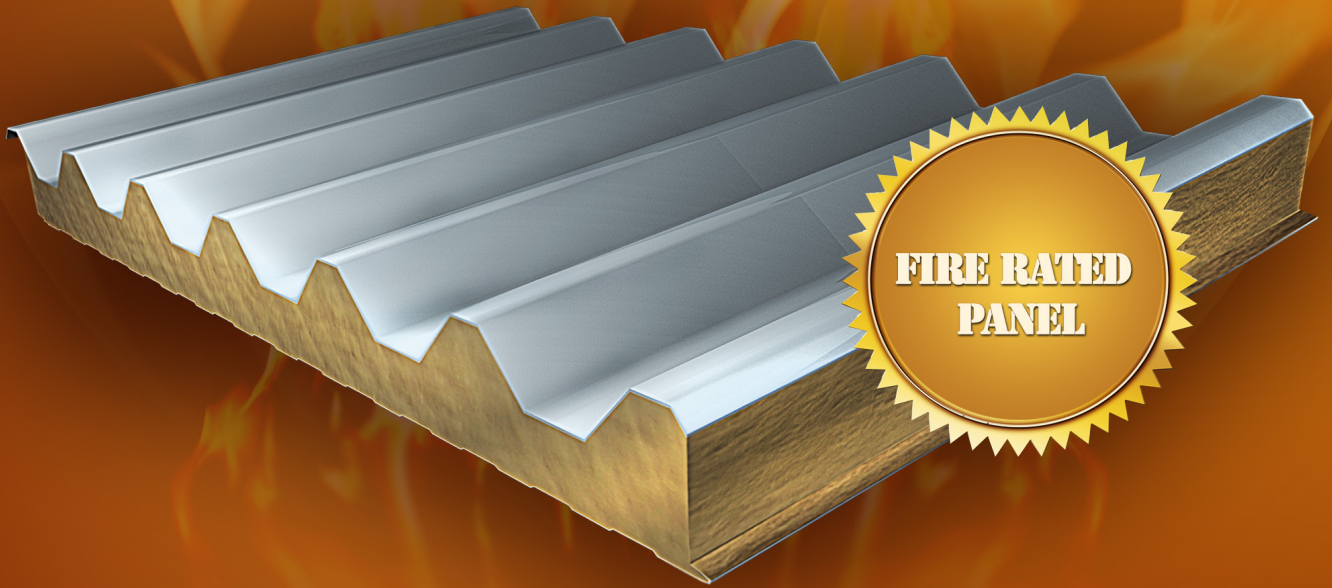




Technical Supplies & Services Co. LLC.



 **FIRESpan**

Mineral Wool Composite Panels



Since inception in 1961, TSSC, a primary member of Harwal Group has been setting manufacturing benchmarks in the region with its engineering excellence. The ISO 9001:2008 certified company manufactures a diverse range of products and offers a range of services from its facilities spread across Sharjah, Dubai and Abu Dhabi. TSSC is the largest manufacturer of insulated panels for roofing and cladding in the Middle East. The building materials manufactured by TSSC are fire rated and carry individual product certifications. With over 4 decades of experience, state of the art manufacturing facilities and the largest production capacity in the Middle East, TSSC manufactures products to international quality standards and cater to customer demands by ensuring timely delivery and providing exceptional service.

Range of Products Manufactured by TSSC

Building Materials

- Composite Panels
- Profiled Cladding Sheets
- Seamless Roofing System
- Doors & Windows
- Curtain Walls (Stick System & Unitized Glass)



Cold Stores

- Cold Rooms
- Freezer Rooms
- Refrigerated Vehicle Bodies



Factory Manufactured Houses & Shelters

- Factory Manufactured Houses
- Telecom Shelters
- Portable Cabins
- Containerized Units



Stainless Steel Products

- Kitchen & Laundry Equipments
- SS Water Coolers
- SS Refrigerators & Freezers



Commercial Refrigeration

- Merchandising Refrigerators (Visi coolers & Freezers)



Industrial Storage Solutions

- Racking System



Metal Products

- Metal Sheds
- Cable Trays
- Trunkings



Services

- Galvanizing
- Coil Coating



FIRESPAN

Firespan Panels are fire rated mineral wool composite panels that is a part of our diverse insulated panels range. Firespan is a stress skin sandwich panel with metal facings permanently bonded to rock wool core using heat polymerizing.

Firespan has been specially developed for use in Light weight applications to satisfy the thermal, fire and acoustic requirement of roof, walls & partition etc.

These Products are manufactured in a variety of thickness to suit the needs of virtually any application on framed buildings in commercial or industrial sector.

Firespan fire rated panels have been developed specifically to meet the demands of the architect specifier, who require aesthetic high performance steel faced building panels with efficient and superior fire resistance. Firespan provides 2 hour fire resistance. Unlike plastic foams such as expanded polystyrene, polyurethane foam or cellular modified isocyanurate, mineral wool does not burn. Firespan panel with steel facing is almost entirely inorganic.

Firespan is an exciting new product for the Gulf region but mineral wool core panels have an extensive history in Europe and America. With growing awareness among building owners and designers about the truly non-combustible sandwich panels, the applications of mineral wool panels is growing rapidly. The needs for insulated walls and ceilings, sanitary or washable panels and a truly non-combustible wall capable of resisting fire up to two (2)hours are now catered by Firespan panels.

Firespan panels can save on insurance, loss of business, and importantly saves lives.

Applications

- Cold Room Partition
- Roof & Wall Cladding
- Food Processing Area
- Equipment Rooms
- Chemical Storage
- High Occupancy Areas



FIRESPAN

Why Firespan ?

Firespan from TSSC is the best lightweight thermally insulated panel in the market. Its physical properties make it equally suitable for use as an economic solution for both roof and wall system in industrial and commercial cladding applications.

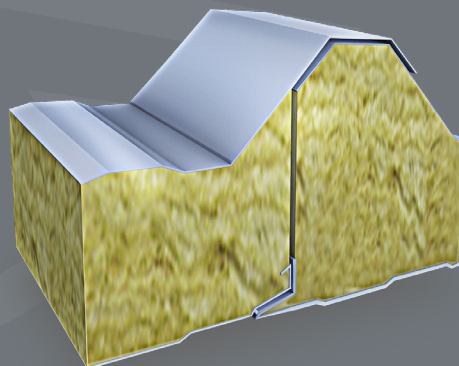
Mineral wool possesses excellent fire resistance and does not contribute to spread fire. The main component is volcanic rock manufactured at temperatures in excess of 10000 degree Celcius. The product does not react with any other building materials. Being made of volcanic rock, the mineral wool is unaffected by changes in humidity and temperature. When exposed to fire, the low content of organic material in mineral wool will release only traces of toxic gases, which is far below the critical values.

Insulated panel incorporating mineral wool as insulation has been fire tested to comply with fire classification A1 non combustible as per ASTM standards. With mineral wool insulation, excellent sound reduction can be achieved.

Firespan panel is a through - fixed insulated mineral wool panel for wall and partition application, which is capable of satisfying the most demanding fire performance requirements. The Panels integrate the technologies of composite panel production with the non-combustible attributes of mineral wool insulation.

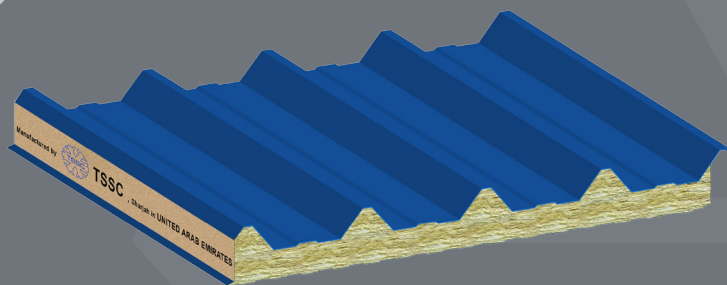
Mineral Wool Features

Thermal Performance	
Insulation Core Thickness (mm)	U-Value W/m ² K
50	0.72
100	0.36



FIRESPAN

TSP 45 / 250



Applications

Roof, Walls & Partitions

Specification

- Cover width : 1000 mm + 2 mm
- Panel facings : Steel, GI, Aluminium or Aluzinc
- External weather sheet : Polyester, PVF2, Platisol & ARS
- Internal liner sheet : Polyester
- Insulation core : Mineral Wool
- Fire performance : According to fire classification A1
- External weather sheet gauge : From 0.5 mm to 1 mm
- Internal liner sheet gauge : 0.4 mm / 0.7 mm

Advantages:

- Fire Classification A1 (As per ASTM)
- Water repellent
- Excellent thermal insulation
- Chemically inert
- Non-combustible core
- Foam, CFC, HCFC, free
- NRC can be achieved 0.7 as per ASTM C 423



FIRESPAN

Datasheet

(t) Panel Core Thickness (mm)	I x (cm ⁴) for 1m width	z top for 1m width	z bottom for 1m width cm ³	Moment kN m Top	Moment kN m Bottom
50	48	14	29	1.66	3.38
75	109	26	34	2.96	3.87
100	210	41	43	4.71	4.99

based on 0.7 mm external and 0.5 mm internal Aluminium skin

Assumes bond with insulation ensures that lateral sliding of sheets does not occur & insulation does not have significant compression

(t) Panel Core Thickness (mm)	Allowable Uniform Loads kN/m ²																	
	1.0 m		1.5 m		2.0m		2.5m		3.0m		3.5m		4.0m		4.5m		5.0m	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
50	13.27	18.53	5.90	5.49	3.32	2.32	2.12	1.19	1.47	0.69	1.08	0.43	0.83	0.29	0.66	0.20	0.53	0.15
75	23.70	41.88	10.53	12.41	5.93	5.24	3.79	2.68	2.63	1.55	1.93	0.98	1.48	0.65	1.17	0.46	0.95	0.34
100	37.72	80.67	16.76	23.90	9.43	10.08	6.03	5.16	4.19	2.99	3.08	1.88	2.36	1.26	1.86	0.89	1.51	0.65

f_y Al 170 N/mm² permissible span - deflection ratio = 100

(t) Panel Thickness (mm)	I x (cm ⁴) for 1m width	z top for 1m width cm ³	z bottom for 1m width cm ³	Moment kN m Top	Moment kN m Bottom
50	37	10	26	1.76	4.45
75	90	19	32	3.26	5.40
100	178	31	42	5.23	7.13

Based on 0.7 mm external and 0.5 mm internal GI skin

Assumes bond with insulation ensures that lateral sliding of sheets does not occur & insulation does not have significant compression

(t) Panel Thickness (mm)	Allowable Uniform Loads kN/m ²																	
	1.0 m		1.5 m		2.0 m		2.5 m		3.0 m		3.5 m		4.0 m		4.5 m		5.0 m	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
50	14.10	41.86	6.27	12.40	3.53	5.23	2.26	2.68	1.57	1.55	1.15	0.98	0.88	0.65	0.70	0.46	0.56	0.33
75	26.09	109.09	11.60	29.95	6.52	12.64	4.17	6.47	2.90	3.74	2.13	2.36	1.63	1.58	1.29	1.11	1.04	0.81
100	41.81	199.86	18.58	59.22	10.45	24.98	6.69	12.79	4.65	7.40	3.41	4.66	2.61	3.12	2.06	2.19	1.67	1.60

Permissible span-deflection ratio = 100

f_y GI 250 N/mm²

t = Thickness S = Strength D = Deflection

FIRESPAN

Mineral Wool Properties

a. Mechanical Characteristic

- Density: 100 Kg/M³ • Length: (+/- 5mm) • Thickness: (+3mm/ - 0 mm)
- Thermal Conductivity : < 0.042 W/mK
- Compression Strength (at 10% deformation) : > 70 Kpa

b. Insulation Capacity

K Value < 0.042

Thickness of Mineral wool (mm)	50	80	100
U Value (W/m ² K)	0.78	0.48	0.39

c. Visual

Contact face of cut lamellas are smooth and free from dust

d. Fire Properties

Combustibility A1 as per EN 13501
 Calorific Value < 2 Mj/Kg as per EN 13501
 Fire resistance > 750 deg C melting point as per DIN 4102
 Non combustible when tested in accordance with BS 476:Part 4
 Flame Spread Index - 0
 Smoke Development Index - 0

e. Moisture Repellent Properties

Moisture Content of material shall not exceed 1% by mass.
 Water repellent, Non hygroscopic, Non capillary and does not absorb moisture from air

f. Biological Properties

Rot proof non hygroscopic will not sustain vermin and will not encourage growth of bacteria, mold or fungi.

g. Chemical Neutrality

Chemically neutral with a pH value of 7.3. It will not cause or promote corrosion.

h. Physical Properties

Asbestos free and shot content is very low

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