	61	56
2000	59	
2500	53	
3150	55	
4000	58	57
5000	62	



STC 56
OITC 43

Panel size 2.7x4mm



Example 5

System description:

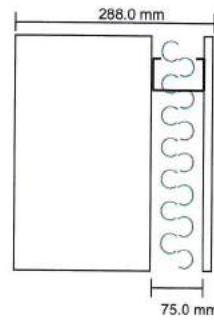
Panel 1 Outer layer: 1 x 200 mm until conc blocks ($m=177.2 \text{ kg/m}^2$, $f_c=248 \text{ Hz}$, $\text{damping}=0.01$)

Cavity: Steel stud @ 600 mm, Infill Saudi Rockwool

Thickness 50 mm

Panel 2 Inner layer: 1 x 12.5 mm Gypsum plasterboard ($m=10.0 \text{ kg/m}^2$, $f_c=2620 \text{ Hz}$, $\text{damping}=0.01$)

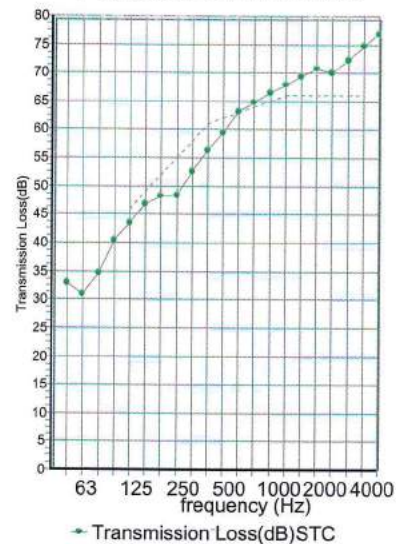
Mass-air-mass resonant frequency = 71Hz



STC 62
OITC 50

frequency (Hz)	TL (dB)	TL (dB)
50	33	33
63	31	
80	35	
100	40	43
125	43	
160	47	
200	48	49
250	48	
315	53	
400	56	59
500	59	
630	63	
800	65	66
1000	66	
1250	68	
1600	69	70
2000	71	
2500	70	
3150	72	74
4000	75	
5000	77	

Panel size 2.7x4mm



Example 6

System description:

Panel 1 Outer layer: 1 x 1.1 mm steel ($m=8.6 \text{ kg/m}^2$, $f_c=11364 \text{ Hz}$, $\text{damping}=0.01$)

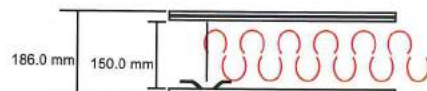
Panel 1 Inner layer: 2 x 12.0 mm Fibre Cement ($m=31.0 \text{ kg/m}^2$, $f_c=3023 \text{ Hz}$, $\text{damping}=0.01$)

Cavity: Suspended light steel grid @ 450 mm, Infill Rockwool (60 kg/m^3) Thickness 120 mm

Panel 2 Inner layer: 1 x 10.0 mm CemBoard ($m=13.0 \text{ kg/m}^2$, $f_c=2800 \text{ Hz}$, $\text{damping}=0.01$)

Panel 2 Outer layer: 1 x 0.9 mm Aluminium ($m=2.6 \text{ kg/m}^2$, $f_c=13295 \text{ Hz}$, $\text{damping}=0.01$)

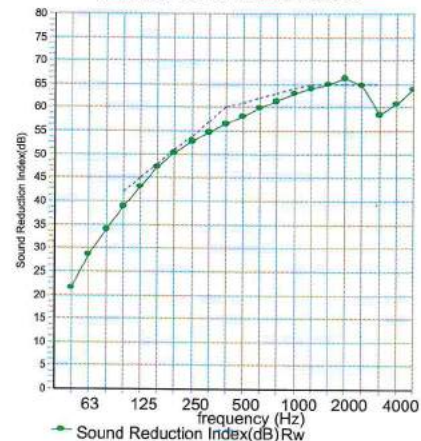
Mass-air-mass resonant frequency = 46Hz



RW 61
C-2
Ctr-6

frequency (Hz)	TL (dB)	TL (dB)
50	22	25
63	28	
80	34	
100	39	42
125	43	
160	47	
200	50	52
250	53	
315	55	
400	57	58
500	58	
630	60	
800	62	63
1000	63	
1250	64	
1600	65	65
2000	66	
2500	65	
3150	58	61
4000	61	
5000	64	

Panel size 2.7x4mm



Thermo-Physical Properties of Building Materials

* Thermal conductivity (k-value)

The k-value of a material is defined as the quantity of heat transmitted under steady-state conditions through unit area of the material of unit thickness in unit time when unit temperature difference exists between its opposite surfaces. It is expressed in W/m K.

The thermal resistance is a heat property and measurement of a temperature difference by which an object or material resist a flow ($m^2 K/W$).

$R = X/K$, X- Material thickness (mm) & K- Thermal conductivity (w/mK)

Total Thermal Resistance: (RT)

The thermal resistance of a material or construction is the reciprocal of its thermal conductance. It refers to the thermal resistance of any section or assembly of building components and is particularly useful in computing the overall transfer of heat across the building section. It is expressed as $m^2.k/W$ and is given by:

$$RT = R1 + R2 + R3 \dots RN$$

Construction Materials Thermal Conductivity & Thermal Resistance Table

Table Thermal Conductivity Values (k-Values) of Basic Materials S/No	Material	Density (kg/m^3)	k-value (W/m K)
1	Asphalt, roofing	2240	1.226
2	Bitumen	-	1.298
3	Brick	1760	0.807
	(a) dry (covered by plaster or tiles outside)		
4	Concrete	-	1.154
		(b) common brickwall (brickwall directly exposed to weather outside).	
5	Concrete, lightweight	2400	1.442
		64	0.144
		960	0.303
6	Cork board	1120	0.346
		1280	0.476
7	Fibre board	144	0.042
8	Fibre glass (See Glass Wool and Mineral Wool)	264	0.052
9	Glass, sheet		
10	Glass wool, mat or gult (dry)	2512	1.053
11	Gypsum plaster board	32	0.035
12	Hard board:	880	0.170
	(a) Standard		
	(b) medium	1024	0.216
13	Metals:	640	0.123
	a) Aluminium alloy,) typical		
	(b) Copper, com - mercial	2672	211
	(c) Steel	8784	385
14	Mineral wool, felt	7840	47.6
		-104 32	0.035 -0.032

Table Thermal Conductivity Values (k-Values) of Basic Materials S/No	Material	Density (kg/m^3)	k-value (W/m K)
15	Plaster:		
	(a) gypsum	1216	0.370
	(b) perlite	616	0.115
	(c) sand / cement	1568	0.533
16	Polystyrene, expanded	-960 640	0.202 -0.303
		16	0.035
17	Polyurethane, foam	24	0.024
18	PVC flooring	1360	0.713
19	Soil, loosely packed	1200	0.375
20	Stone, tile:		
	(a) sand stone	2000	1.298
	(b) granite	2640	2.927
	(c) marble / terrazzo / ceramic / mosaic	2640	1.298
21	Tile, roof	1890	0.836
22	Timber:		
	a) across grain) softwood	608	0.125
	b) hardwood)	702	0.138
23	Vermiculite, loose granules	528	0.138
		80-112	0.065
24	Wood chipboard	800	0.144
25	Woodwool slab	400	0.086
		480	0.101

Resistance from Air Films and Air Spaces

Air films are layers of air that are assumed to be static on each side of a building envelope, and air spaces are volumes of air within building constructions they are both interesting thermal components they have potentially useful thermal properties. They can contribute substantially to the insulating capabilities of construction assemblies -

Type of Surface	Thermal Resistance (m ² K/W)
A. Surface Film Resistances for Walls	
1. Inside Surface (R _i)	
(a) High emissivity	0.120
(b) Low emissivity	0.299
2. Outside surface (R _o) - High emissivity	0.044
B. Surface Film Resistances for Roofs	
1. Inside surface (R _i)	
(a) High Emissivity	
(i) Flat roof	0.162
(ii) Sloped roof 22½°	0.148
(iii) Sloped roof 45°	0.133
(b) Low Emissivity	
(i) Flat roof	0.801
(ii) Sloped roof 22½°	0.595
(iii) Sloped roof 45°	0.391
2. Outside surface (R _o) - High emissivity	0.055
Flat or sloped	

Type of Air Space	Thermal Resistance (m ² K/W)		
	5mm	20mm	100mm
A. Air Space Resistances (R_a) for walls Vertical air space (Heat flows horizontally)			
(a) High emissivity	0.110	0.148	0.160
(b) Low emissivity	0.250	0.578	0.606
B. Air Space Resistances (R_a) for Roofs Horizontal or sloping air space (Heat flows downwards)			
(a) High emissivity			
(i) horizontal air space	0.110	0.148	0.174
(ii) sloped air space 22½°	0.110	0.148	0.165
(iii) sloped air space 45°	0.110	0.148	0.158
(b) Low emissivity			
(i) horizontal air space	0.250	0.572	0.768
(ii) sloped air space 22½°	0.250	0.571	1.423
(iii) sloped air space 45°	0.250	0.570	1.095
C. Attic space resistances (R_{attic})			
(a) High emissivity	0.458		
(b) Low emissivity	1.356		

Thermal Transmittance (U-value):

The thermal transmittance or U-value of a construction is defined as the quantity of heat that flows through a unit area of a building section under steady-state conditions in unit time per unit temperature difference of the air on either side of the section. It is expressed in W/m².k and is given by:

$$\text{Thermal Transmittance (U-Value)} = 1/RT$$

Example 1: Thermal Resistance & Thermal Transmittance Calculation for a Wall

WALL Elements	Thermal Resistance
1 External Air Film	R1 0.044
2 Building stone 7cm	R2 0.05
3 Concrete 20cm	R3 0.14
4 Rockwool panels 5cm	R4 1.47
5 Hollow Cement Bricks 10cm	R5 0.087
6 External Plaster 2cm	R6 0.037
7 Internal Air Film	R7 0.123

Total Thermal Resistance:

$$RT = R1 + R2 + R3 + R4 + R5 + R6 + R7$$

$$RT = 0.044 + 0.05 + 0.14 + 1.47 + 0.087 + 0.037 + 0.123$$

$$RT = 1.951 \text{ m}^2 \cdot \text{k/W}$$

$$U = 1/RT = 0.512 \text{ W/m}^2 \cdot \text{k}$$

Example 2: Thermal Resistance & Thermal Transmittance Calculation for a Roof

Roof Elements	Thermal Resistance
1 External Air Film	R1 0.055
2 Screed 5cm	R2 0.0285
3A Reinforced Concrete 25cm	R3A 0.173
3B Reinforced Concrete 7cm	R3B 0.048
4 Rips 18 cm	R4 0.189
5 Rockwool Panels 5cm	R5 1.47
6 False ceiling 1.2cm	R6 0.90
8 Internal Air Film	R8 0.162

Total Thermal Resistance:

$$RT = R1 + R2 + R3A + R3B + R4 + R5 + R6 + R8$$

$$RT = 0.055 + 0.0285 + 0.173 + 0.048 + 0.189 + 1.47 + 0.90 + 0.162$$

$$RT = 3.021 \text{ m}^2 \cdot \text{k/W}$$

$$U = 1/RT = 0.331 \text{ W/m}^2 \cdot \text{k}$$



PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 3.2

**COMPANY PROFILE – UNIGULF
(Supplier)**



UNIGULF[®] GROUP OF COMPANIES

BUILDING TRUST & RELATIONSHIP TO DELIVER

EXCELLENCE




OUR VISION MISSION

At UNIGULF Group of Companies, we are committed to supply high quality products to the HVACR and construction industry in the GCC region and beyond.

We value our relationship with our customers and partners alike, understand their needs and operate responsibly.

Striving to be the first choice of stakeholders within HVACR and construction industry.

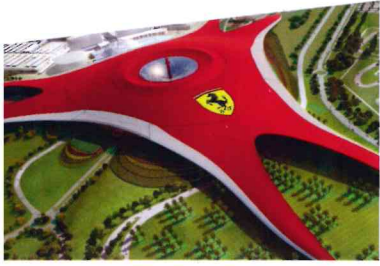
 **UNIGULF** GROUP OF COMPANIES
TAPPING THE DEMAND AND PIONEERING SUCCESS

 **UNIGULF** **صناعة أجهزة التكييف شرمخ**
AIR CONDITIONING INDUSTRIES L.L.C





YAS MALL, ABU DHABI



FERRARI WORLD, ABU DHABI



AL ZEINA, ABU DHABI



CENTRAL MARKET, ABU DHABI



DUBAI MALL, DUBAI



NEW YORK UNIVERSITY, ABU DHABI

Unigulf Development LLC was established in 1986 to cater to the needs of MEP contractors. Since then the company has come a long way and has become one of the most trusted suppliers of various types of products and accessories to contractors in the UAE and MENA region. The range of products comprises elastomeric rubber insulation, fiberglass, rockwool, polyolefin extruded/expanded polystyrene, ducting accessories, cladding systems, coatings/adhesives/sealants, refrigerants and range of refrigeration tools/accessories.

Having taken a note of newer concepts within this industry, the group has diversified into manufacturing of PIR/PUR pre-insulated panels and pre-fabricated ducts that have relevant certifications, both regional and international. The emphasis in the near future is going to be on manufacturing.

The group constantly strives to ensure the highest standards of the products that are backed by certifications. The company is managed by a team of highly dedicated and efficient personnel. UNIGULF is an ISO 9001:2015; ISO-14001:2015 AND OHSAS 18001:2007 certified organization that has offices and showrooms in Dubai, Sharjah, Abu Dhabi and Bahrain.

UNIGULF AIRCONDITIONING INDUSTRIES LLC is one of the leading manufacturers of PIR/PUR pre-insulated Panels and 'ready-to-Install' ducts in the region. Manufactured in a state-of-the-art facility in Dubai, United Arab Emirates. EASY Pre-Insulated panels are a composite of aluminum foil and PIR/PUR, are lighter than the traditional metallic ducts and hence are easy to fabricate and install. By virtue of being CFC and HCFC free, these ducts are eco-friendly and are extensively used for residential/commercial/mixed use HVAC applications. These ducts also comply with UL, BS, EN & ASTM standards and are accredited by DCL and DCD as well.

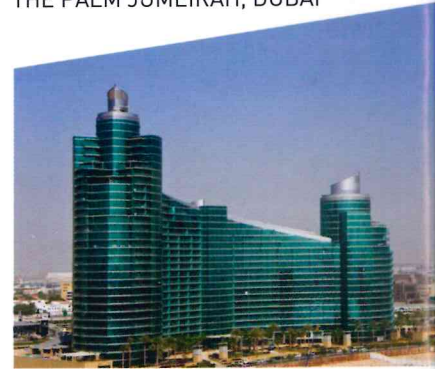
ICONS OF ACCOMPLISHMENTS



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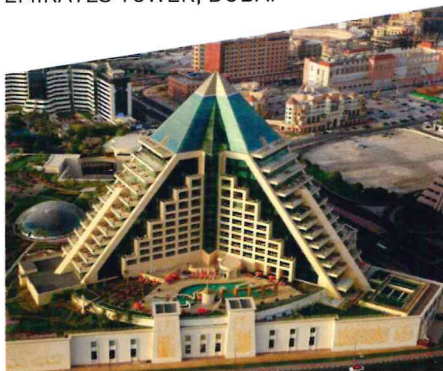
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- Hazza Bin Zayed Stadium, Abu Dhabi
- Nas Arena, Meydan, Dubai
- Midfield Terminal Complex, Abu Dhabi
- Dubai World Trade Centre Exp, Dubai
- Lapita Hotel, Dubai Parks
- Dubai Wharf Development
- Amity University, Dubai
- Hilton Garden, Dubai
- Motion Gate Development, Dubai
- Dusit Thani, Palm Jumeirah
- North Gate Mall, Qatar
- Burj Vista, Dubai
- Sky Views, Dubai
- Sea View Hotel, Palm Jumeirah
- Fairmont Hotel, Abu Dhabi
- Jumeirah Village Circle Development, Dubai
- Emirates Flight Kitchen Exp, Dubai
- Al Ain Stadium
- Viceroy Hotel & Residences, Palm Jumeirah
- Madinat Jumeirah (Phase-IV), Dubai
- Damac Akoya Villas, Dubai
- Al Maktoum International Airport, Dubai
- Medicare Hospital, Dubai
- Polo Residences, Meydan
- Dubai Mall Exp, Dubai
- W Hotel, Palm Jumeirah
- Citywalk Development, Dubai
- Remraam, Dubai
- Infinity Tower, Dubai
- Meydan Residences, Dubai
- Mirdif Housing Residential Development, Dubai
- New York University, Abu Dhabi
- Louvre Museum, Abu Dhabi
- Dubai Frame, Dubai
- Ruwais Housing Complex, Abu Dhabi
- Arabian Ranches Phase 2, Dubai
- Lotus Paramount Hotel, Dubai
- Abu Dhabi Plaza, Kazakhstan
- Maliha Hospital, Sharjah
- Dubai Airport, Terminal 2, Dubai
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- Al Fattan Crystal Towers, Dubai
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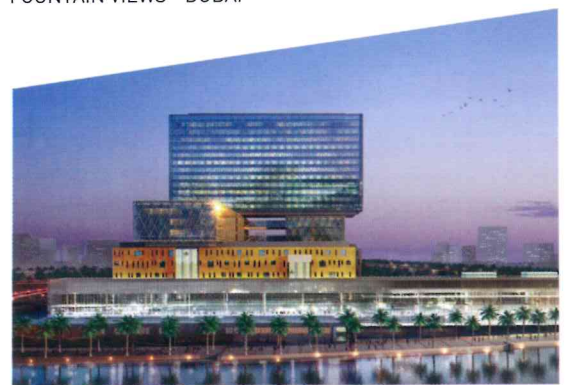
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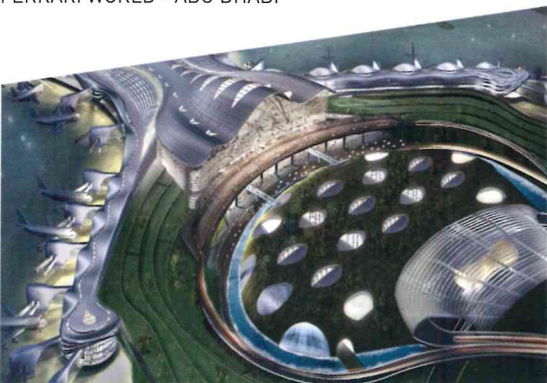
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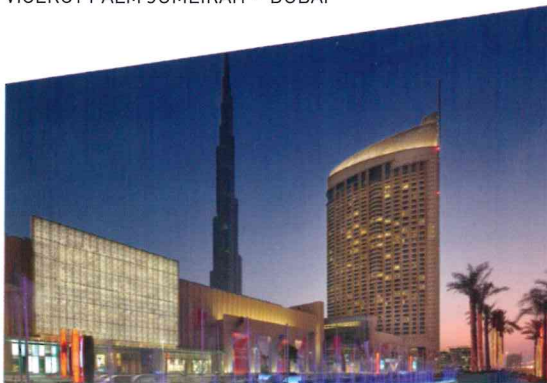
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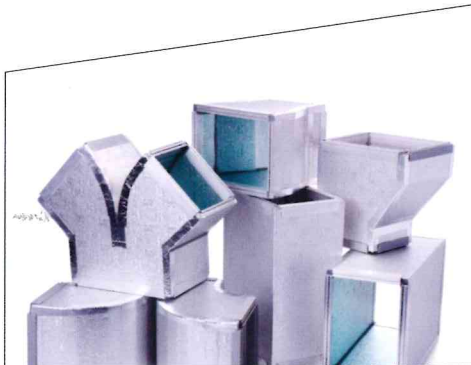
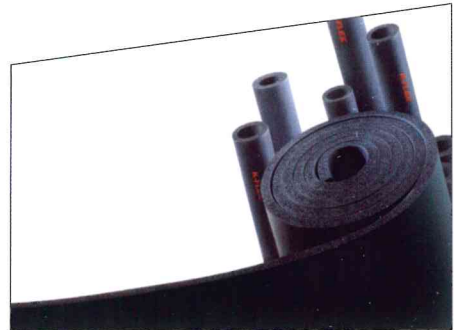


WATHBA RESORT - ABU DHABI

MECHANICAL INSULATION



- Closed Cell Elastomeric Foam Insulation
- For chilled water, refrigeration, hot water pipes and duct work application
- CFC HCFC free and corrosion resistant, ODP & GWP Zero.
- Complies to various European and American specifications
- ASTM, BS, UL, FM, & DCL accreditations



- Lightweight, easy to fabricate and install
- Better thermal insulation properties
- Can be easily assembled at sites
- Better indoor air quality
- Complies to EN, BS, NES, ASTM
- DCL, DCD & ISO Certified
- UL GreenGuard accreditation



- Partnered with Owens-Corning USA, manufactures complete range of premium quality thermal and acoustic insulation products
- The company is committed to a greener, cleaner and energy efficient environment
- Complies to UL, BS, EN & ASTM Standards
- DCL, DCD & GreenGuard accreditations

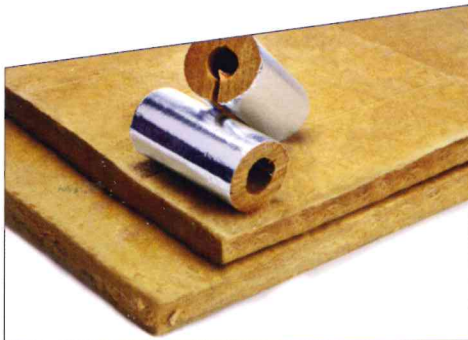
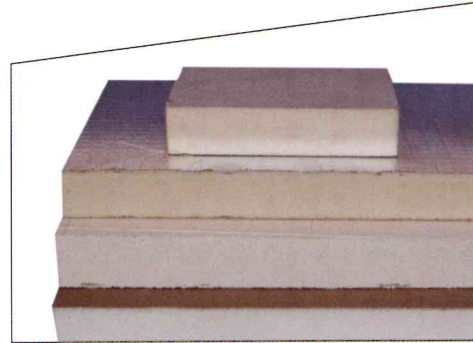


- Manufacturers of extruded polyolefin thermal insulation sheets / pipes
- For chilled water, duct work, refrigeration and plumbing application.
- CFC/HCFC free and ODP=0 and GWP < 5
- Complies to EN, ASTM & BS Standards

BUILDING INSULATION



- ISO 9001, ISO 14001 & OHSAS 18001 certified
- Manufactured in accordance with BS EN 13165:2012
- Used for floor, roof, wall & wall cavities
- Insulation for EIFS / ETICS systems
- Insulation boards available in Unfaced, Kraft, Aluminium & Fiberglass tissue facing

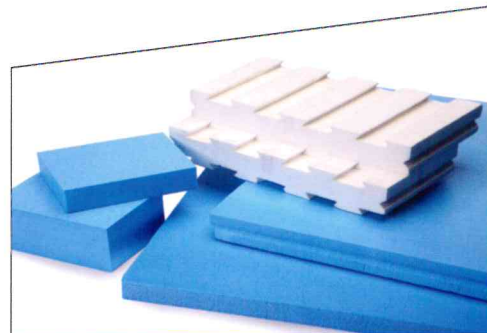


- Complete range of building insulation products.
- BS, ASTM, ISO, DCL, DCD and green building accreditations.
- Provides local and international markets with range of thermal and industrial insulation products.
- Largest producer of Rockwool insulation in the Middle East

ORIFOAM



- Established in the year 1994
- ISO 9001:2008 certified company
- Manufactures extruded and expanded polystyrene thermal insulation
- Used on roofs, floors, cold stores, wall cavities and core material for sandwich panels



- Afico, partnered with Owens-Corning USA, manufactures complete range of premium quality thermal and acoustic insulation products
- The company is committed to a greener, cleaner and energy efficient environment
- Complies to UL, BS, EN & ASTM Standards
- DCL, DCD & GreenGuard accreditations

DUCT ACCESSORIES



- World's largest manufacturer of Flexible Duct Systems
- Insulated & Un-insulated Flexible Ducts
- Accreditations - UL 181 - USA / UL 181 C - Canada
- Accreditations - BS - UK / AS 1668 & 1530 - Australia & DCL



- Leading manufacturer in Europe
- Flexible duct connectors and sheet metal accessories for heating, ventilating and air conditioning industry.



- Manufacturer of universal clamping systems
- Designed for tough environmental conditions & difficult installation
- Available in 30 m rolls
- Banding and clamps for HVAC industry



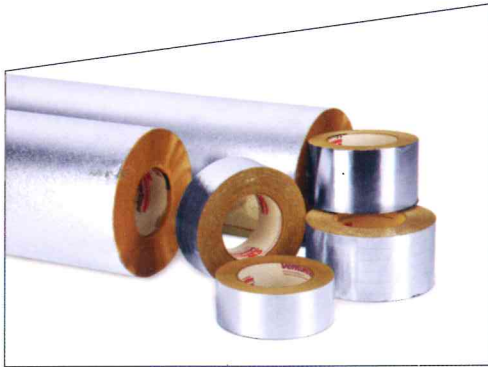
- Thin, lightweight and flexible, 3M™ Fire Barrier Duct Wrap 615+
- Alternative fire protection, commonly used in commercial kitchen grease ducts, as well as ventilation duct
- Proven alternative to 1- and 2-hour fire resistants. Performs in temperatures up to 2192°F/1200°C
- Tested and listed with UL and Intertek, meets IBC, IMC, UMN, NFPA and other key life safety codes

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- ISO 9001 and ISO 14001 Certified
- LEED complaint, UL listed and DCL accredited
- Complies to BS & ASTM Standards



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Applied to Life.

Insulation Tapes & Cladding

- 3M company
- Insulation tapes for HVAC-R industry
- Innovative products for cladding applications
- ISO 9001 certified and UL listed



Aluminium Cladding

- One of the largest aluminum rolling mills in the Middle East
- High quality flat rolled aluminum products in various thicknesses and alloys, including sheets and coils.
- ISO 9001:2008 certified company



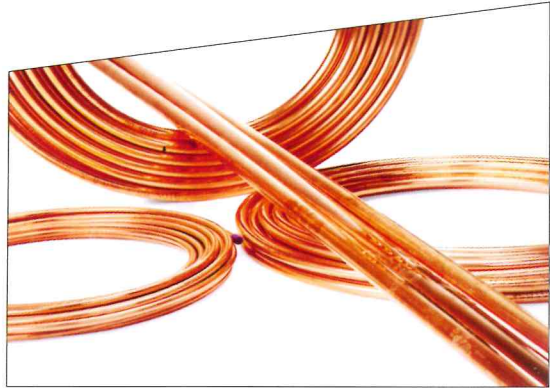
COPPER, REFRIGERANT, TOOLS, SOLDERING / BRAZING ALLOYS AND CONSUMABLES



Maksal

Copper Coils & Pipes

- Established in 1940
- Manufacturer of Copper Coils, Pipes & fittings for Air conditioning & Plumbing Industry
- Production meets all ASTM standards.



Soldering & Brazing Products

- Established in 1914, has offices worldwide
- A leading manufacturer of high quality soldering brazing and welding filler metals
- ISO 9001 certified



- R-12, R-11, R-502, R-134a, R-404, R-408A, R-409A, R-410
- Available in disposable & bulk packaging
- ISO 9001 certified





Navin Fluorine
International LTD
Refrigerants

- A Mafatlal Group company established in 1967
- Manufacturer of refrigerant R22
- Available in disposable cylinders, and ISO-tanks



Refrigeration Service Products &
Components

- Manufacturer of refrigeration tools & accessories.
- Gauges, vacuum pumps, charging stations, tools & accessories
- High quality Swiss products



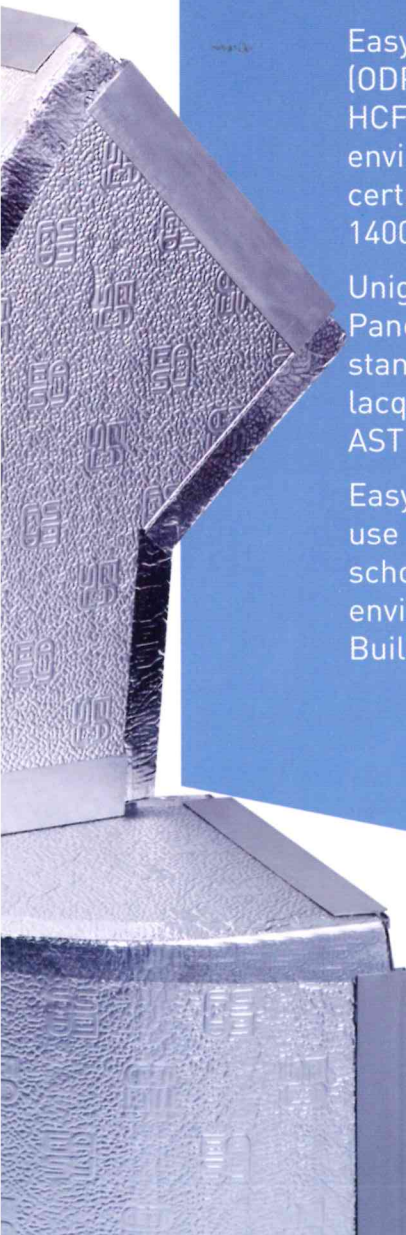
Refrigeration Tools
& Accessories

- Specializing in HVACR parts and service tools
- Tubing tools, service manifolds, replacement gauges service accessories & tools
- Quality products at competitive prices



 [®] **PRE INSULATED
DUCT SYSTEM**





Since its inception in 2004, Unigulf Air Conditioning Industries LLC has built a strong reputation for its quality and efficiency. With the latest technology machines installed at its state-of-the-art manufacturing facilities in Dubai, the company produces pre-insulated panels which are used for fabricating ducts.

Unigulf adheres to stringent quality checks throughout the production process, to ensure that the panel production meets the highest standards. The manufacturing process is supervised by a team of credible and highly experienced professionals. The panels go through intensive quality checks, carried out by the Quality Control Department to ensure it meets the requirements of various markets. Unigulf has a dedicated in-house R&D team, giving the company the possibility of introducing better grades of polyols. This hence enables the products to comply with BS, EN, ASTM, UL standards and also comply with the local regulatory safety codes. The products are also DCL and DCD accredited.

Easy Panels have a Zero Ozone Depletion Potential (ODP), low Global Warming Potential and are CFC/HCFC free, thus preventing any harm to the environment. Unigulf Air Conditioning L.L.C has a certified Management System of ISO 9001: 2015, ISO 14001: 2015 and OHSAS 18001: 2007.

Unigulf also manufactures Easy + Pre Insulated Panels which meet the highest health and safety standards. These panels have a special antimicrobial lacquering, which has been evaluated according to ASTM G 21-13, ISO 22196: 2011 and ASTM E 2180.

Easy + Pre Insulated Panels are recommended for use in various industries like food processing, schools, health care facilities, cleanrooms, controlled environments and comply with modern-day Green Building Regulations

FEATURES

Third party assessments:

- UL GREENGUARD GOLD for Chemical Emission for Building Materials, Finishes and Furnishings.
- DCLD – Certificate of Product Conformity 2010 Al Safat Regulations and Specifications.
- Superior Thermal Conductivity (λ) 0,021 W/m K, the closed cell structure being more than 95% and meets the requirement of BS 5422: 2009.
- CFC/HCFC free. Tested by reputed Labs.
- EASY+ Pre-insulated panels are Antimicrobial treated for use in clean room applications.
- EASY Pre-insulated duct system is tested as per UNI EN 13403 : 2004 standars (“Ventilation for buildings – Non- metallic ducts – Duct works made from Insulation duct boards”) for airtightness, stiffness and pressure resistance.
- Sound Absorption: Class “E” when tested in accordance with UNI EN ISO 354:2003
- Fire & Smoke Performance: EASY pre-insulated panels are certified as per EN 13501, ASTM E 84 (UL 723, NFPA 255) and BS 476 Part 6 & 7.
- Additional certification: NES 713 (Determination of Toxicity), IMO resolution MSC 61 (67) (Smoke & Toxicity) and ISO 5659 (Smoke generations determination of Optical Density).





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PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 4
TECHNICAL DATA SHEET

MATERIAL SUBMITTAL TITLE: ROCKWOOL INSULATION

DATA SHEET

Material	Saudi Rockwool Board
NO	SRW. P50 D65Alu

The product is made out of molten basalt rocks spun to fine fibers and bonded with thermosetting Binder to form rigid Rockwool slabs.

The Material has good thermal, fire resistant, and acoustical properties it complies with the requirements of ASTM C612 with the following specifications:

Description

Thickness (mm)	Density (kg/m ³)	Facing	ASTM Classification
50	65	Aluminum foil. FSK	Type IVA
Density		65 (kg/m ³)	ASTM C303
Thermal conductivity (at 24 °C)		0.034(W/mK)	EN 12667:2001
Thermal Resistance (R) Value		1.47 m ² .K/W	
Max. use temperature		750 (°C)	ASTM C411
Rigidity		Rigid	ASTM C1101
Color		Yellowish	Visual
Compressive resistance at 10 % deformation (kpa)		5	ASTMC165
Shot content		<25 % (weight %)	ASTM C612
Corrosiveness		Noncorrosive	ASTM C871 ASTM C795
Water vapor sorption		<1 (Weight %)	ASTM C1104
PH		8-9	BS 2972 SEC 22
Fire Rating system integrity		1hr	EN 1363-1 Part 1
Flame spread index		0	ASTM E84
Smoke developed		0	ASTM E84
Fungi Resistance		Does not encourage Fungi Growth	ASTM C665
Euro class fire classification		A1	EN ISO 13501-1
Noise reduction coefficient (NRC)		1	ASTM C423



PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 5
MATERIAL SAFETY DATA SHEET

MATERIAL SUBMITTAL TITLE: ROCKWOOL INSULATION

MATERIAL SAFETY DATA SHEET

Revision :3-2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's Name : *Saudi Rockwool Factory*

P.O. Box 145, Riyadh – 11383, K.S.A

Tel: +966 1 2650034

Fax: +966 1 2650089

www.saudirockwool.com

Address:

K.S.A / Riyadh / third industrial Zone

Postal Code:

P.O. Box 145, Riyadh – 11383

Emergency Telephone: +96612650034

Date MSDS Prepared: 8/5 /2013



SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS:

Synonyms: Mineral wool, Rockwool, Manmade Vitreous Fiber , Manmade Vitreous mineral Fiber.

Ingredients	WT %	CAS Number	TLV	PEL
Mineral Rockwool fiber (amorphous, non-crystalline, bio-soluble.	95 - 99.5	RN 65997-17-3	TOTAL 10 MG/M ³ RESPIRABLE 1 FIBER/CC	TOTAL 15 MG/M ³ RESPIRABLE 1 FIBER/CC
Heat-cured resin (fiber binding	0.5 - 5	25104-55-6	NONE	NONE

agent)				
Emulsion Oil	< 1	8012-95-1	5 MG/M ³	5 MG/M ³

Mineral wool has been classified by EU as locally irritating (irritate the skin),

High levels may irritate nose, mouth, throat, and eyes.

This product is not asbestos product free from freeformaldehyde and Environment friendly with CFC and HCFC free , ,and chemically inert, with Zero ODP Ozone Depletion Potential &Zero GWP Global Warming Potential .

SECTION 3 — HAZARDS IDENTIFICATION

Skin Contact : Flush with clean water, If discomfort persists, seek medical attention.

Eye Contact: Flush with clean water, If discomfort persists, seek medical attention.

Inhalation: Remove to fresh air, If symptoms persist, seek medical attention.

Advice to Doctor: Any symptoms and signs of ill-health are likely to be due to other causes. Can be slightly itchy on prolonged contact with skin. Does not produce any acute

or chronic health effects. Treatment should be directed toward cleansing the skin and symptomatic treatment as necessary.

SECTION 5 FIRE FIGHTING MEASURES

Flammability: Non flammable, will not burn.

Suitable extinguishing media: As needed for surrounding fire conditions. Any extinguishing media may be used as required. Water fog may be used to cool intact containers and nearby storage areas.

Hazards from combustion products: Saudi Rockwool Insulation is non-flammable, but the plastic wrapping, resin binder, and some facings may decompose, or burn in a fire or when heated above 300°C.

Fire Fighting Procedures: As needed for surrounding fire conditions, If required evacuate area and contact emergency services, remain upwind and notify those downwind of fire hazard, and wear protective equipment including Self-Contained Breathing Apparatus (SCBA).

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Containment Procedure: If product is torn or loose, cover or reseal to minimize fiber release. Reuse where possible or place in a sealable plastic bag for disposal according to local authority guidelines.

Clean Up Procedure: Personnel directly involved in clean-up of loose material should wear personal protective equipment, clean area so as to avoid dispersion

of loose material or fibbers using wet sweep methods or vacuum cleaner.

SECTION 7 — HANDLING AND STORAGE

Handling: These products are safe in use. Once installed, the product does not release dust or fibers. Handling, installing or removing the product may result in some dust and airborne fiber. Minimize eye or skin contact and inhalation during handling, installation and removal, Observe good personal hygiene, including washing hands before eating. Remove personal protective equipment before entering eating areas

Storage: Store in sealed container in cool, dry area, removed from foodstuffs. Ensure packages area adequately labeled, protected from physical damage, and sealed when not in use. Avoid packaging being stored under UV light (direct sunlight) for long periods.

Incompatibilities: None.

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Control : During most applications and installation no special ventilation

will be required. However, if installing in dusty or poorly-ventilated areas, or during the first heat up cycle in high-temperature industrial applications, local exhaust ventilation should be considered. Work practices should aim to minimize the release of, and exposure to, fibers and/or dust. Hand tools generate the least amount of dust and fibers. If power tools are used directly on the product appropriate dust collection systems are recommended.

Personal Hygiene: Washing of exposed skin with soap and water at the end of a shift or as required is recommended as a comfort measure.

Skin Protection: Direct skin contact can be minimized by wearing long-sleeved shirts and long trousers, a cap or hat, and standard duty gloves .Work clothes should be washed regularly and separately from

other clothes. Comfort sleeve gloves are recommended for improved comfort when handling and installing Rockwool Insulation

Eye Protection: When handling these products, particularly overhead or in enclosed or poorly ventilated areas such as ceiling spaces or risers, eye contact with dust or fiber can be avoided by wearing ventilated non-fogging dust resistant goggles.

Respiratory Protection: None normally required. If dust is generated in enclosed or poorly-ventilated areas use respiratory protection at least class P2 respiratory protection.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown or grayish/ yellowish fibrous material resembling wool. It is supplied in different shapes and sizes wrapped in plastic. It may be rigid or flexible. Facings such as aluminum foil, , wire mesh, and synthetic tissues are applied to meet specific purposes.
Odor:	odorless
pH:	7 -9
Vapor Pressure/Density:	N/A
Melting Point:	> 1100 °C
Solubility in water:	Insoluble
Flammable (Explosive) Limit:	N/A (none- Flammable)
Physical State :	solid
Auto-ignition Temperature:	N/A
Flash Point:	N/A
Relative density for fiber :	Approx. 2.9 g/cm ³
Product Density :	30 -180 kg/m ³
Boiling Point:	N/A

SECTION 10 — STABILITY AND REACTIVITY

Chemical Stability:	Stable. The cured resin is stable and will remain intact for the life of the product under normal atmospheric conditions
Incompatible Materials:	None . No reported incompatibilities. Acids, alkalis or organic solvents may cause degradation of resin binder.

SECTION 11 — TOXICOLOGICAL INFORMATION

Effects of Acute Exposure : Unprotected exposure to high levels of dust of these products (during installation or removal) may cause discomfort of the nose, throat, and upper and lower respiratory tract,

especially in persons suffering from upper respiratory or chest complaints such as hay fever, asthma or bronchitis. Handling repeatedly during installation may cause temporary itching of exposed skin. This is not an allergy and usually disappears quickly, may cause eye discomfort resulting in watering and redness.

Effects of chronic exposure: There are no known long-term health effects.

In October 2001, IARC completed a re-evaluation of respirable mineral wool fibers and classified them in Group 3 (not classifiable as to their carcinogenicity to humans).

SECTION 12 — ECOLOGICAL INFORMATION

Eco-toxicity: This product is not classified as a hazardous air pollutant. No specific data is available on ecotoxicity, but estimations based on toxicity information suggest that the materials in these products are not toxic to fish, birds insects or organisms in the environment. No harm to fish or wildlife would be caused by this product.

Persistence and Degradability: Rockwool Insulation is bio-soluble and in most ecosystems it would be expected to solubilise over a period of weeks to months. Binder-coated insulation wool is hydrophobic, and no adverse environmental effects would be expected if accidentally released in water or soil.

Ozone Depleting Potential: No Ozone Depleting Substances are involved in either the manufacture or composition of this product & therefore has an ozone depletion potential of zero.

SECTION 13 — DISPOSAL CONSIDERATIONS

This product is not toxic to animal and plants or fish, Place in plastic bags or containers and close or seal for disposal in accordance with local authority guidelines. Label as NON-HAZARDOUS insulation wool or as general building waste (non-hazardous), as appropriate to assist local authorities waste disposal sites, and local authorities will usually advise any local handling arrangements at their disposal sites.

SECTION 14 — TRANSPORT INFORMATION

Transport Requirements:	Rockwool Insulation products are not classified as Dangerous Goods and have no special transport requirements.
HAZCHEM code:	None allocated

SECTION 15 — REGULATORY INFORMATION

Poisons Schedule:	Not scheduled. No specific regulatory requirements are applicable regarding occupational health and safety, consumer protection or environmental protection measures.
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SECTION 16 — OTHER INFORMATION

For further information on this product, please contact:

Saudi Rockwool Factory

Prepared By Eng. Marwan Lobani /Chemical Engineer

P.O. Box 145, Riyadh – 11383, K.S.A

Tel: +966 1 2650034

Fax: +966 1 2650089

www.saudirockwool.com

TO WHOM IT MAY CONCERN

We Saudi Rockwool Factory hereby confirm that Saudi Rockwool insulation products , which are made out of molten natural basalt rocks, spun to fine fibers, forming an open cell insulation products, are inorganic , inert , vermin proof , water repellents , moisture resistant , sag and delamination resistant , it doesn't s promote growth of fungi or bacteria and is mildew resistant

SRW products are certified as free of gases that are harmful to the environment, such as CFCs, HCFCs, HFCs, and pentane.

Products are rated as having zero Ozone Depleting Potential (ODP) and zero Global Warming Potential (GWP).

SRW products are approved as asbestos free and listed by Dubai municipality as green building material

The products comply with the thermal insulation standard for building insulations EN13162, and are certified by the European committee (CE mark) and Dubai central laboratories (DCL Mark)

Products are certified and labeled by UL mark according to UL 723 with zero flame spread and zero smoke developed indexes

Eng SAMI D AL GHANABLI

Quality & Technical Support Manager





PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 6

FIRE TEST REPORT (EN 13501)

Exova Warringtonfire
Holmesfield Road
Warrington
WA1 2DS
United Kingdom

T : +44 (0) 1925 655 116
F : +44 (0) 1925 655 419
E : warrington@exova.com
W: www.exova.com



Testing. Advising. Assuring.

Title:

CLASSIFICATION OF
REACTION TO FIRE
PERFORMANCE
IN ACCORDANCE WITH
EN 13501-1: 2007

Notified Body No:

0833

Product Name:

"Saudi Rockwool Panels,
Blankets, and Preformed Pipes"

Report No:

328655

Issue No:

1

Prepared for:

Saudi Rockwool Factory Co,
Member of GIG (GULF
INSULATION GROUP)
P.O.Box 145, Riyadh 11383,
K.S.A.
Industrial City # 3, Kharj
Road, Exit 14

Date:

1st May 2013

1. Introduction

This classification report defines the classification assigned to "Saudi Rockwool Panels, Blankets, and Preformed Pipes", faced and unfaced rock wool insulation products, in accordance with the procedures given in EN 13501-1:2007

2. Details of classified product

2.1 General

The product, "Saudi Rockwool Panels, Blankets, and Preformed Pipes", faced and unfaced rock wool insulation products is defined as an insulation product suitable for construction applications.

2.2 Product description

The product, "Saudi Rockwool Panels, Blankets, and Preformed Pipes", faced and unfaced rock wool insulation products, is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description	Mineral wool
Generic type	Rock wool
Product reference	"Saudi Rockwool Panel"
Name of manufacturer	Saudi Rockwool Factory
Colour reference	"Brown"
Density	Up to 150 kg/m ³
Generic type of resin	See Note 1 Below
Product reference of resin	See Note 1 Below
Amount of resin	3.6%
Generic type of oil	Emulsion oil
Product reference of oil	"Mineral Oil"
Amount of oil	0.3%
Flame retardant details	See Note 2 Below
Brief description of manufacturing process	Melting and spinning of basalt, adding resin, curing and compressing, curing.

Note 1: The sponsor of the test has provided this information but at the specific request of the sponsor, these details have been omitted from the report and are instead held on the confidential file relating to this investigation.

Note 2: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the product.

3. Test reports & test results in support of classification

3.1 Test reports

Name of Laboratory	Name of sponsor	Test report Nos.	Test
Exova warringtonfire	Saudi Rockwool Factory Co	WFR 324766	EN ISO 1182
PAVUS a.s.	Saudi Rockwool Factory Co	Pr-09-1.296	EN ISO 1716

3.2 Test results

Test method & test number	Parameter	No. tests	Results	
			Continuous parameter - mean (m)	Compliance parameters
EN ISO 1716	PCS	3	0.53 MJ/kg	compliant
EN ISO 1182	ΔT	3	10 °C	Compliant
	Δm		0.48 %	Compliant
	t_{fl}		Nil	Compliant

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1:2007

4.2 Classification

The product, "Saudi Rockwool Panels, Blankets, and Preformed Pipes", faced and unfaced rock wool insulation products, in relation to its reaction to fire behaviour is classified:

Reaction to fire classification: A1

4.3 Field of application

This classification is valid for the following end use applications:

- i) Construction applications

This classification is also valid for the following product parameters:

Product thickness	any thickness
Product density	up to 150 kg/m ³
Product configuration	with non-combustible facing applied by adhesion in the production process without additional adhesive
Product composition	No variation allowed

This covers the following product range:

Product	Thickness (mm)	Density (kg/m ³)	Facing
Saudi Rockwool Panels	25 – 200	30 – 150	None/aluminium foil
Saudi Rockwool Blankets	25 – 140	60 – 130	Wire Mesh
Saudi Rockwool Blankets	25 – 200	30 – 70	Aluminium foil
Saudi Rockwool Preformed Pipes	25 - 150	100 - 150	None/Aluminium Foil

SIGNED

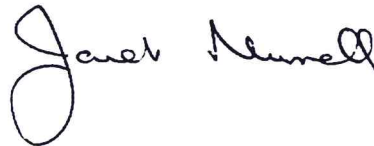


.....

Frans Paap

Certification Engineer

APPROVED



.....

Janet Murrell

Technical Manager

on behalf of **Exova warringtonfire**

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PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 7

OTHER CERTIFICATIONS /APPROVALS

CERTIFICATE OF COMPLIANCE



Saudi Rockwool Factory Saudi Rockwool Panels

85569-410

Certificate Number

12/07/2016 - 12/02/2022

Certificate Period

Certified

Status

UL 2818 - 2013 Standard for Chemical Emissions for Building Materials, Finishes and Furnishings

Products tested in accordance with UL 2821 test method to show compliance to emission limits in UL 2818, Section 7.1.



UL investigated representative samples of the identified Product(s) to the identified Standard(s) or other requirements in accordance with the agreements and any applicable program service terms in place between UL and the Certificate Holder (collectively "Agreement"). The Certificate Holder is authorized to use the UL Mark for the identified Product(s) manufactured at the production site(s) covered by the UL Test Report, in accordance with the terms of the Agreement. This Certificate is valid for the identified dates unless there is non-compliance with the Agreement.

GREENGUARD Certification Criteria for Building Products and Interior Finishes

Criteria	CAS Number	Maximum Allowable Predicted Concentration	Units
TVOC ^(A)	-	0.50	mg/m ³
Formaldehyde	50-00-0	61.3 (50 ppb)	µg/m ³
Total Aldehydes ^(B)	-	0.10	ppm
Particle Matter less than 10 µm ^(C)	-	50	µg/m ³
4-Phenylcyclohexene	4994-16-5	6.5	µg/m ³
Individual VOCs ^(D)	-	1/10th TLV	-

- (A) Defined to be the total response of measured VOCs falling within the C₆ – C₁₆ range, with responses calibrated to a toluene surrogate. Maximum allowable predicted TVOC concentrations for GREENGUARD (0.50 mg/m³) fall in the range of 0.5 mg/m³ or less, as specified in CDPH Standard Method v1.2.
- (B) The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.
- (C) Particle emission requirement only applicable to HVAC Duct Products with exposed surface area in air streams (a forced air test with specific test method) and for wood finishing (sanding) systems.
- (D) Allowable levels for chemicals not listed are derived from 1/10th of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).





COMPLIANCE TESTED by berkeley analytical

VOC Emission Test Certificate

Product Name: Mineral Wool - Rockwool

Product Sample Information		Certificate Information	
Manufacturer:	Saudi Rock Wool	Certificate No:	151029-01
Manf. Website:	www.saudirockwool.com	Certified By:	 Raja S. Tannous, Laboratory Director
CSI Category & No.:	Thermal Insulation (07 21 00)	Date:	October 29, 2015
Date Produced:	10/04/2015		

Reference Standard: California Department of Public Health CDPH/EHLB/Standard Method Version 1.1, 2010 (Emission testing method for CA Specification 01350)

Acceptance Criteria and Results Demonstrating Compliance of Product Sample to Referenced Standard:

Exposure Scenario ¹	Individual VOCs of Concern ²		Formaldehyde ³		TVOC ⁴
	Criterion	Compliant?	Criterion	Compliant?	Range
School Classroom	≤½ Chronic REL	YES	≤9.0 µg/m ³	YES	≤ 0.5 mg/m ³
Private Office	≤½ Chronic REL	YES	≤9.0 µg/m ³	YES	≤ 0.5 mg/m ³

Product Coverage⁵: Not applicable

1. Exposure scenarios & product quantities for classroom & office are defined in Tables 4-2 – 4-5 (CDPH Std. Mtd. V1.1-2010)
2. Maximum allowable concentrations of individual target VOCs are specified in Table 4-1 (*ibid.*)
3. Maximum allowable formaldehyde concentration is ≤9 µg/m³, effective Jan 1, 2012; previous limit was ≤16.5 µg/m³ (*ibid.*)
4. Informative only; predicted TVOC Range in three categories, i.e., ≤0.5 mg/m³, >0.5 – 4.9 mg/m³, and ≥5.0 mg/m³
5. Informative and applicable only to tests of wet-applied products; grams of sample applied per square meter of substrate

Standards & Codes Recognizing CDPH Standard Method V1.1 (partial list)

- CALGreen, CA Code of Regulations Title 24, Part II, 2012
- USGBC LEED for Schools, 2009
- USGBC LEED Version 4, BD&C, ID&C, 2013
- Collaborative for High Performance Schools (CHPS), National Core Criteria, 2013
- ANSI/GBI 01-2010, Green Building Assessment Protocol

Narrative: Saudi Rock Wool selected a sample representative of its Mineral wool - Rockwool product and submitted it on 10/9/2015 for testing. Berkeley Analytical measured and evaluated the emissions of VOCs from this sample following CDPH/EHLB/Standard Method V1.1-2010. The results of the test are presented in Berkeley Analytical report, 753-002-01A-Oct2915.

Berkeley Analytical is an independent, third-party laboratory specializing in the analysis of organic chemicals emitted by and contained in building products, finishes, furniture, and consumer products. We are an ISO/IEC 17025 accredited laboratory (IAS, [TL-383](#)); all standards used in performing this test are in Berkeley Analytical's scope of accreditation.

DISCLAIMER: THIS CERTIFICATE OF COMPLIANCE AFFIRMS THAT: 1) A SAMPLE OF THE LISTED PRODUCT WAS TESTED ACCORDING TO THE REFERENCED STANDARD; 2) THE MEASURED VOC EMISSIONS FROM THE SAMPLE WERE EVALUATED FOR THE DEFINED EXPOSURE SCENARIO(S); AND 3) THE RESULTS MEET THE ACCEPTANCE CRITERIA OF THE REFERENCED STANDARD(S). BERKELEY ANALYTICAL IS NOT RESPONSIBLE FOR ANY CLAIMS REGARDING A PRODUCT OR PRODUCTS ENTERED INTO COMMERCE THAT MAY BE BASED ON THIS TEST. BERKELEY ANALYTICAL PROVIDES THIS CERTIFICATE OF COMPLIANCE "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

Group 1	<i>Carcinogenic to humans</i>	
Group 2A	<i>Probably carcinogenic to humans</i>	58
Group 2B	<i>Possibly carcinogenic to humans</i>	249
Group 3	<i>Not classifiable as to its carcinogenicity to humans</i>	512
Group 4	<i>Probably not carcinogenic to humans</i>	1

Overall Evaluations of Carcinogenicity to Humans

Group 3: Not classifiable as to carcinogenicity to humans

As evaluated in *IARC Monographs Volumes 1-99*

This list contains all agents evaluated as Group 3 carcinogens to date. Where appropriate, chemical abstract numbers are given [in square brackets]. For details of the evaluation, the relevant Monograph should be consulted (volume number given in round brackets, followed by year of publication of latest evaluation). Use a free-text search to find a particular compound.

Group 3: Not classifiable as to its carcinogenicity to humans (515)

Agents and groups of agents

Retrorsine [480-54-6] (Vol. 10, Suppl. 7; 1987)

Rhodamine B [81-88-9] (Vol. 16, Suppl. 7; 1987)

Rhodamine 6G [989-38-8] (Vol. 16, Suppl. 7; 1987)

Rifampicin [13292-46-1] (Vol. 24, Suppl. 7; 1987)

Ripazepam [26308-28-1] (Vol. 66; 1996)

Rock (stone) wool (Vol. 43, Vol. 81; 2002)

Rugulosin [23537-16-8] (Vol. 40, Suppl. 7; 1987)

Saccharated iron oxide [8047-67-4] (Vol. 2, Suppl. 7; 1987)

<http://monographs.iarc.fr/ENG/Classification/crthgr03.php>



TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague

Akreditovaná zkušební laboratoř, Autorizovaná osoba, Certifikační orgán, Notifikovaná osoba, Inspekční orgán
Accredited Testing Laboratory, Authorized Body, Certification Body, Notified Body, Inspection Body
Prosecká 811/76a, 190 00 Praha 9 - Prosek, Czech Republic

EC CERTIFICATE OF CONFORMITY

No. 1020 – CPD – 050016080

In compliance with the Directive 89/106/EEC of the Council of European Communities of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to the construction products (Construction Products Directive – CPD), amended by the Directive 93/68/EEC of the Council of European Communities of 22 July 1993, it has been stated that the construction product:

Mineral Wool – Saudi Rockwool Panels

None or with Aluminium foil thickness 12 – 18 mic without paper, in range of density from 80 to 160 kg/m³

(list of products enclosed in the certificate)

placed on the market by:

SAUDI ROCKWOOL FACTORY CO.

INo.: 1010111255
address: P.O.BOX 145 RIYADH 11383, Kingdom of Saudi Arabia
order: Z050070014

and produced in the factory:

SAUDI ROCKWOOL FACTORY CO.

address: Al Kharj Road, Third industrial area, Riyadh

is submitted by the manufacturer to a factory production control and to the further testing of samples taken at the factory in accordance with a prescribed test plan and that the notified body

Technical and Test Institute for Construction Prague

has performed the initial type-testing for the relevant characteristics of the product, the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control.

This certificate attests that all provisions concerning the attestation of conformity and the performances described in Annex ZA of the standard

EN 13162:2001

were applied and that the product fulfils all the prescribed requirements.

This certificate was first issued on 11. April 2008 and remains valid as long as the conditions laid down in the harmonised technical specification in reference or the manufacturing conditions in the factory or the FPC itself are not modified significantly.

The stamp of the Notified Body 1020

Předměčice nad Labem, 11 April 2008



Vladislav Kadleček M.Sc, Ph.D
Deputy manager of the Notified Body



TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague

Akreditovaná zkušební laboratoř, Autorizovaná osoba, Certifikační orgán, Notifikovaná osoba, Inspekční orgán
Accredited Testing Laboratory, Authorized Body, Certification Body, Notified Body, Inspection Body
Prosecká 811/76a, 190 00 Praha 9 - Prosek, Czech Republic

Annex of EC CERTIFICATE OF CONFORMITY No. 1020 – CPD – 050016080

Certificate is for the following products from the plant SAUDI ROCKWOOL FACTORY CO. Al Kharj Road,
third industrial area, Riyadh, Kingdom of Saudi Arabia

Trade name	Characteristic coefficient of thermal conductivity λ_{k10} ($W.m^{-1}.K^{-1}$)	Class reation to fire	Designation code by EN 13 162
SRWP D80	0,034	A1	MW – 13162 – T3 – DS(TH) – CS(10)5 – WS – WL(P) – MU3
SRWP D120	0,034	A1	MW – 13162 – T3 – DS(TH) – CS(10)10 – WS – WL(P) – MU3
SRWP D160	0,035	A1	MW – 13162 – T3 – DS(TH) – CS(10) 20 – WS – WL(P) – MU3

The stamp of the Notified Body 1020

Předměřice nad Labem, 11. April 2008



Vladislav Kadleček M.Sc, Ph.D
Deputy manager of the Notified Body



Certificate of Compliance

This certificate is issued for the following:

SRW CAVITY PANELS, SRW DUCT WRAP, SRW DUCT BOARD, SRW FIRE BOARD, SRW HD BLANKET, SRW LD BLANKET, SRW QUILTED BLANKET, SRW WIRED BLANKET

Prepared for:

Saudi Rock Wool Factory Co
PO Box 145
Riyadh, 11383
Saudi Arabia

FM Approvals Class: 4880, 4924

Approval Identification: 0003052597

Approval Granted: 11/20/2015

To verify the availability of the Approved product, please refer to www.approvalguide.com or www.roofnav.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

A handwritten signature in dark ink that reads 'Cynthia E Frank'.

Cynthia Frank
AVP - Manager of Materials
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062



Member of the FM Global Group

CERTIFICATE OF COMPLIANCE

Certificate Number 20130701-R27523
Report Reference R27523-20130629
Issue Date 2013-JULY-01

Issued to: SAUDI ROCKWOOL FACTORY
3RD INDUSTRIAL CITY
PO BOX 145
RIYADH 11383 SAUDI ARABIA

This is to certify that
representative samples of

MINERAL AND FIBER BOARDS


Mineral-fiber boards bound with a resin binder, identified as
"Saudi Rockwool SRWF with FSK Aluminum Facing".

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL723, Standard for Surface Burning Characteristics for
Building Materials.

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Classification Mark should be considered as being covered by
UL's Classification and Follow-Up Service.

The UL Classification Mark includes: UL in a circle: with the word "CLASSIFIED"  (as shown); a control
number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of
the product; and the product category name (product identity) as indicated in the appropriate UL
Directory.

Look for the UL Classification Mark on the product.



William R. Carney, Director, North American Certification Programs
UL LLC

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contact a local UL Customer Service Representative at www.ul.com/contactus



CERTIFICATE OF APPROVAL
No CF 5145

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

SAUDI ROCK WOOL FACTORY CO.

Saudi Rock Wool Factory Co., Member of GIG (GULF INSULATION GROUP)
P.O.Box 145, Riyadh 11383, K.S.A.
Industrial City # 3, Kharj Road, Exit 14
Tel: +9661 265 0034 Fax: +9661 265 0089

Have been assessed against the requirements of the Technical Schedule(s)
denoted below and are approved for use subject to the conditions
appended hereto:

CERTIFIED PRODUCT

Saudi Rock Wool Insulation

TECHNICAL SCHEDULE

**TS70 Mineral Fibre
Products**

**Signed and sealed for and on behalf of Exova (UK) Limited trading as
Warrington Certification**



Paul Duggan
Certification Manager

Issued: 25th February 2013
Reissue: 13th November 2018
Valid to: 12th November 2023

Page 1 of 2



CERTIFICATE No CF 5145
SAUDI ROCK WOOL FACTORY CO.

1. This approval relates to the use of the above construction product. The product has 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.
2. This approval does not cover other features required of mineral fibre thermal insulation such as durability, thermal conductivity, water absorption, etc.
3. The construction product is approved on the basis of:
 - i) Initial type testing
 - ii) Audit testing at the frequency as specified in TS70
 - iii) Inspection and surveillance of factory production control
 - v) Certification of quality management systems to ISO 9001:2015
4. This approval is applicable to the following product range:

Product	Thickness (mm)	Density (kg/m ³)	Facing
Saudi Rockwool Panels	25 – 200	30 – 150	None/aluminium foil
Saudi Rockwool Blankets	25 – 140	60 – 130	Wire Mesh
Saudi Rockwool Blankets	25 – 200	30 – 70	Aluminium foil
Saudi Rockwool Preformed Pipes	25 - 150	100 - 150	None/Aluminium Foil

5. The construction product shall be mounted and fixed in accordance with manufacturers instructions.
6. Markings to the CERTIFIRE design referencing Saudi Rock Wool Factory Co., CERTIFIRE Ref. No. CF5145 shall be affixed to each construction product in the prescribed position.
7. This approval relates to ongoing production. The product and/or its immediate packaging is identified with the manufacturer's name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.
8. This certification is provided to the client for its own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

CERTIFICATE OF COMPLIANCE

Certificate Number 20130701-R27523
Report Reference R27523-20130629
Issue Date 2013-JULY-01

Issued to: SAUDI ROCKWOOL FACTORY
3RD INDUSTRIAL CITY
PO BOX 145
RIYADH 11383 SAUDI ARABIA

**This is to certify that
representative samples of**

MINERAL AND FIBER BOARDS


Mineral-fiber boards bound with a resin binder, identified as
"Saudi Rockwool SRWF with FSK Aluminum Facing".

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

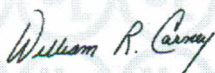
Standard(s) for Safety: UL723, Standard for Surface Burning Characteristics for
Building Materials.

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Classification Mark should be considered as being covered by
UL's Classification and Follow-Up Service.

The UL Classification Mark includes: UL in a circle: with the word "CLASSIFIED"  (as shown); a control
number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of
the product; and the product category name (product identity) as indicated in the appropriate UL
Directory.

Look for the UL Classification Mark on the product.



William R. Carney, Director, North American Certification Programs
UL LLC

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contact a local UL Customer Service Representative at www.ul.com/contactus





BQXR.R27523 Mineral and Fiber Boards

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Mineral and Fiber Boards

[See General Information for Mineral and Fiber Boards](#)

SAUDI ROCKWOOL FACTORY

R27523

3Rd Industrial City
Po Box 145
Riyadh, 11383 SAUDI ARABIA

Inorganic mineral fiber insulation, with or without wire mesh backing designated SRW.

	Unfaced SRW Products
Flame spread	0
Smoke developed	0

	Foil-Faced SRW Products
Flame spread	0
Smoke developed	0

Last Updated on [2014-10-23](#)

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When the UL Leaf Mark is on the product, or when the word "Environment" is included in the UL Mark, please search the [UL Environment database](#) for additional information regarding this product's certification.

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

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PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 8

DCL CERTIFICATIONS

CERTIFICATE OF PRODUCT CONFORMITY

Dubai Central Laboratory Department (DCLD) of Dubai Municipality
hereby attests that the product(s)

Mineral Wool Insulation

(Details as per the attached Scope of Certification)

manufactured by:

SAUDI ROCKWOOL FACTORY CO.

P.O. Box:145 Riyadh 11383 Kingdom of Saudi Arabia

have been assessed in accordance with DCLD Document Ref. No. DM-DCLD-RD-DP21-2001 (IC) "General Rules for DM third party product certification system through factory assessment" and the relevant Specific Rules, and were found in conformity with the standard specification:

BS EN 13162: 2012 +A1: 2015

Accordingly, DCLD hereby authorizes the above manufacturer
to affix the DCL Product Conformity Mark on the above-mentioned product(s).



for / ENGR. AMIN AHMED AMIN
Director, Dubai Central Laboratory Department
Dubai Municipality



Certificate No: CL10020131
Valid Until: 04/04/2022



Current Issue Date: 05/04/2021
Original Issue Date: 05/04/2010



The attached Scope of Certification bearing the same Certificate Number forms an integral part of this Certificate.
This Certificate is an electronic document subject to the Terms and Conditions of the Product Certification System and shall not be reproduced except in full.



DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME

SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL10020131

Certificate Issued To:	SAUDI ROCKWOOL FACTORY CO. P.O. Box: 145, Riyadh 11383, Kingdom of Saudi Arabia
Applicable Standard Specification:	BS EN 13162:2012 – Thermal Insulation Products for Buildings – Factory Made Mineral Wool (MW) Products - Specification
Applicable Specific Rules:	DM-DCLD-RD-DP21-2130 (IC) “Specific Rules for Certification of Factory Made Mineral Wool Thermal Insulation Products (as per BS EN 13162:2012) Through Factory Assessment”.

S/N	Product Description	Product Brand	Product Details
1.	Mineral Wool (Rockwool) Panel “CFC Free” (See Note 3)	Saudi Rockwool	Rockwool Panel Without Facing Nominal Thickness, 25-150 mm - Nominal Density, 30 – 40 kg/m ³ k-value: 0.048 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU3 - Nominal Density, 41 – 60 kg/m ³ k-value: 0.044 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU3 - Nominal Density, 61 – 120 kg/m ³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)5-WS-WL(P)-MU3 - Nominal Density, 121 – 160 kg/m ³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)10-WS-WL(P)-MU3



DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME

SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL10020131

			<p>Rockwool Panel Without Facing ^(Note 4)</p> <p>Nominal Thickness, 25-200 mm</p> <p>- Nominal Density, 30 – 40 kg/m³ k-value: 0.048 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU3</p> <p>- Nominal Density, 41 – 60 kg/m³ k-value: 0.043 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU3</p> <p>- Nominal Density, 61 – 120 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)5-WS-WL(P)-MU3</p> <p>- Nominal Density, 121 – 200 kg/m³ k-value: 0.046 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)10-WS-WL(P)-MU3</p>
		Saudi Rockwool	<p>Rockwool Panel with Alu-Foil Facing</p> <p>Nominal Thickness, 25-150 mm</p> <p>- Nominal Density, 30 – 40 kg/m³ k-value: 0.048 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-Z3</p> <p>- Nominal Density, 41 – 60 kg/m³ k-value: 0.044 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-Z3</p> <p>- Nominal Density, 61 – 120 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)5-WS-WL(P)-Z3</p> <p>- Nominal Density, 121 – 160 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)10-WS-WL(P)-Z3</p>
			<p>Rockwool Panel with Alu-Foil Facing ^(Note 4)</p> <p>Nominal Thickness, 25-200 mm</p> <p>- Nominal Density, 30 – 40 kg/m³ k-value: 0.048 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-Z3</p>



DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME

SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL10020131

			<p>- Nominal Density, 41 – 60 kg/m³ k-value: 0.043 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-Z3</p> <p>- Nominal Density, 61 – 120 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)5-WS-WL(P)-Z3</p> <p>- Nominal Density, 121 – 200 kg/m³ k-value: 0.046 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)10-WS-WL(P)-Z3</p>
		Saudi Rockwool	<p>Rockwool Panel with Fiber Glass-Veil Facing</p> <p>Nominal Thickness, 25-150 mm</p> <p>- Nominal Density, 30 – 40 kg/m³ k-value: 0.048 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU5</p> <p>- Nominal Density, 41 – 60 kg/m³ k-value: 0.044 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU5</p> <p>- Nominal Density, 61 – 120 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)5-WS-WL(P)-MU5</p> <p>- Nominal Density, 121 – 160 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)10-WS-WL(P)-MU5</p>
			<p>Rockwool Panel with Fiber Glass-Veil Facing ^(Note 4)</p> <p>Nominal Thickness, 25-200 mm</p> <p>- Nominal Density, 30 – 40 kg/m³ k-value: 0.048 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU5</p> <p>- Nominal Density, 41 – 60 kg/m³ k-value: 0.043 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)0.5-WS-WL(P)-MU5</p> <p>- Nominal Density, 61 – 120 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH</p>



DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME

SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL10020131

			<p>MW-EN13162-T3-DS(TH)-CS(10)5-WS-WL(P)-MU5</p> <p>- Nominal Density, 121 – 200 kg/m³ k-value: 0.046 W/(m-K) @ 35°C & 60% RH</p> <p>MW-EN13162-T3-DS(TH)-CS(10)10-WS-WL(P)-MU5</p>
2.	<p>Mineral Wool (Rockwool) Mattress</p> <p>“CFC Free” (See Note 3)</p>	Saudi Rockwool	<p>Rockwool Mattress with Alu-Foil Facing</p> <p>Nominal Thickness, 25-120 mm</p> <p>MW-EN13162-T3-DS(TH)- WS-WL(P)-Z3</p> <p>- Nominal Density, 30 – 40 kg/m³ k-value: 0.048 W/(m-K)</p> <p>- Nominal Density, 41 – 60 kg/m³ k-value: 0.044 W/(m-K)</p> <p>- Nominal Density, 61 – 100 kg/m³ k-value: 0.042 W/(m-K)</p>
			<p>Rockwool Mattress with Alu-Foil Facing^(Note 4)</p> <p>Nominal Thickness, 25-120 mm</p> <p>MW-EN13162-T3-DS(TH)- WS-WL(P)-Z3</p> <p>- Nominal Density, 30 – 40 kg/m³ k-value: 0.048 W/(m-K)</p> <p>- Nominal Density, 41 – 60 kg/m³ k-value: 0.043 W/(m-K)</p> <p>- Nominal Density, 61 – 100 kg/m³ k-value: 0.042 W/(m-K)</p>
		Saudi Rockwool	<p>Rockwool Mattress with Mesh-Wire Facing</p> <p>Nominal Thickness, 25-150 mm</p> <p>MW-EN13162-T3-DS(TH)- WS-WL(P)-MU3</p> <p>- Nominal Density, 70 – 120 kg/m³ k-value: 0.042 W/(m-K)</p>



DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME

SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL10020131

			<p>Rockwool Mattress with Mesh-Wire Facing ^(Note 4)</p> <p>Nominal Thickness, 25-150 mm</p> <p>- Nominal Density, 70 – 120 kg/m³ k-value: 0.043 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)5-WS-WL(P)-MU5</p> <p>- Nominal Density, 121 – 150 kg/m³ k-value: 0.042 W/(m-K) @ 35°C & 60% RH MW-EN13162-T3-DS(TH)-CS(10)10-WS-WL(P)-MU5</p>
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Note 1: This document forms part of the Certificate of Product Conformity bearing the same certificate number.

Note 2: The above products shall bear the DCL Conformity Mark (applied on each product or on the packaging).

Note 3: CFC Free as per declaration from the company, in accordance with AlSa'fat – Dubai Green Building Evaluation System.

Note 4: These products are produced in Saudi Rockwool Riyadh and their outsourced factory located in Al Kharj.

Original Issue Date: 05 April 2010

Current Issue Date: 05 April 2021

Valid Until: 04 April 2022

ARIF HUSAIN AL MARZOOQI

Products Conformity Assessment Section Manager

Dubai Central Laboratory Department

CERTIFICATE OF PRODUCT CONFORMITY

Dubai Central Laboratory Department (DCLD) of Dubai Municipality
hereby attests that the product(s)

Mineral Fiber Block and Board Thermal Insulation

(Details as per the attached Scope of Certification)

manufactured by:

SAUDI ROCKWOOL FACTORY CO.

P.O. Box:145 Riyadh 11383 Kingdom of Saudi Arabia

have been assessed in accordance with DCLD Document Ref. No. DM-DCLD-RD-DP21-2001 (IC) "General Rules for DM third party product certification system through factory assessment" and the relevant Specific Rules, and were found in conformity with the standard specification:

ASTM C612 - 2014

Accordingly, DCLD hereby authorizes the above manufacturer
to affix the DCL Product Conformity Mark on the above-mentioned product(s).



for / ENGR. AMIN AHMED AMIN
Director, Dubai Central Laboratory Department
Dubai Municipality



Certificate No: CL19020672
Valid Until: 20/04/2022



Current Issue Date: 21/04/2021
Original Issue Date: 21/04/2019



The attached Scope of Certification bearing the same Certificate Number forms an integral part of this Certificate.
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DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME

SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL19020672

Certificate Issued To: SAUDI ROCKWOOL FACTORY CO.
P.O. Box: 145 Riyadh 11383 Kingdom of Saudi Arabia

Applicable Standard Specification: ASTM C 612-14 Standard Specification for Fiber Block and Board Thermal Insulation

Applicable Specific Rules: DM-DCLD-RD-DP21-2108 (IC) "Specific Rules for Certification of Mineral Fiber Block and Board Thermal Insulation (ASTM C 612-14) Through Factory Assessment".

S/N	PRODUCT DESCRIPTION	BRAND NAME	PRODUCT DETAILS
1.	Mineral Rockwool Board/Slab Thermal Insulation	Saudi Rockwool	Type IB and Type II Without Facing (Unfaced) k-value: 0.039 W/(m ² ·K) Nominal Density Range: 35 - 99 kg/m ³ Nominal Thickness: 25 - 200 mm
		Saudi Rockwool	Type III Without Facing (Unfaced) k-value: 0.039 W/(m ² ·K) Nominal Density Range: 100 - 200 kg/m ³ Nominal Thickness: 25 - 200 mm
		Saudi Rockwool	Type IB and Type II with Aluminum Foil Facing k-value: 0.039 W/(m ² ·K) Nominal Density Range: 35 - 99 kg/m ³ Nominal Thickness: 25 - 200 mm
		Saudi Rockwool	Type III with Aluminum Foil Facing k-value: 0.039 W/(m ² ·K) Nominal Density Range: 100 - 200 kg/m ³ Nominal Thickness: 25 - 200 mm
		Saudi Rockwool	Type IB and Type II with BFG Facing k-value: 0.039 W/(m ² ·K) Nominal Density Range: 35 - 99 kg/m ³ Nominal Thickness: 25 - 200 mm

DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME

SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL19020672

		Saudi Rockwool	Type III with BFG Facing k-value: 0.039 W/(m ² ·K) Nominal Density Range: 100 - 200 kg/m ³ Nominal Thickness: 25 - 200 mm
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NOTE 1: This document forms part of the Certificate of Product Conformity bearing the same certificate number.

NOTE 2: The above product shall bear the DCL Conformity Mark.

NOTE 3: Maximum k-value measured at 35°C temperature and 60% relative humidity condition.

Original Issue Date: 21 April 2019

Current Issue Date: 21 April 2021

Valid Until: 20 April 2022



ARIF HUSAIN AL MARZOOQI
Products Conformity Assessment Section Manager
Dubai Central Laboratory Department



PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 9

DCD CERTIFICATES

MATERIAL SUBMITTAL TITLE: ROCKWOOL INSULATION



Agent License ترخيص وكيل

SATNA0000045785-2016

رقم الترخيص
License Number

4 - 5

عدد التراخيص
Number of Licenses

55216

رقم السجل
Registration Number

201789

رقم الترخيص
License Number

شركة شركة جلف لتجارة المواد المقاومة لانتشار الحريق

اسم وكيل
Name of Agent

الامارات

الجنسية
Nationality

محمد عبد الحسن اللوز

اسم صاحب الترخيص
Owner of the License

الامارات

الجنسية
Nationality

اماني محمد عبد الحسن اللوز

اطراف الرخصة
Partner in the License

12736

ص.ب.
P.O. Box

04-2858001

رقم الفاكس
Fax Number

04-2223697

رقم الهاتف
Office Phone Number

مكتب رقم 173 - ملك بركاش شابلاي-مجمع دبي للاستثمار الاول

عنوان الشركة
Company Address

kaid@kaidauditing.com

الموقع / البريد الإلكتروني
Email of the Company

2022/02/28م

تاريخ الانتهاء
License Expired

2021/03/01م

تاريخ الإصدار
License Issued

1983/03/05م

تأسست بتاريخ
Company Registered Date

6

عدد المعدات والأجهزة المعتمدة
Total number of Products approved

تم اصدار الترخيص استناداً إلى القرار الوزاري رقم (213) لسنة 2017، في شأن تنظيم خدمات الدفاع المدني

The license was issued pursuant to Ministerial Decree No. (213) for the year 2017 pertaining the regulation of civil defense services



يعتمد / عن مدير الإدارة العامة للدفاع المدني - دبي
Signature of Directorate of Civil Defense - Dubai



Tel : 04 - 2611111
Fax : 04 - 2612449
P.O. Box 11377, Dubai
United Arab Emirates
www.dcd.gov.ae

للطوارئ
EMERGENCY
997

الرؤية :

أن تكون دولة الإمارات العربية المتحدة من أفضل دول العالم في تحقيق الأمن والسلامة.

Vision :

To have the United Arab Emirates as one of the best countries in the world in achieving safety and security.



شركة جلف لتجارة المواد المقاومة لإنتشار الحريق ذ.م.م

اسم وكيل
Name of Agent

SATNA0000045785-2016

رقم الترخيص
License Number

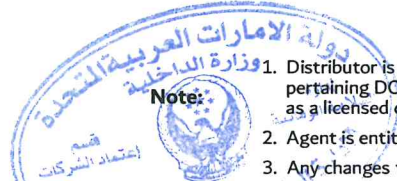
4 - 5

عدد التراخيص
Number of Licenses

ملاحظة Remarks	بلد الصنع Place of origin	اسم المختبر الصادر للشهادة Name of Certification Body	رقم شهادة السلامة Certification Number	الاسم التجاري Brand Name	اسم المعدة Type of Products	م
****	Saudi Arabia	Warringtonfire Testing and Certification limited	CF5145	الصوف الصخري السعودي Rockwool	Mineral insulation Rockwool Mineral Insulation Rockwool Fire Resistant mineral insulation MINERAL FIBER BOARDS/blankets and pipes Mineral-fiber boards bound with a resin binder, identified as "Foil-Faced or none faced SRW Products" in the form of rigid panels, rigid pipe coverings and blankets. Standard(s) for Safety: CF 5145 Product consider as Non-Combustible material /reaction to fire performance of class A1 following to BS EN 13501-1	4
****	CHINA	DUBAI CENTRAL LAB DCL CERTIFICATION AS PER 2018 UAE FIRE AND LIFE SAFETY CODE OF PRACTISE	CL19020687	EASY	EASY PHENOLIC FOAM INSULATION PRE-INSULATED PHENOLIC FOAM PANEL for Air Duct Application, Manufactured with embossed reinforced aluminum foil facing on both sides or embossed aluminum foil facing used for fabrication of the PRE INSULATED AIR DUCT manufactured with plain aluminum foil facing on both Sides Panel dimensions: Length = 3900 to 4000 mm, Width = 1200 mm, Thickness = 20 mm - 30 mm,	5

1. يعتبر الوكيل مرخص من قبل الإدارة العامة للدفاع المدني- دبي ويحق له مواصلة نشاطه في إمارة دبي فقط، استناداً إلى قرار مجلس الوزراء رقم (213) لسنة 2017 في شأن تنظيم خدمات الدفاع المدني للألحة التنفيذية رقم (505) لسنة 2013، ولا يحق له بمزاولة أنشطته في باقي الإمارات إلا بعد استخراج ترخيص موزع من قبل الإدارات العامة ذات الاختصاص بكل إمارة.
2. يحق للوكيل تركيب وصيانة المعدات المراد تداولها والمسجلة بترخيصه فقط
3. إبلاغ الإدارة العامة للدفاع المدني - دبي في حالة تغيير أو تعديل في البيانات المتعلقة في الترخيص الصادر من قبل الإدارة.

ملاحظة :



Note:

- Distributor is considered DCD approved and is entitled to practice within the emirate of Dubai only, pursuant to cabinet minister decision No (213) for 2017, pertaining DCD services regulation of executive note No (505) of 2013, and unless he is approved by respective sections at Civil Defense regional departments as a licensed distributor cannot practice in other emirates.
- Agent is entitled to install/maintain products listed in obtained license
- Any changes to license Dubai Civil Defense - GHQ must be notified

يعتمد / عن مدير الإدارة العامة للدفاع المدني - دبي
Signature of Directorate of Civil Defense - Dubai

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PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 10
TRADE LICENSE



رخصة تجارية Commercial License

تفاصيل الرخصة / License Details

License No.	208206	رقم الرخصة	
Company Name	UNI GULF DEVELOPMENT (L.L.C)	اسم الشركة يونى الخليج للتنمية (ش.ذ.م.م)	
Trade Name	UNI GULF DEVELOPMENT (L.L.C)	الإسم التجارى يونى الخليج للتنمية (ش.ذ.م.م)	
Legal Type	Limited Liability Company(LLC)	الشكل القانونى ذات مسئولية محدودة	
Expiry Date	06/02/2023 تاريخ الإنتهاء	Issue Date	07/02/1983 تاريخ الإصدار
D&B D-U-N-S ®	644847998 الرقم العالمى	Main License No.	208206 رقم الرخصة الام
Register No.	1005777 رقم السجل التجارى	DCCI No.	10127 عضوية الغرفة

الاطراف / License Members

Share / الحصة	Role / الصفة	Nationality / الجنسية	Name / الإسم	No./رقم الشخص
	Manager / مدير	United Kingdom / بريطانيا	بركاش شابلانى PRAKASH CHABLANI	245024

نشاط الرخصة التجارية / License Activities

Fire Resistant & Retardant Materials Trading	تجارة المواد المقاومة والممانعة لإنتشار الحريق
Basic Industrial Chemicals Trading	تجارة الكيماويات الصناعية الأساسية
General Trading	تجارة عامة

العنوان / Address

Phone No	971-4-8208900	تليفون	P.O. Box	2328	صندوق بريد
Fax No	971-4-2858001	فاكس	Parcel ID	119-108	رقم القطعة
Mobile No	971-56-4152694	هاتف متحرك			محل رقم 4 ملك محمد هادي محمد رسول الخاجة - ديرة - الرقة
					البريد الإلكتروني / Email: UMAIMA@UNIGULF.AE

الملاحظات / Remarks

اضافة نشاط 28/9/2015

Print Date 01/02/2022 16:04 تاريخ الطباعة

Receipt No. 14250582 رقم الإيصال



يمكنك الآن تجديد رخصتك التجارية من خلال الرسائل النصية القصيرة، أرسل رقم الرخصة إلى 6969 (دو/اتصالات) للحصول على اذن الدفع.
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وثيقة إلكترونية معتمدة وصادرة بدون توقيع من دائرة الإقتصاد والسياحة في دبي. لمراجعة صحة البيانات الواردة في الرخصة يرجى مسح رمز الاستجابة السريعة this is a certified e-document issued without signature by the department of Economy and Tourism. Kindly Scan the QR Code to Verify the certificate



PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 1

1.1 & 1.2 (1)

Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **01 100 1444848/02**

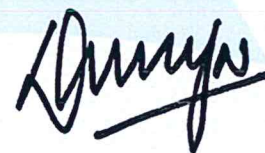
Certificate Holder: **Unigulf Development LLC**
P.O. Box – 2328, Warehouse 215,
22B Street, Al Ramool, Rashidiya,
Dubai, United Arab Emirates

Scope: Trading of Refrigeration, Air Conditioning, Ventilation, Equipment
Parts and Accessories.

Proof has been furnished by means of an audit that the
requirements of ISO 9001:2015 are met.

Validity: The certificate is valid in conjunction with the main certificate
from 2020-03-26 until 2022-12-07.

2020-04-28



TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

www.tuv.com



TÜVRheinland®
Precisely Right.

Certificate

Standard **ISO 14001:2015**

Certificate Registr. No. **01 104 1622589/02**

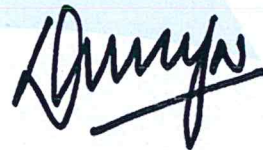
Certificate Holder: **Unigulf Development LLC**
P.O. Box – 2328, Warehouse 215,
22B Street, Al Ramool, Rashidiya,
Dubai, United Arab Emirates

Scope: Trading of Refrigeration, Air Conditioning, Ventilation, Equipment
Parts and Accessories.

Proof has been furnished by means of an audit that the
requirements of ISO 14001:2015 are met.

Validity: The certificate is valid in conjunction with the main certificate
from 2020-03-26 until 2023-01-15.

2020-04-28



TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

Certificate

Standard **ISO 45001:2018**

Certificate Registr. No. **01 213 1622589/02**

Organization: **Unigulf Air Conditioning Industries LLC**
Plot 597-580, P.O. Box – 116145,
Street No. 13, DIP – 2, Dubai,
United Arab Emirates

Site: **c/o Unigulf Development LLC**
P.O. Box – 2328, Warehouse 215,
22B Street, Al Ramool, Rashidiya,
Dubai, United Arab Emirates

Scope: Trading of Refrigeration, Air Conditioning, Ventilation, Equipment
Parts and Accessories.

Validity: Proof has been furnished by means of an audit that the
requirements of ISO 45001:2018 are met.
The certificate is valid in conjunction with the main certificate
01 213 1622589 from 2021-03-04 until 2023-01-15.



2021-03-04

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln



Certificate SA15/2494

The management system of

Saudi Rockwool Factory Co.

Road No. 306, 3rd Industrial Area, P.O Box 145,
Riyadh, 11383, Saudi Arabia

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities

The scope of registration appears on page 2 of this certificate.

This certificate is valid from 15 November 2018 until 15 November 2021 and remains valid subject to satisfactory surveillance audits. Recertification audit due a minimum of 60 days before the expiration date. Issue 2. Certified since 15 November 2015

This is a multi-site certification. Additional site details are listed on the subsequent page.



Authorised by



0005

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

HC SGS 9001 2015 0818 M2

Page 1 of 2



Saudi Rockwool Factory Co.

ISO 9001:2015

Issue 2



Detailed scope

Manufacturing, Marketing after Sales Services of Rockwool Thermal and Acoustical Insulation Materials for Industrial, Commercial and Residential Purposes.

Sales, Supply & Storage of Rockwool Insulation Materials in Jeddah Office.

Additional facilities

**Al-Najaf Centre, 4th Floor, Office 504, Baladiyah Street,
Jeddah, 21424, Saudi Arabia**

**Street No.59, Al Kharj Industrial City, P.O Box 145,
Riyadh, 11383, Saudi Arabia**



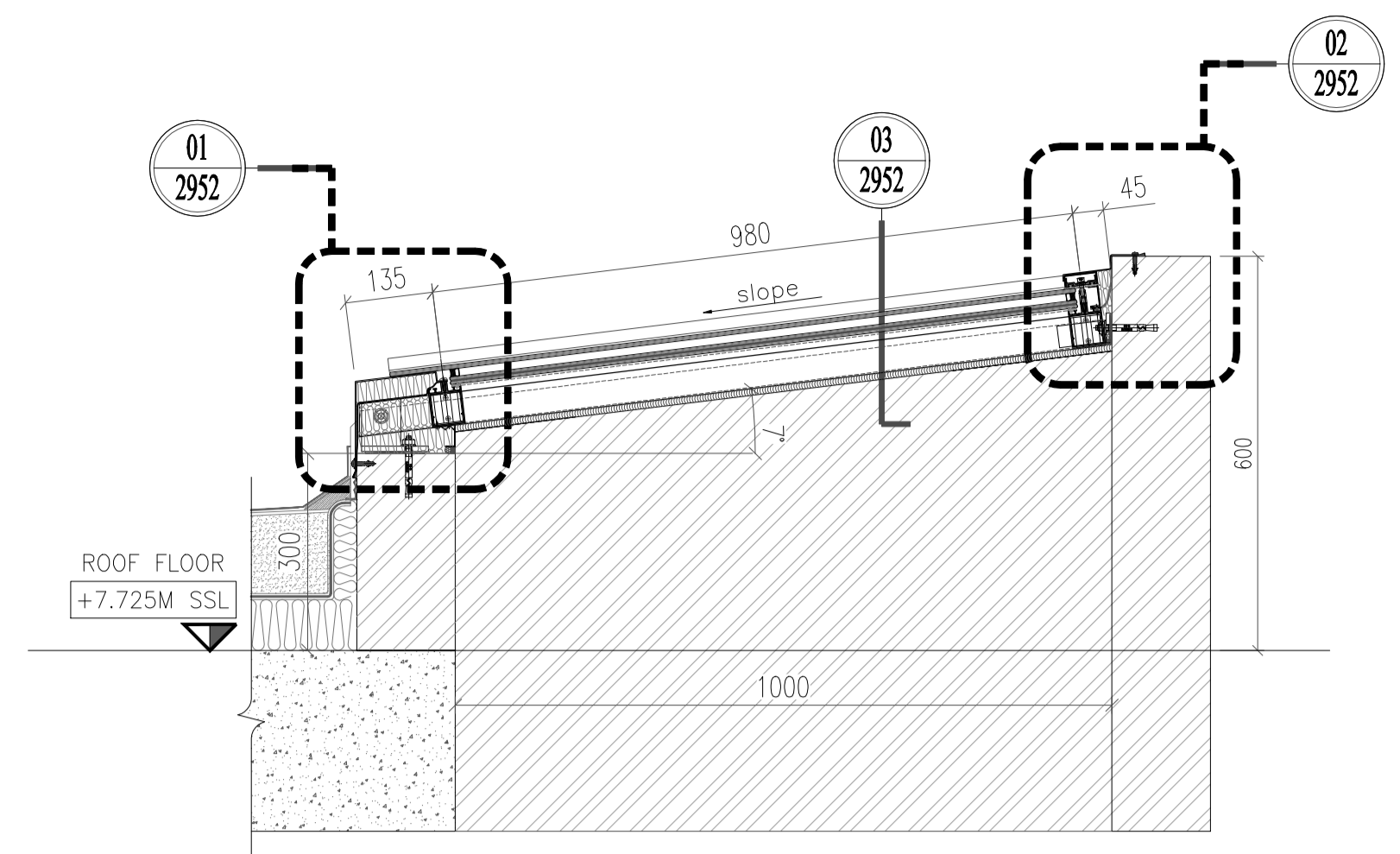
0005



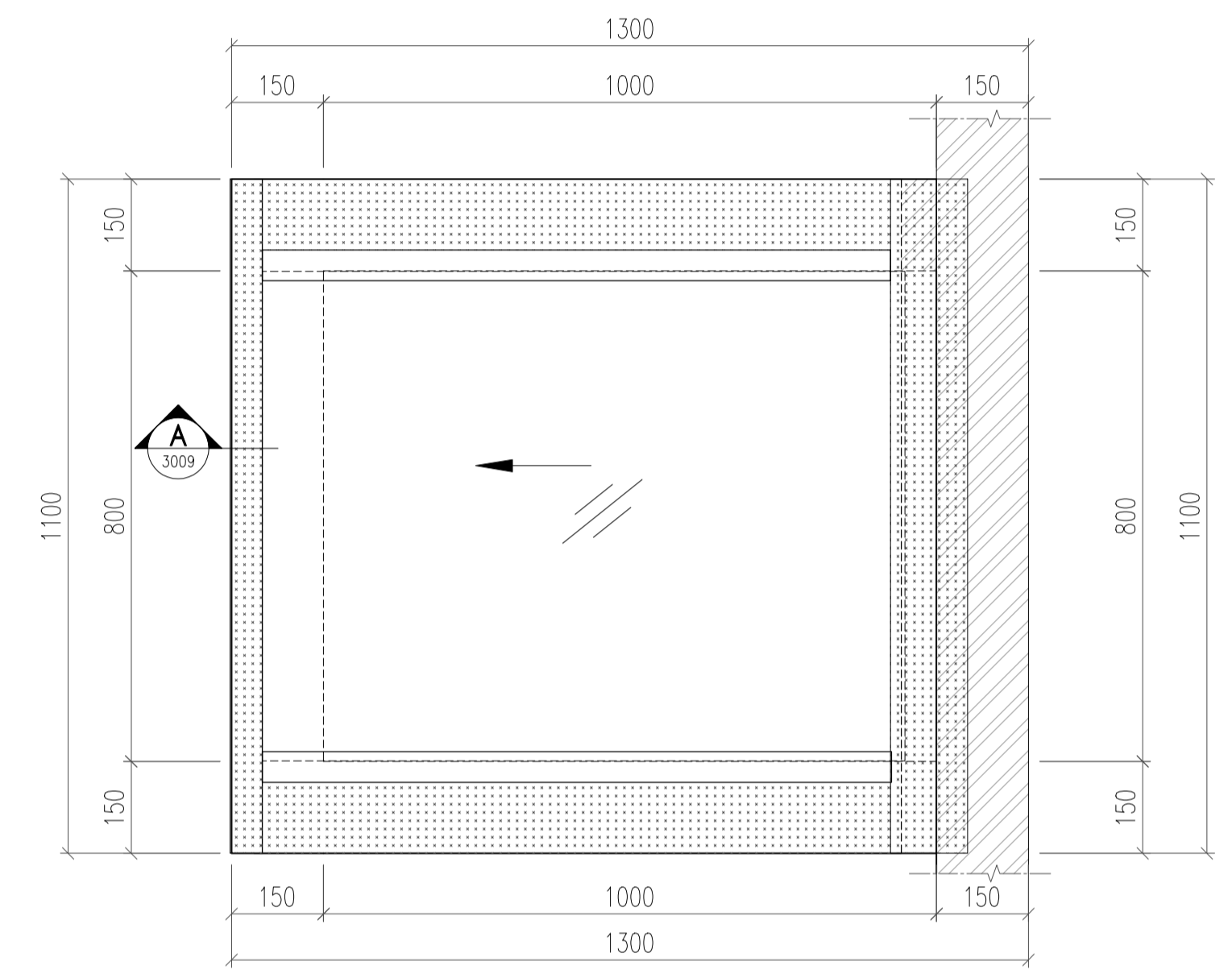
PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 12

LOCATION / DETAIL DRAWINGS



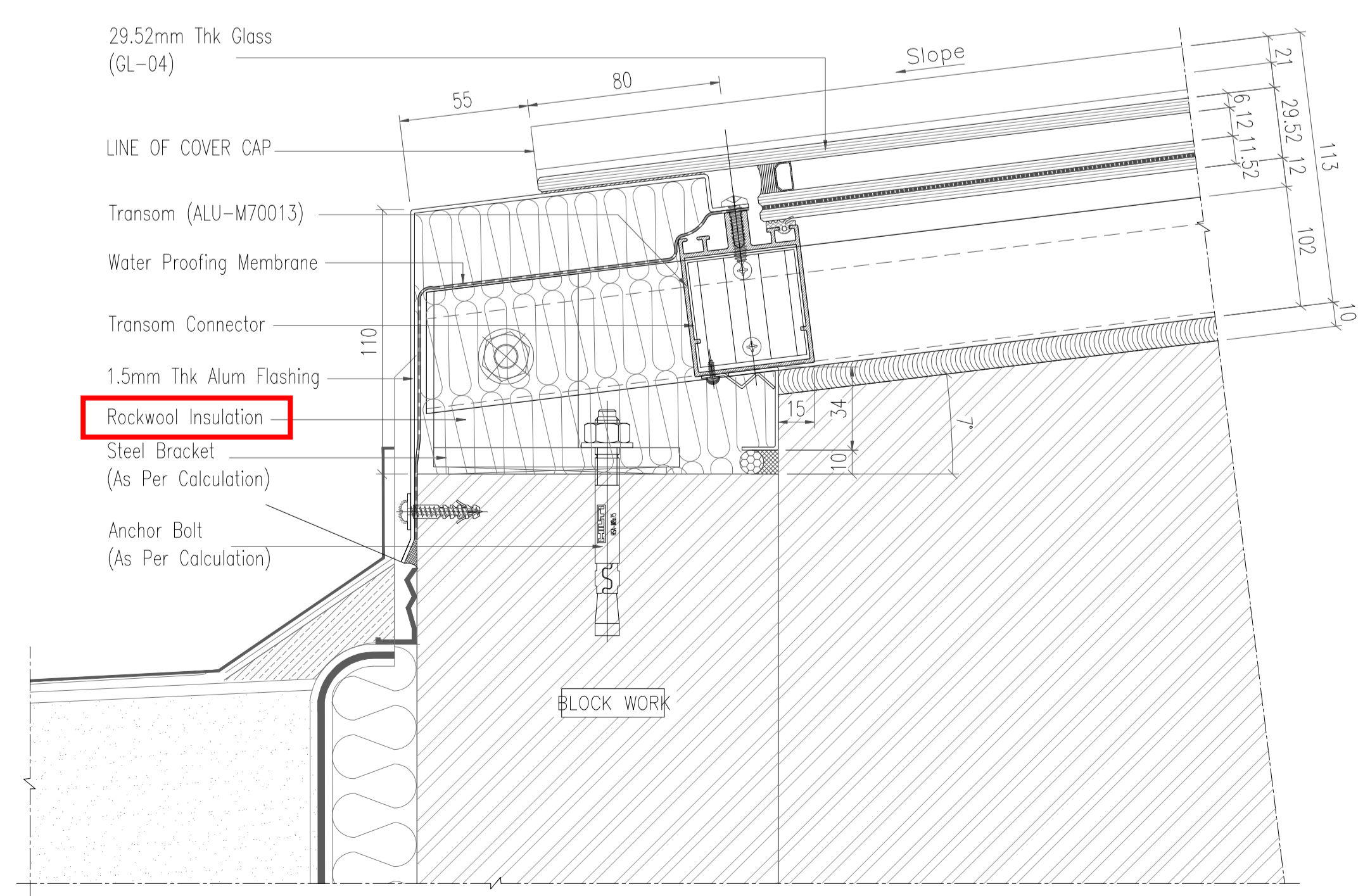
A SECTION A
SD-2952 SCALE 1:10



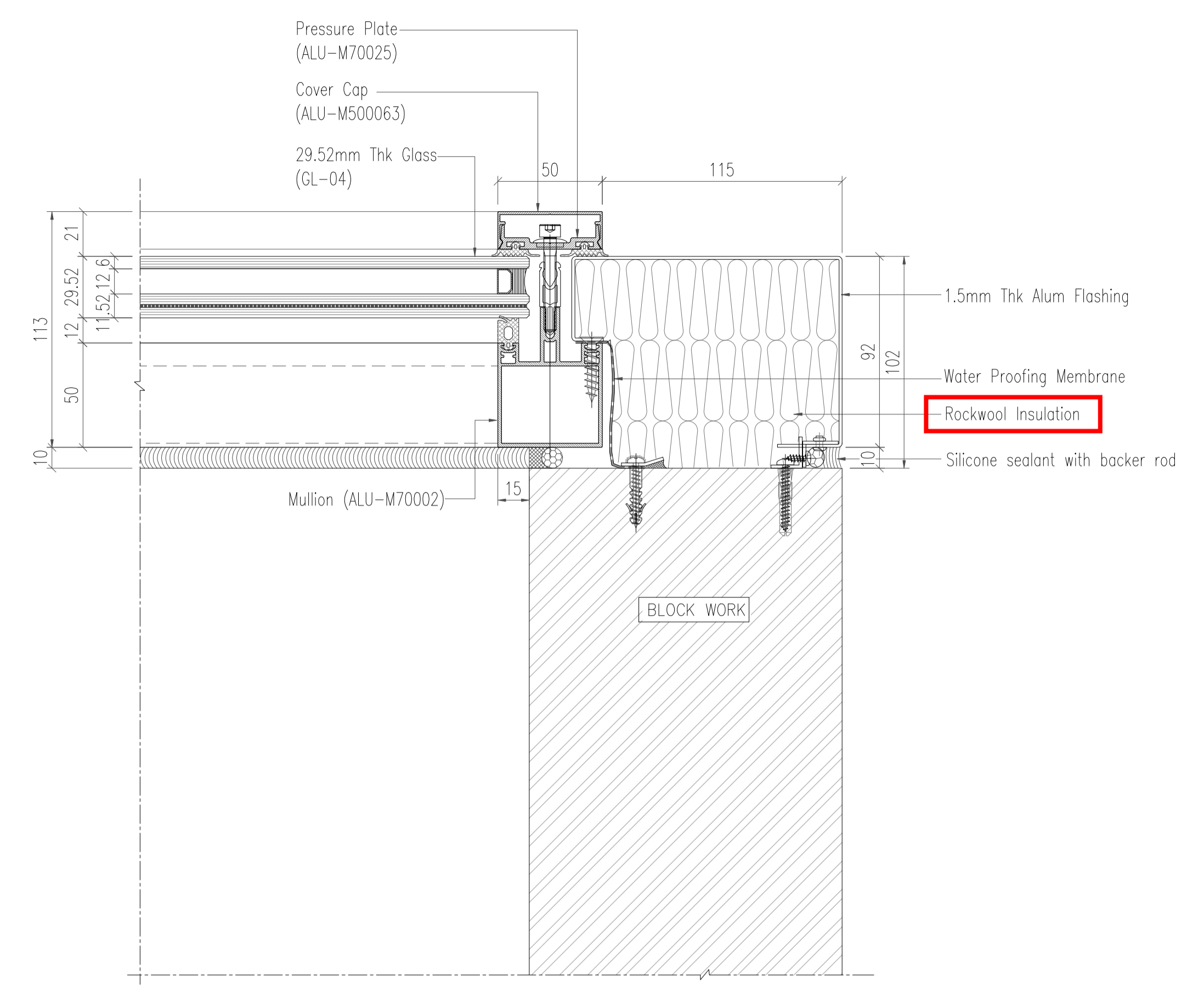
SKYLIGHT PLAN
SD-2952 SCALE 1:10

SCHEDULE OF SKYLIGHT FOR TYPE 3A VILLAS

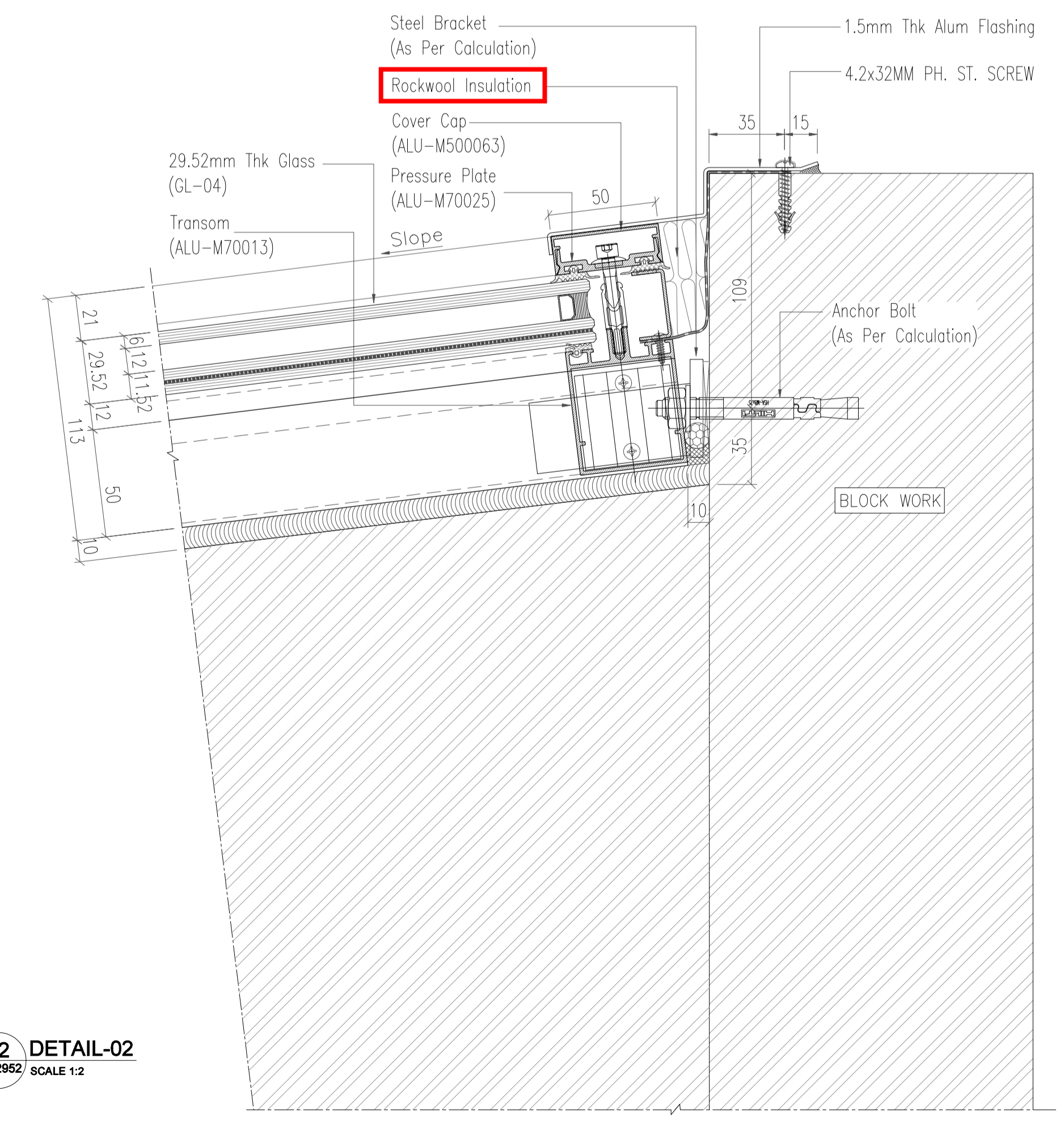
#	ITEM	DESCRIPTION	GLASS TYPE	QTY/VILLA	NO OF VILLAS	T. QTY
01	SK-01	SKYLIGHT	GL-04	01	57	57



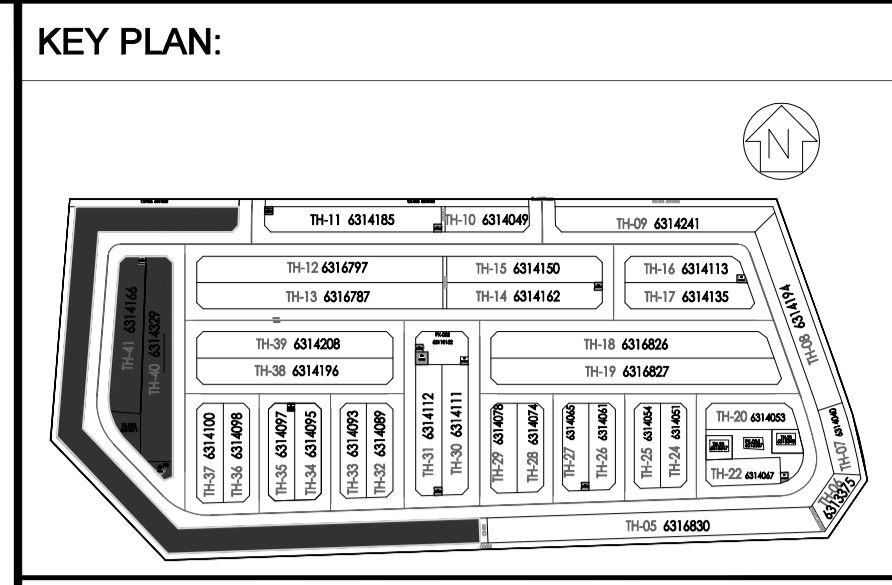
01 DETAIL-01
SD-2952 SCALE 1:2



03 DETAIL-03
SD-2952 SCALE 1:2



02 DETAIL-02
SD-2952 SCALE 1:2



GENERAL NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE COMMENCEMENT OF ANY WORK.
- THIS DRAWING IS NOT TO BE SCALED, STATED DIMENSIONS ONLY ARE TO BE CONSIDERED.

REFERENCE DOCUMENTS

S.N	DRG. NO	DESCRIPTION	REV
01	A 411	SPOT DETAILS	1.5A
02	SD-0803	WALL SECTIONS (Dubai Pre cast)	A1

LEGENDS:-

GL-04 :- 29.52mm Thk DGU
6mm Thk Clear Low E Outer
12mm Air Space + 11.52mm Laminated
(6mm Clear Tempered +1.52mm PVB+6mm Clear Tempered) Inner

REVISION:

Rev.No	DATE	Description	DRAWN	CHKD
01	29.01.2022	SUBMISSION FOR APPROVAL	ID	AJ
00	21.11.2021	SUBMISSION FOR APPROVAL	SBK	AJ

PROJECT TITLE:
546 TOWNHOUSES AT PHASE 1B – MAG CITY MEYDAN, DUBAI

CLIENT:
 MAG CITY- MEYDAN

CONSULTANT:
 +971 4 370 8909
INFO@VXSTUDIO.COM
WWW.VXSTUDIO.COM
P.O BOX 122751, DUBAI

MAIN CONTRACTOR:
 INTERMASS Engineering & Contracting Co. LLC
شركة الإنشاء الهندسية والمقاولات ذ.م.م.
www.intermassgroup.com | TEL: 06 558 3003

SUB CONTRACTOR:
 P.O BOX 31771, DUBAI INVESTMENT PARK (DIP) 1
DUBAI, UNITED ARAB EMIRATES
Tel: +971 4 3377618, E-mail: info@gridwalls.ae

DRAWING TITLE:
MAG 546 VILLA SCHEDULE & DETAILS SKYLIGHT- SK01 VILLA TYPE -3A (ALTERNATIVE- ALUMIL SYSTEM)

Drawing No:	MCMPH1B-GW-ARC-3A-SD-2952			Rev:	01
Original scale:	1:100@A1	Checked:	AJ	Authorized:	AJ
Drawn:	ID	Date:	29.01.2022	Date:	29.01.2022
Size:	A1				

PROJECT MATERIAL & TECHNICAL SUBMITTAL

SECTION: 13

SAMPLE PHOTO

