Factory insulated panels engineered to meet your building needs

meTecno INDIA

We conserve Energy

ISO 9001 : 2008 CERTIFIED

FM Approvals
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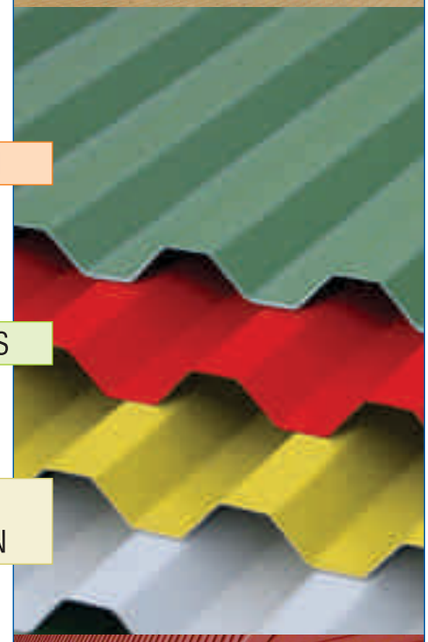
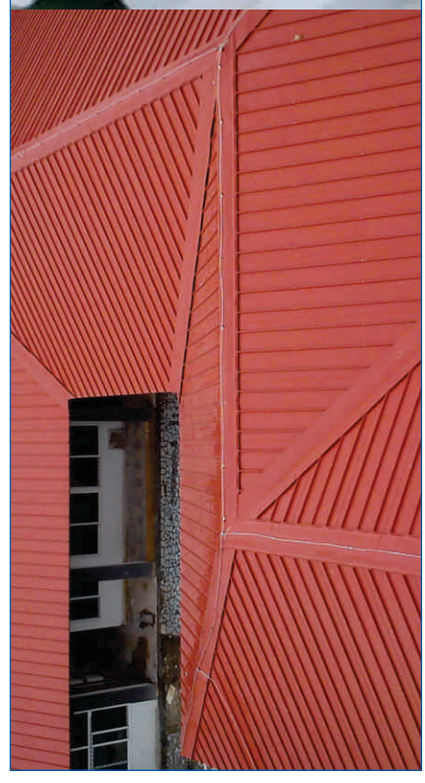




Introduction

Metecno (India) Pvt. Ltd. is part of a large conglomerate METECNO group with 11 plants in 10 countries across the globe to manufacture Euro Class energy balance insulated panels for building industry. Metecno group is the world leader in insulated panel production. The insulated panels are used for insulation of roofing and walling in the building industry.

The insulated panel consists of two facings of relatively thin metal sheet profiled preferably and of high strength enclosing a core, which is relatively thick and light but has adequate stiffness in a direction normal to face of the panel. The facings are of steel or aluminium. The core is made of polyurethane PIR mineral wool. The advantages of insulated panel of factory assembled insulated panels are as under roofing or walling are as under:-

- Excellent and durable thermal insulation
- Good sound insulation
- High load bearing capacity at less weight
- Absolute water and vapour barrier
- Excellent air tightness and free of thermal bridges which results in considerable energy savings.
- Surface finished facings providing resistance to weather and aggressive environments
- Capacity for rapid erection without lifting equipments, easier installation in hostile weather conditions
- Easy repair and replacement in case of damage
- Long life and very low maintenance cost
- Reasonable fire reaction and resistance

PRODUCTS

The company produces insulated panels for three applications. i.e. Roofing, walling and cold room walling. The panels use steel or aluminium sheets for facing and are manufactured in thickness range of 30 to 100 mm. They come in a standard width of 1000 mm and maximum length of panel is 12 meters. The typical panels looks as under:-

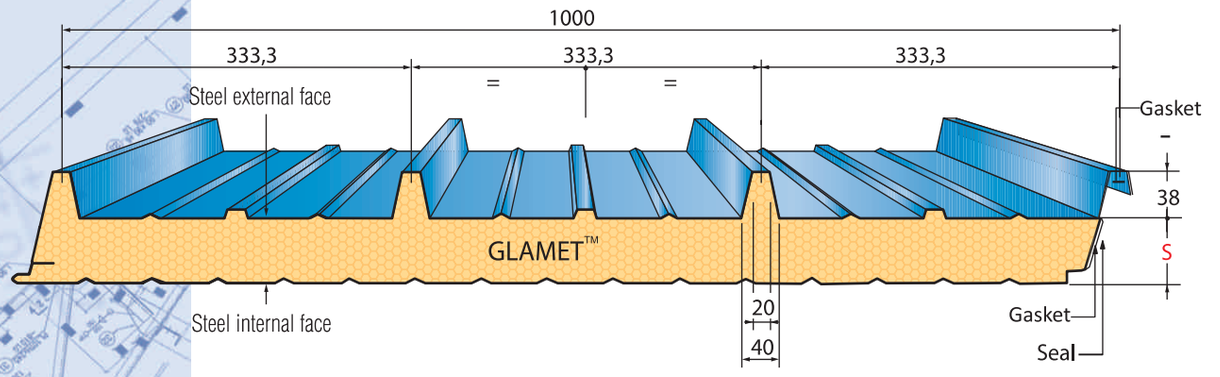
TRADITIONAL

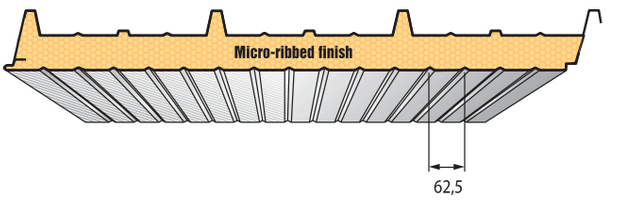
ROOF

Self-supporting polyurethane insulation material for pitched roofs with a minimum slope of 7%*

*Slope less than 7 deg possible, kindly consult marketing team

Panel sheets specifications	
▪ Polyester primer	5 micron
▪ Polyester finish paint	18 micron
▪ Back-coat	5 micron
▪ Resistance to saline mist	≥500 h (ECCA T8)
▪ Resistance to moisture	≥1000 h (ASTM D2247)
Panels foam specifications	
▪ Average density	40 ± 2kg/m^3
▪ Thermal conductivity	0.024-0.03 W/m°C
▪ Temperature range	-40+80°C
▪ Free from CFC	
▪ Type of foam	B2, B3 & PIR





GLAMET™ fastening

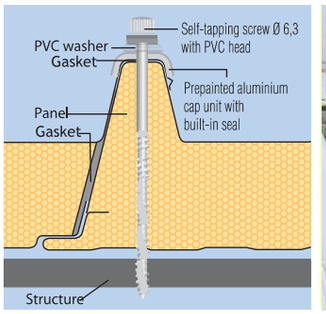


Table of safe spans

Values guaranteed with external face in steel, 0.5 mm thick, and internal face in steel, 0.4 mm thick or with both faces in aluminium 0.6 mm thick with external face in aluminium, 0.6 mm thick, and internal face in steel, 0.5 mm thick. The spans *l* (m) as a function of a uniformly distributed load p(kgf/m²), have been obtained from load tests carried out in Metecno laboratories, and provide a deflection f ≤ *l*/200 with a safety coefficient that complies with the UEAtc standards for insulated panels, which have been established and are implemented by primary European Certifying Organizations.

With external and/or internal steel thicknesses interior to the above mentioned ones, the guarantee on the admissible loads for the spans indicated in the table is maintained, while it is not maintained on the deflection limit and the safety coefficient. U value is Thermal Transmittance Co-efficient expressed in Watt/m²°C and Kcal/m²h°C.

Steel - Steel

S mm	U Kcal/m²h°C	U Watt/m²°C	p = (kgf/m²)	60	80	100	120	150	200	250	300
30	0,51	0,59	*l* =	4,70	4,10	3,65	3,30	2,90	2,50	2,25	2,05
40	0,40	0,46	*l* =	5,00	4,40	3,90	3,55	3,20	2,75	2,45	2,25
50	0,33	0,38	*l* =	5,30	4,60	4,10	3,75	3,35	2,90	2,60	2,40
60	0,28	0,33	*l* =	5,60	4,85	4,35	3,95	3,55	3,05	2,75	2,55
80	0,22	0,25	*l* =	6,20	5,30	4,80	4,35	3,95	3,35	3,05	2,80
100	0,18	0,21	*l* =	7,05	6,05	5,45	4,95	4,45	3,80	3,45	3,20

p = (kgf/m²)	60	80	100	120	150	200	250	300
l =	4,20	3,65	3,20	2,90	2,60	2,25	2,00	1,80
l =	4,50	3,90	3,50	3,20	2,85	2,45	2,20	1,95
l =	4,75	4,10	3,65	3,35	3,00	2,60	2,30	2,05
l =	5,00	4,30	3,90	3,55	3,15	2,75	2,45	2,20
l =	5,50	4,70	4,40	3,95	3,45	3,05	2,75	2,45
l =	6,20	5,40	4,90	4,45	3,95	3,45	3,05	2,75

Aluminium - Steel

S mm	U Kcal/m²h°C	U Watt/m²°C	p = (kgf/m²)	60	80	100	120	150	200	250
30	0,51	0,59	*l* =	3,25	2,80	2,50	2,30	2,00	1,80	1,60
40	0,40	0,46	*l* =	3,60	3,10	2,80	2,55	2,30	2,00	1,75
50	0,33	0,38	*l* =	4,00	3,50	3,15	2,85	2,55	2,25	2,00
60	0,28	0,33	*l* =	4,40	3,90	3,45	3,15	2,80	2,50	2,20
80	0,22	0,25	*l* =	5,20	4,60	4,10	3,75	3,30	2,95	2,60
100	0,18	0,21	*l* =	5,75	5,10	4,55	4,10	3,65	3,25	2,85

p = (kgf/m²)	60	80	100	120	150	200	250
l =	2,90	2,50	2,25	2,05	1,85	1,60	1,40
l =	3,20	2,80	2,50	2,30	2,05	1,80	1,60
l =	3,60	3,10	2,80	2,55	2,30	2,00	1,75
l =	4,00	3,45	3,10	2,80	2,50	2,20	1,90
l =	4,80	4,10	3,70	3,30	2,95	2,60	2,20
l =	5,30	4,50	4,00	3,60	3,25	2,85	2,40

Aluminium - Aluminium

S mm	U Kcal/m²h°C	U Watt/m²°C	p = (kgf/m²)	60	80	100	120	150	200	250
30	0,51	0,59	*l* =	3,05	2,60	2,35	2,10	1,90	1,70	1,50
40	0,40	0,46	*l* =	3,40	2,90	2,60	2,40	2,15	1,85	1,65
50	0,33	0,38	*l* =	3,80	3,30	2,90	2,65	2,40	2,10	1,85
60	0,28	0,33	*l* =	4,20	3,65	3,20	2,95	2,65	2,30	2,05
80	0,22	0,25	*l* =	4,95	4,30	3,85	3,45	3,15	2,75	2,40
100	0,18	0,21	*l* =	5,45	4,75	4,25	3,85	3,45	3,05	2,65

p = (kgf/m²)	60	80	100	120	150	200	250
l =	2,80	2,40	2,15	1,95	1,75	1,50	1,35
l =	3,10	2,70	2,40	2,20	1,95	1,70	1,50
l =	3,45	3,00	2,70	2,45	2,20	1,90	1,65
l =	3,85	3,30	2,95	2,70	2,40	2,10	1,80
l =	4,60	3,95	3,50	3,15	2,85	2,45	2,10
l =	5,05	4,35	3,85	3,45	3,05	2,60	2,25

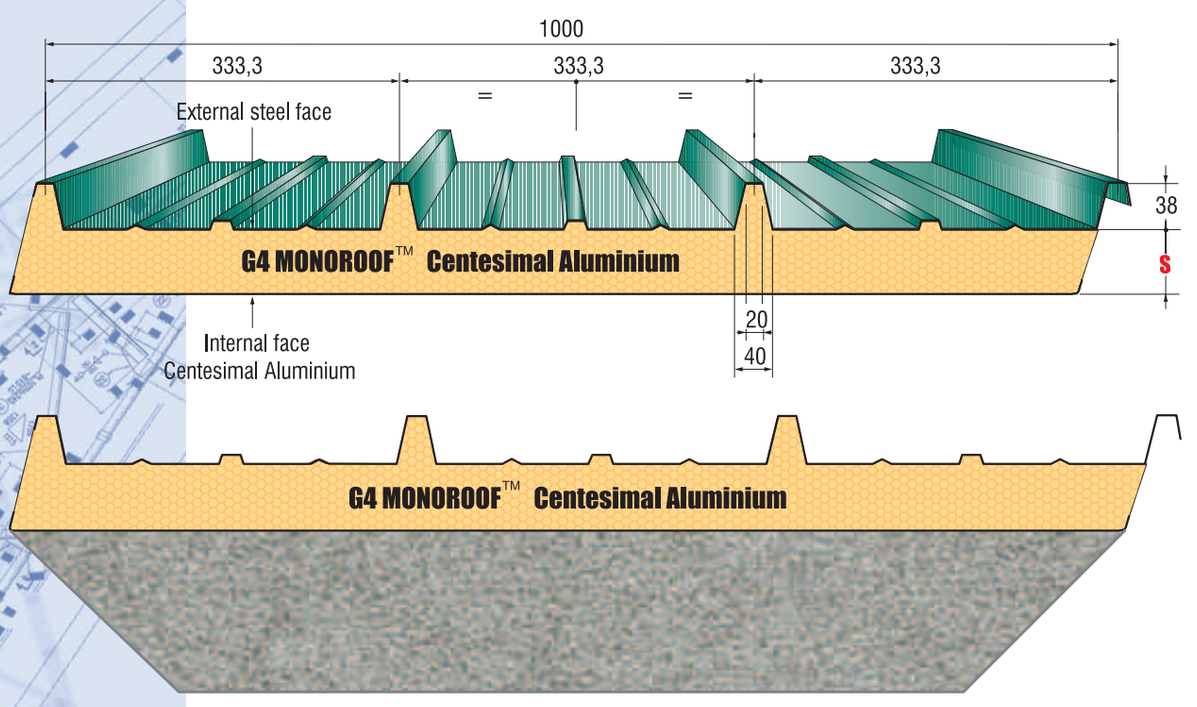
TRADITIONAL

ROOF

Self-supporting polyurethane insulation material for pitched roofs with a minimum slope of 7%*
The internal side of the insulated panel has a surface finish manufactured from **Aluminium Foil** of thickness 0.08 mm.

*Slope less than 7 deg possible, kindly consult marketing team

Panel sheets specifications	
▪ Polyester primer	5 micron
▪ Polyester finish paint	18 micron
▪ Back-coat	5 micron
▪ Resistance to saline mist	≥500 h (ECCA T8)
▪ Resistance to moisture	≥1000 h (ASTM D2247)
Panels foam specifications	
▪ Average density	40 ± 2kg/m^3
▪ Thermal conductivity	0.024-0.03 W/m°C
▪ Temperature range	-40+80°C
▪ Free from CFC	
▪ Type of foam	B2, B3 & PIR



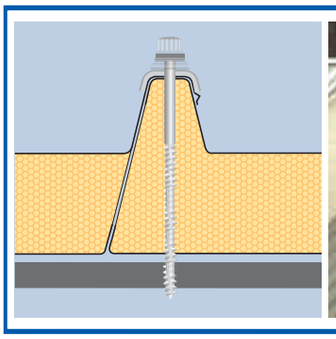


Table of safe spans

The spans *l* in metres, as a function of a uniformly distributed overload p (kgf/m^2), have been calculated to provide a deflection f $\leq$ *l*/200 considering only the sheet as the resisting cross-section (the contribution of the polyurethane has not been taken into account) in accordance with standard UNI CNR - 10022/84 and the AIPPEG design guidelines.

Data for the 0.5 mm thickness sheet has been obtained from laboratory tests.

MONOROOF™ A38

S mm	U Kcal/m^{2}h^{0}C	U Watt/m^2 ^{0}C	Sheet Thickness	p = (kgf/m^2)	80	100	120	150	200	250	300	80	100	120	150	200	250	300
					p p p							p						
					△ *l* △ *l* △ *l* △							△ *l* △						
30*	0,51	0,59	0,5	*l* =	2,07	1,85	1,69	1,50	1,31	1,18	1,08	2,01 2,16	1,88 1,94	1,76	1,59	1,38	1,23	1,13
40	0,40	0,46	0,6	*l* =	2,40	2,16	1,96	1,75	1,52	1,37	1,24	2,18 2,41	2,01 2,16	1,91 1,97	1,76	1,52	1,38	1,24
50	0,33	0,38	0,8	*l* =	3,00	2,69	2,45	2,20	1,90	1,70	1,55	2,47 2,93	2,30 2,63	2,17 2,4	2,00 2,15	1,83 1,87	1,67	1,52
60	0,28	0,33	1,0	*l* =	3,31 3,42	3,04 3,05	2,79	2,49	2,17	1,94	1,76	2,68 3,30	2,48 2,96	2,34 2,70	2,18 2,42	1,97 2,09	1,84 1,88	1,71
80	0,22	0,25																

***Monoroof L**

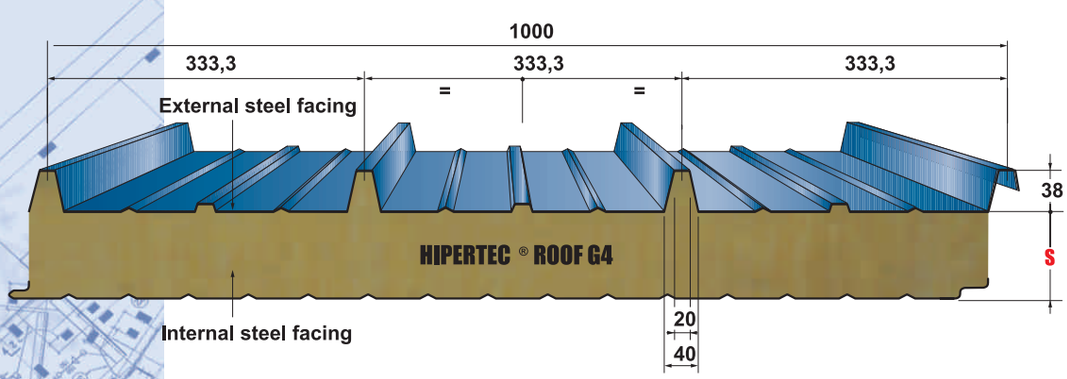
Values in red have no deflection limits

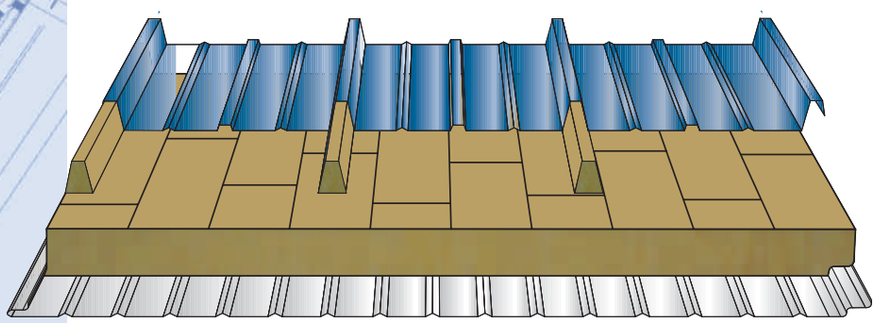
ROOF

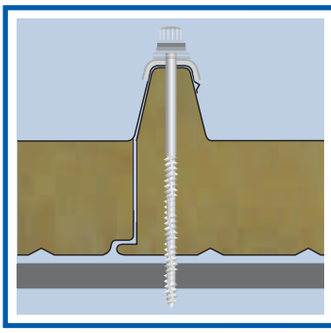
TRADITIONAL

Self-supporting insulation panel insulated with rockwool for roof and wall applications, which require a high degree of fire resistance and high degree sound insulation.

The **HIPERTEC® ROOF** panel, manufactured in accordance with a system patented by Metecno, consists of a profiled external steel sheet and an internal micro-ribbed steel sheet, with an insulation core of orientated fibre high density rockwool, arranged perpendicularly to the plane of the panel and positioned in strips, laid longitudinally with off-set joints and transversely compacted, in such a way as to completely fill the space between the metal facings.







*Slope less than 7 deg possible, kindly consult marketing team
Density - 90 to 110 kg/m^3

Resistance to fire

Resistance to fire is the ability of the building element to limit the spread of flame, and retain the integrity of the thermal insulation for a period of time. The performance of panel systems when tested is expressed in minutes from ignition to the conclusion of the test, which is determined as the failure point at which the panels ceases to comply with the requirements of the specific test.

Reaction to fire

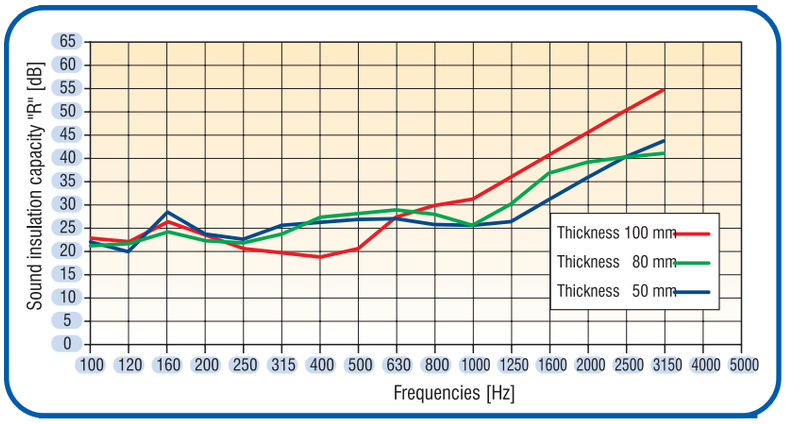
Reaction to fire is the degree in which a material resists combustion. In regard to this, materials are assigned a class (0 through 5), the higher the class, the higher the degree of combustion. The **HIPERTEC® ROOF** panels, thicknesses 50 - 80 - 100 mm, tested:

- At the Instituto Giordano S.p.A., pursuant to the Ministerial Decree of 26/6/84, have been classified 0/1 for reaction to fire, both in the roof position and in the wall position.
- At the MPA Dresden according to EN 13823 and EN 11925-2 for reaction to fire, have been classified, according to EN 13501-1 as A_0 S_1 D_0.

Since the panel consists of two steel facings with a layer of rockwool insulation sandwiched between, the Class 0 refers to the external surfaces, with Class 1 referring to the insulation core. Tests have been also made at foreign Institutes with the following results:
Germany: Panel class B1, insulation class A1 - France: class M0.

Sound insulation

The sound insulation of a material (for example, a panel) is given by the ability to reduce the passage of sound energy between two locations. valuation indices of Rw = 29-30 dB.
The **HIPERTEC® ROOF** panel has been tested to UNI 8270/7 and ISO 717/82 standards and, for the thicknesses 50-80-100 mm, obtained valuation indices of Rw = 29-30 dB.



(Mineral Wool Panels)

ROOF

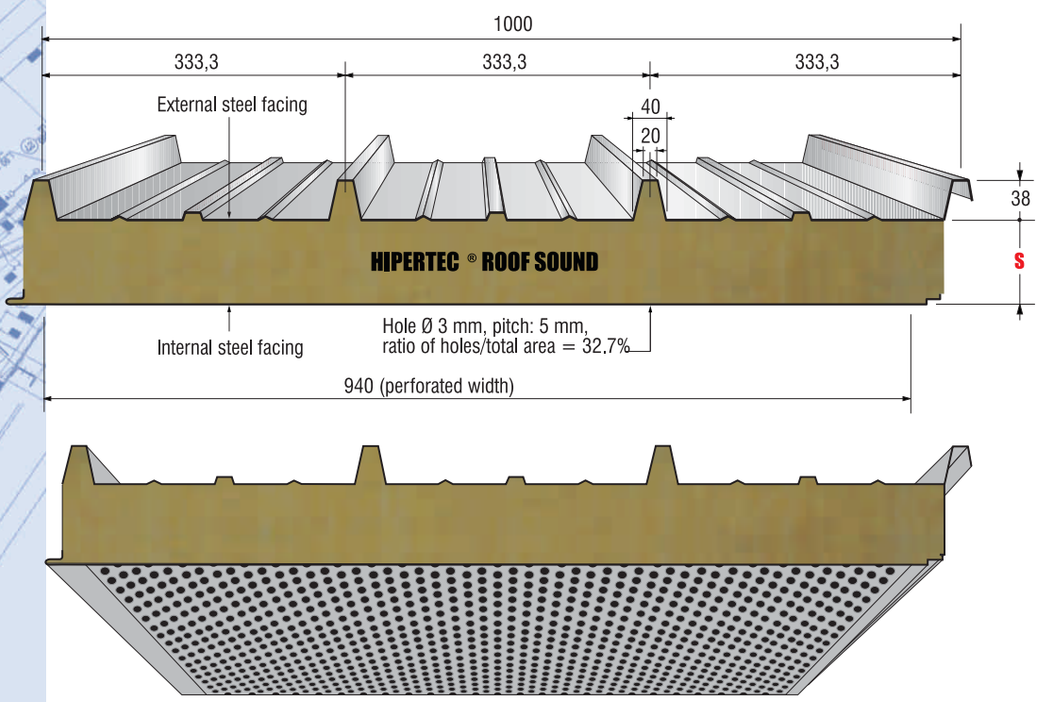
FIRE RESISTANCE

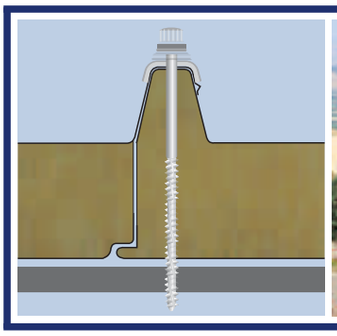
Self-supporting insulation panel insulated with rockwool for roof and wall applications, requiring a high degree of resistance to fire, combined with sound absorption.

The **HIPERTEC® ROOF SOUND** panel is manufactured in accordance with a system patented by Metecno and consists of a profiled external steel facing, an internal flat, but perforated liner, with an insulation core of orientated fibre high density rockwool, arranged perpendicular to the plane of the panel and positioned in strips, laid longitudinally with off-set joints and transversally compacted, in such a way as to completely fill the void between the two metal facings.

The ribs of the external metal sheet are filled with shaped mineral wool strips.

N.B.: Do NOT use this panel for climatised buildings.



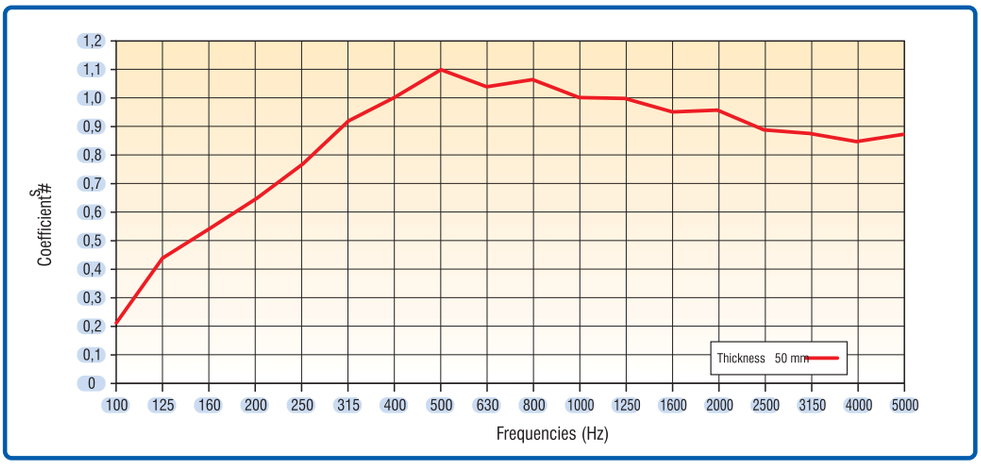


*Slope less than 7 deg possible, kindly consult marketing team

Sound absorption

The HIPERTEC® ROOF SOUND panel is particularly suitable for acoustic control, providing excellent sound absorption qualities over a wide range frequency spectrum.

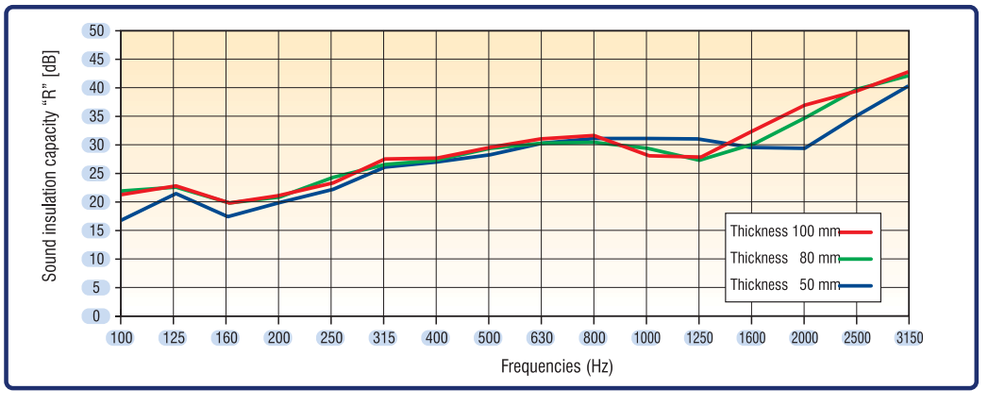
Tests in echo chambers conducted to ISO 354/85 standards on 50, 80 and 100 mm thick panels produced DELTA LA sound absorption indices of between 12 and 19 dB (A). The graph below shows the curve of the absorption coefficients at the various frequencies for the 50 mm thick panel.



Sound insulation

The HIPERTEC® ROOF SOUND panel has been tested to ISO 717/82 standards and obtained indices of RW = 33.5-35 dB for the 50, 80 and 100 mm thick panels.

The curves of the absorption coefficients of the 100, 80 and 50 mm thick HIPERTEC® ROOF SOUND panels at the various frequencies are shown in the graph below.

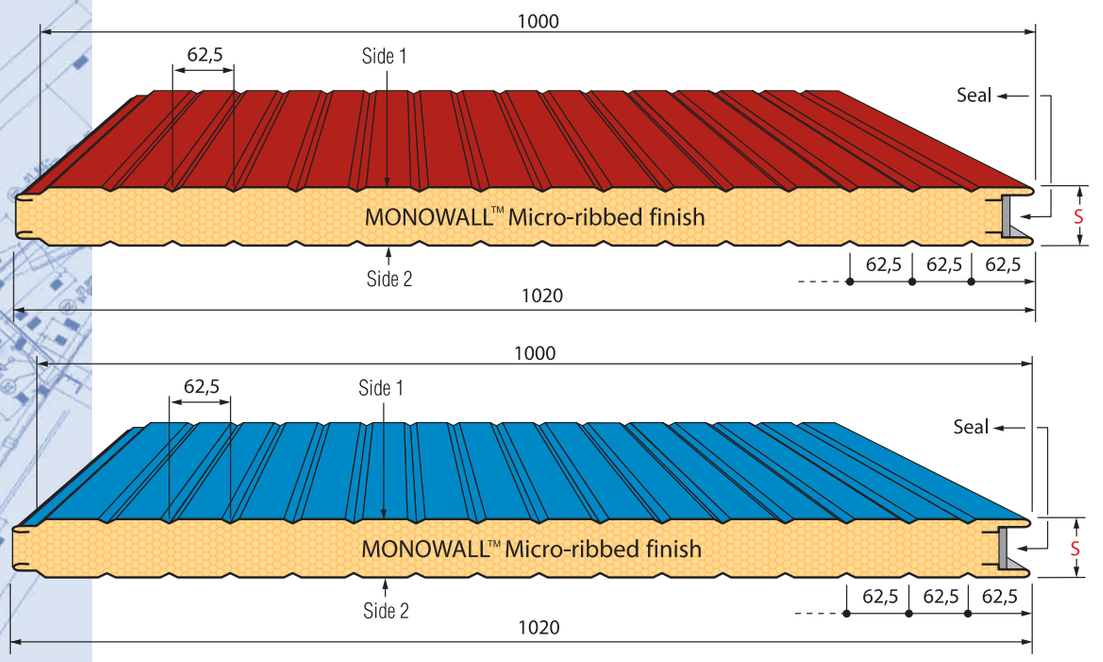


TRADITIONAL

WALL

Self-supporting polyurethane insulation material for use in industrial and commercial buildings, refrigerated rooms with positive temperature, and partitions in general.

Panel sheets specifications	
▪ Polyester primer	5 micron
▪ Polyester finish paint	18 micron
▪ Back-coat	5 micron
▪ Resistance to saline mist	≥500 h (ECCA T8)
▪ Resistance to moisture	≥1000 h (ASTM D2247)
Panels foam specifications	
▪ Average density	40 ± 2kg/m^3
▪ Thermal conductivity	0.024-0.03 W/m°C
▪ Temperature range	-40+80°C
▪ Free from CFC	
▪ Type of foam	B2, B3 & PIR



IMPORTANT: In the assembly stage, attention to the correct positioning of the painted side: the side marked with “INTERNAL” must face the internalside.

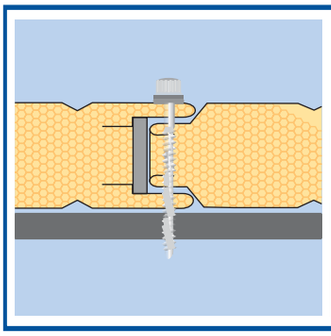


Table of safe spans

Values guaranteed with steel sheets as thick as indicated. Spans l in metres, as a function of a uniformly distributed load **p** (kgf/m^2), have been obtained from experimental data and calculated to provide a deflection limit: f< *l*/200 of the span and a minimum safety coefficient that complies with the UEAtc standards for insulated panels, which have been established and are implemented by primary European Certifying Organizations.

U value is Thermal Transmittance Co-efficient expressed in Watt/m^2 ^{0}C and Kcal/m^2 h^{0}C

Steel - Steel (thickness 0,4 + 0,4)

S mm	U Kcal/m^{2}h^{0}C	U Watt/m^2 ^{0}C	p = (kgf/m^2)	60	80	100	120	150	60	80	100	120	150
30	0,56	0,65	*l* =	2,60	2,45	2,30	2,05	1,85	2,25	2,10	1,90	1,80	1,65
40	0,43	0,50	*l* =	3,40	3,20	3,00	2,80	2,50	3,10	2,90	2,70	2,50	2,20
50	0,35	0,41	*l* =	3,90	3,65	3,40	3,10	2,75	3,45	3,20	2,95	2,75	2,40
60	0,29	0,34	*l* =	4,40	4,10	3,75	3,45	3,00	3,80	3,55	3,30	3,00	2,60
80	0,22	0,26	*l* =	5,20	4,65	4,25	3,90	3,35	4,50	4,00	3,70	3,35	2,90
100	0,18	0,21	*l* =	5,80	5,15	4,75	4,30	3,70	4,90	4,45	4,10	3,75	3,20
120	0,15	0,18	*l* =	6,40	5,70	5,25	4,75	4,05	5,50	4,90	4,50	4,10	3,50

Aluminium - Aluminium (thickness 0,6 + 0,6)

S mm	U Kcal/m^{2}h^{0}C	U Watt/m^2 ^{0}C	p = (kgf/m^2)	60	80	100	120	150	60	80	100	120	150
40	0,43	0,50	*l* =	2,75	2,39	2,11	1,90	1,66	2,34	2,06	1,84	1,67	1,49
50	0,35	0,41	*l* =	3,26	2,84	2,52	2,27	1,99	2,76	2,44	2,19	1,99	1,77
60	0,29	0,34	*l* =	3,74	3,26	2,90	2,62	2,32	3,16	2,79	2,51	2,29	2,04
80	0,22	0,26	*l* =	4,34	3,78	3,36	3,04	2,69	3,79	3,35	3,01	2,75	2,45
100	0,18	0,21	*l* =	4,86	4,24	3,77	3,41	3,02	4,30	3,79	3,41	3,11	2,77
120	0,15	0,18	*l* =	5,31	4,63	4,12	3,72	3,29	4,74	4,19	3,77	3,44	3,06

COLD STORE

WALL

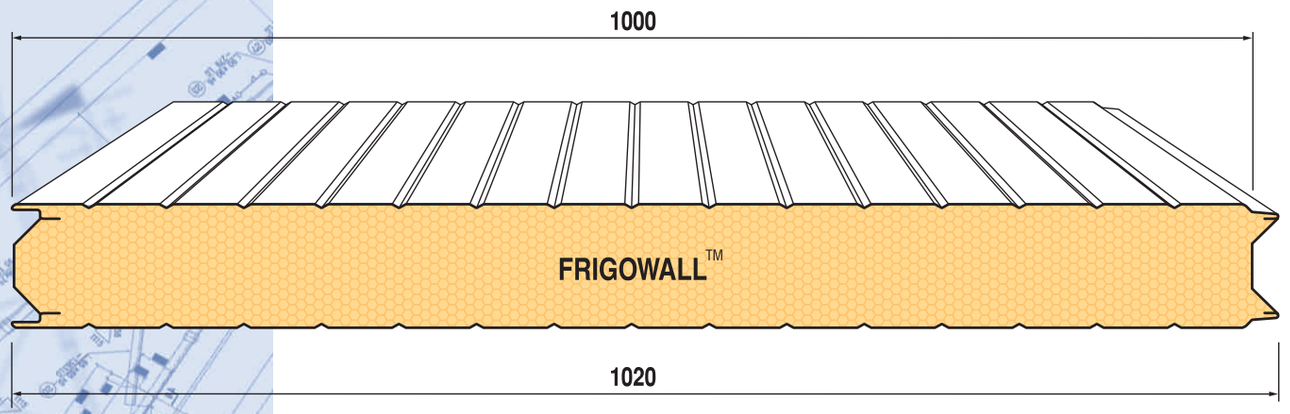
Low temperature - micro-ribbed

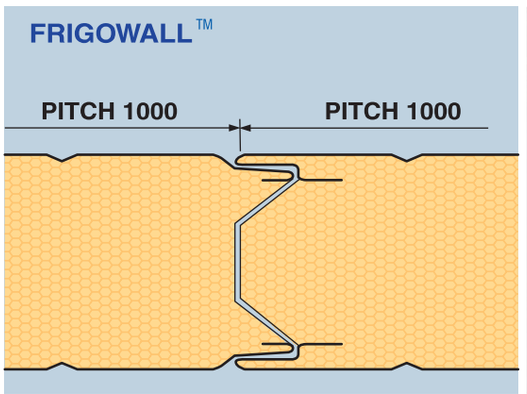
HIGH THERMAL RESISTANCE, MECHANICAL RESISTANCE, DIMENSIONAL STABILITY, NON-WATER ABSORBENT, LIGHTWEIGHT, AESTHETICALLY PLEASING APPEARANCE, DURABILITY, EASE AND SPEED OF INSTALLATION.

FRIGOWALL™ is a range of self-supporting polyurethane insulated panels with State-of-the-art polyurethane with a labyrinth joint for the construction of positive temperature cold storage warehouses and rooms.

The **FRIGOWALL**™ range has been designed to provide a complete solution to the requirements of the cold storage industry.

The panels of the **FRIGOWALL**™ range are available with self expanding seal joints, cover width 1000 mm, in 80 - 100 - 120 - 150 mm thicknesses.





Materials specifications

Panel sheets specifications

▪ Polyester primer	5 micron
▪ Polyester finish paint	18 micron
▪ Back-coat	5 micron
▪ Resistance to saline mist	$\geq$ 500 h (ECCA T8)
▪ Resistance to moisture	$\geq$ 1000 h (ASTM D2247)

Panels foam specifications

▪ Average density	40 $\pm$ 2 kg/m^3
▪ Thermal conductivity	0.024W/mK
▪ Temperature range	-40 +80 ^{0}C
▪ Free from CFC	
▪ Type of foam	B2, B3 & PIR

Table of safe spans

Maximum spans with f $\leq$ *l*/200

Loads: panel weight + 20 kgf/m^2 (due to negative pressure inside building)
panel weight + 30 kgf/m^2 (due to negative pressure inside building)

U value is Thermal Transmittance Co-efficient expressed in Watt/m^2 ^{0}C and Kcal/m^{2}h ^{0}C

Steel - Steel

S mm	U Kcal/m^{2}h^{0}C	U Watt/m^2 ^{0}C	p	p.p. + 20			p.p. + 30		
p = (kgf/m^2)				0,45+0,45	0,5+0,5	0,6+0,6	0,45+0,45	0,5+0,5	0,6+0,6
80	0,22	0,26	*l* =	5,25	5,80	6,10	4,70	5,30	5,55
100	0,18	0,21	*l* =	5,90	6,80	7,20	5,25	6,20	6,55
120	0,15	0,18	*l* =	7,35	7,80	8,20	6,70	7,10	7,50
150	0,12	0,14	*l* =	8,35	9,20	9,60	7,50	8,40	8,80
180	0,10	0,12	*l* =	9,15	10,40	11,00	8,20	9,50	10,00
200	0,09	0,11	*l* =	9,65	11,20	11,90	8,65	10,20	10,80

WALL

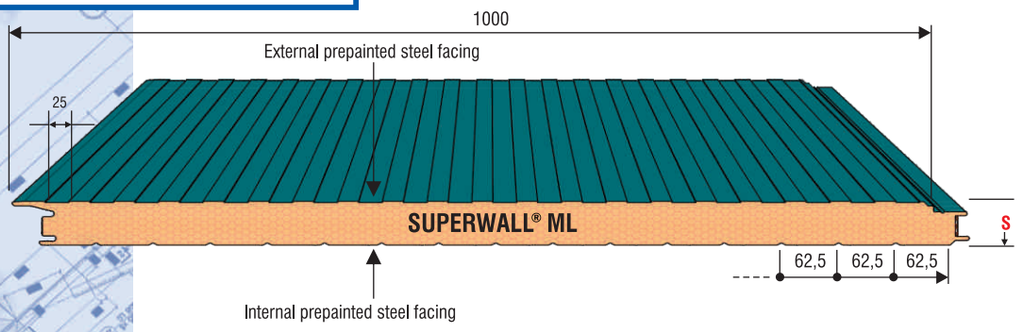
DESIGN

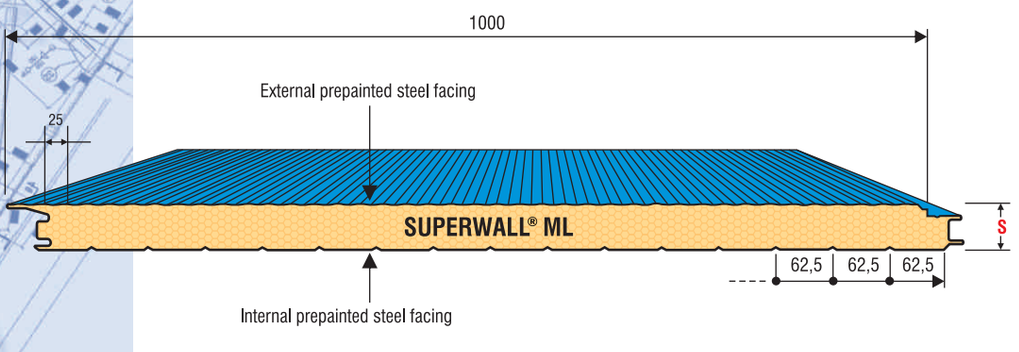
Self-supporting polyurethane insulation metal panel system, insulated with rigid PUR/PIR foam, with a concealed-fixing method for high quality industrial and commercial buildings, where good aesthetics are paramount.

The special double labyrinth joint of this panel, provides mechanical resistance and insulation superior to any other wall panel product of this kind, the panel external micro-V increases the aesthetic appeal of this panel, which can be orientated both vertically and horizontally as required.

Because of the particular shape of the joint, blind fastening are applied to the V-cut on the male edge of the outside sheet. Two screws with center distance of 30 mm should be used for each panel and each stud.

Outside walls are made mounting such panels one next to the other.





Panels can be assembled either horizontally or vertically

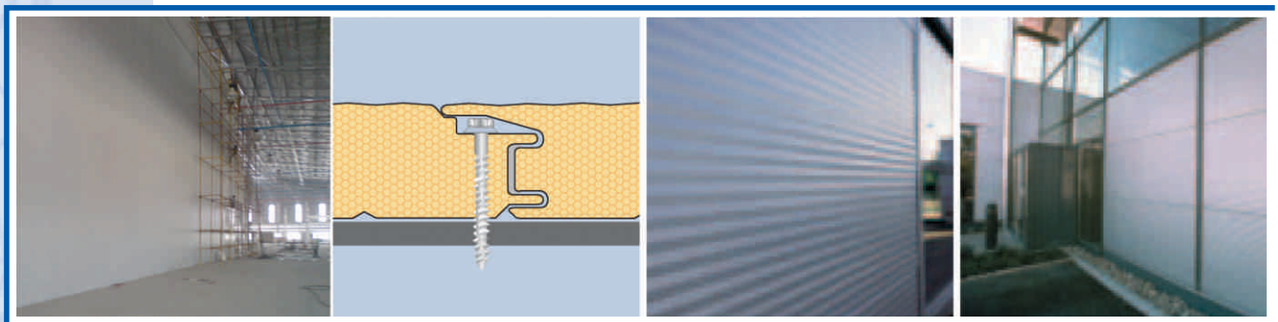


Table of safe spans

Values guaranteed with steel sheets, thickness 0.6 + 0.5 mm. Spans *l* in metres, as a function of a uniformly distributed load p (daN/m^2), have been obtained from experimental data and calculated to provide a deflection limit: f ≤ *l*/200 of the span and a minimum safety coefficient that complies with the UEAtc standards for insulated panels, which have been established and are implemented by primary European Certifying Organizations. For safe spans relevant to relative loads, please contact us.

Steel - Steel (0.5/0.5)

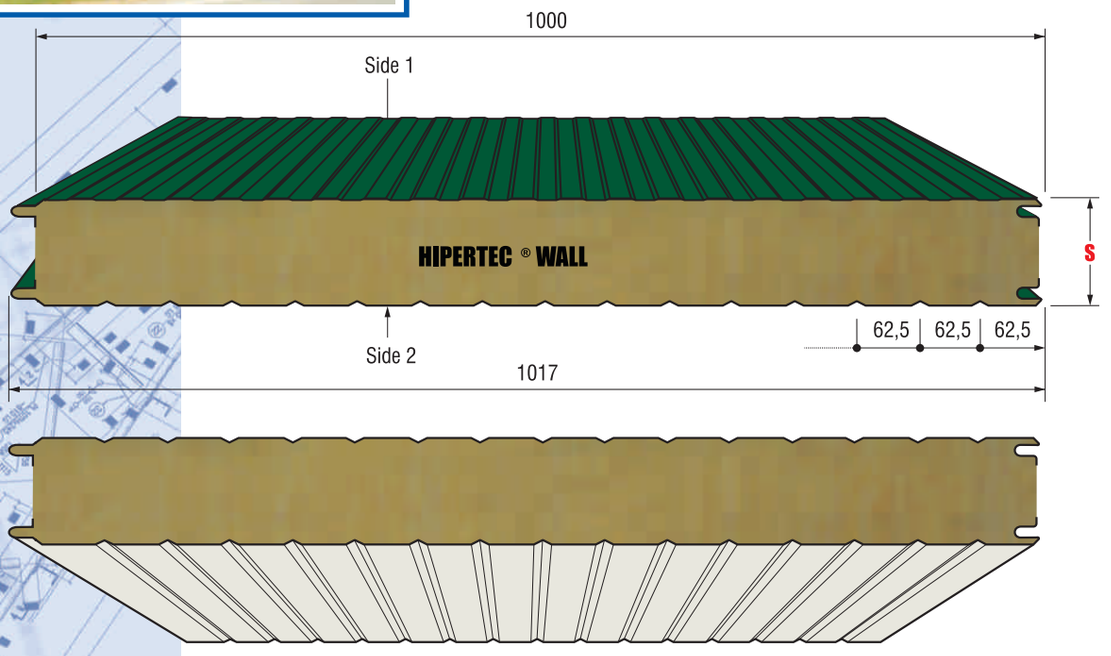
S mm	U Kcal m^{2}h°C	U Watt m^2°C	p = (daN/m^2)	60	80	100	120	150	60	80	100	120	150
				p p p					p				
				△ *l* △ *l* △ *l* △					△ *l* △				
50	0,29	0,34	*l* =	4,10	3,75	3,45	3.00	2,75	3,50	3,30	3,00	2,60	2,20
80	0,22	0,26	*l* =	5,20	4,65	4,25	3.90	3,35	4,50	4,00	3,70	3,35	2,90
100	0,18	0,21	*l* =	5,80	5,15	4,75	4,30	3,70	4,90	4,45	4,10	3,75	3,20

WALL

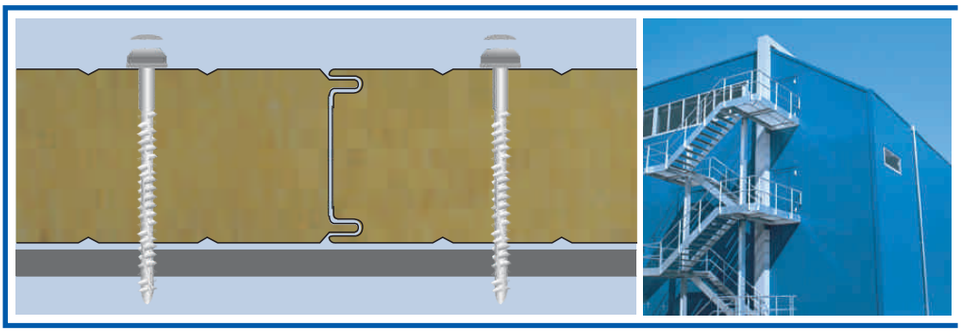
TRADITIONAL

Self-supporting insulation panel insulated with rockwool for wall and partition applications, which require a high degree of fire resistance and acoustic insulation.

The **HIPERTEC® WALL** panel, manufactured in accordance with a system patented by Metecno, consists of two micro-ribbed steel sheets, with an insulation core of orientated fibre high density rockwool, arranged perpendicularly to the plane of the panel and positioned in strips, laid longitudinally with off-set joints and transversely compacted, in such a way as to completely fill the space between the metal facings.



IMPORTANT: In the assembly stage, attention to the correct positioning of the painted side: the side marked with “INTERNAL” must face the internalside.



Density - 90 to 110 kg/m^3

Resistance to fire

The fire-resistance of a product is measured by means of a furnace brought up to a temperature of more than 1000°C in accordance with a given standardised curve. The test measures the product's capacity to conserve time through certain significant parameters,

Reaction to fire

Reaction to fire is the degree in which a material resists combustion. With regard to this, materials are assigned a class (0, 1, 2, 3, 4, and 5): the higher the class, the higher the degree of combustion. **HIPERTEC® WALL** panels, thicknesses 50 - 80 -100 mm, tested:

- At the Instituto Giordano S.p.A., pursuant to the Ministerial Decree of 26/6/84, were classified 0/1 for reaction to fire in the wall position.

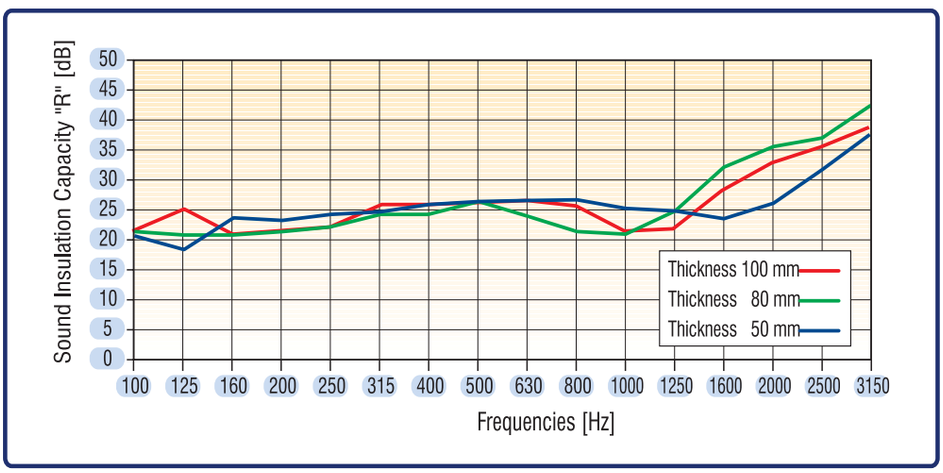
- At the MPA Dresden according to EN 13823 and EN 11925-2 for reaction to fire, have been classified, according to EN 13501-1 as A_2 S_1 D_0 .Since the panel consists of two steel sheets with a layer of rockwool inbetween, the class 0 refers to the external parameter and the class 1 to the insulation. Tests have been also made at foreign Institutes with the following results:

Germany: Panel class B1, insulation class A1 - France: class M0.

Sound insulation

The sound insulation of a material (for example, a panel) is given by the ability to reduce the passage of sound energy between two places.

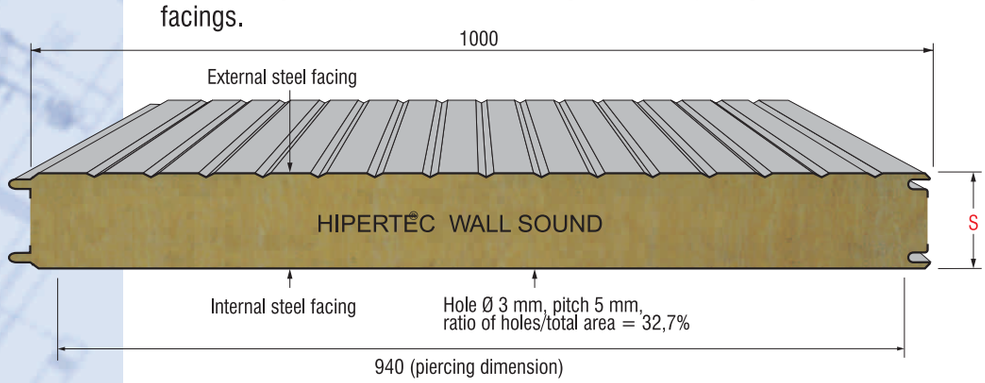
The **HIPERTEC® WALL** panel has been tested to UNI 140/3/78 and ISO 717/82 standards and, for the thicknesses 50 - 80 - 100 mm, obtained valuation indices of Rw = 30-30.5 dB.

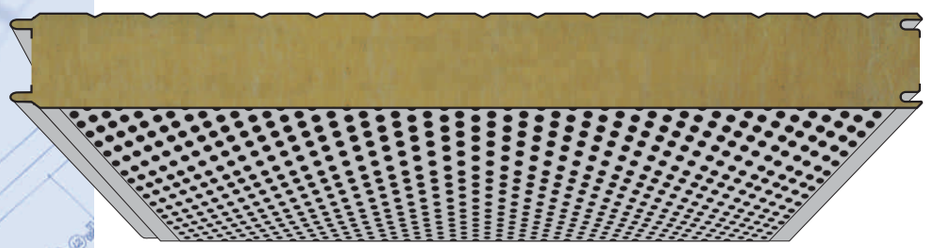


(Mineral Wool Panels)

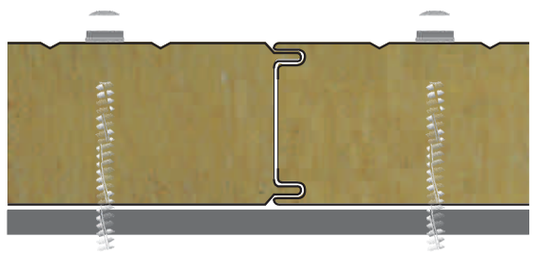
Self-supporting panel insulation material insulated with Rockwool for wall and partition applications, requiring a high degree of resistance to fire, combined with sound absorption.

The **HIPERTEC® WALL SOUND** panel, is manufactured in accordance with a system patented by Metecno, and consists of a micro-ribbed external steel facing, an internal flat, but perforated liner, with an insulation core of orientated fibre high density Rockwool, arranged perpendicular to the plane of the panel and positioned in strips, laid longitudinally with off-set joints and transversally compacted, in such a way as to completely fill the void between the two metal facings.





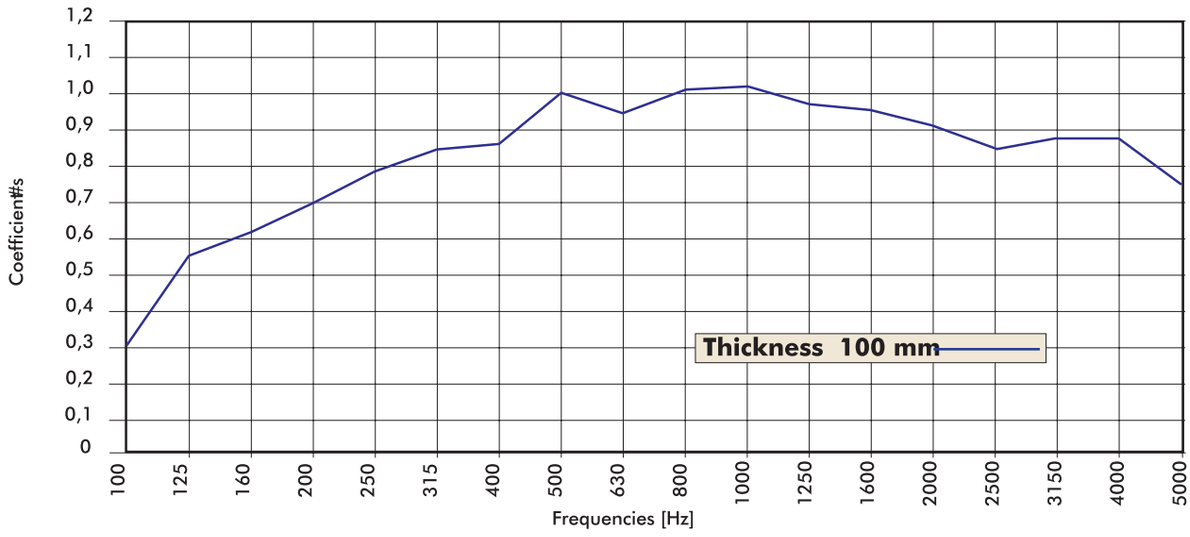
Joint detail



Sound absorption

The **HIPERTEC® WALL SOUND** panel is particularly suitable for **acoustic control**, providing excellent sound absorption qualities over a wide range frequency spectrum. Tests in echo chambers conducted to ISO 354/85 standards in 50 - 80 - 100 mm thick panels produced a Δ **La** sound absorption index of between **10-11 dB (A).**

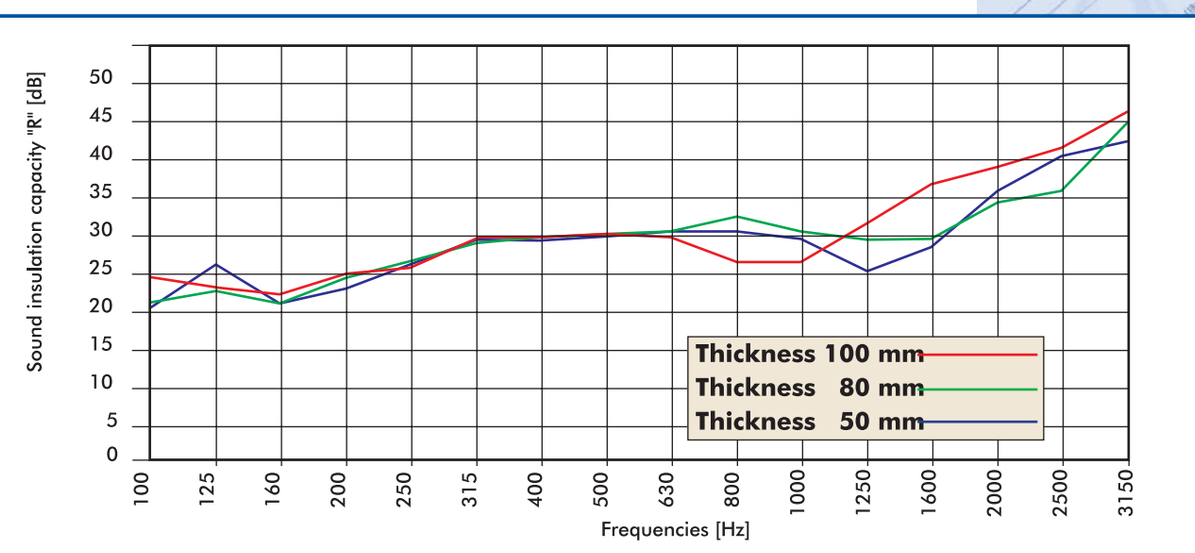
The graph below shows the curve of the absorption coefficients at the various frequencies for the 100 mm thick panel.



Sound insulation

The **HIPERTEC® WALL SOUND** panels have been tested to ISO 717/82 standards and obtained indices of **Rw** = 31.5-33 dB for the 50, 80 and 100 mm thick panels.

The curves of the absorption coefficients of the 100, 80 and 50 mm thick **HIPERTEC® WALL SOUND** panels at the various frequencies are shown in the graph below.



Resistance to Fire

HIPERTEC® WALL SOUND panels have been tested at the Instituto Giordano S.p.A. on unloaded structures in accordance with Circular no. 91 of 14/9/61 and obtained the following results:

HIPERTEC® WALL thickness 100 REI 60 certificate no. 111480/1720 RF

HIPERTEC® WALL thickness 80 REI 45 certificate no. 111477/1717 RF

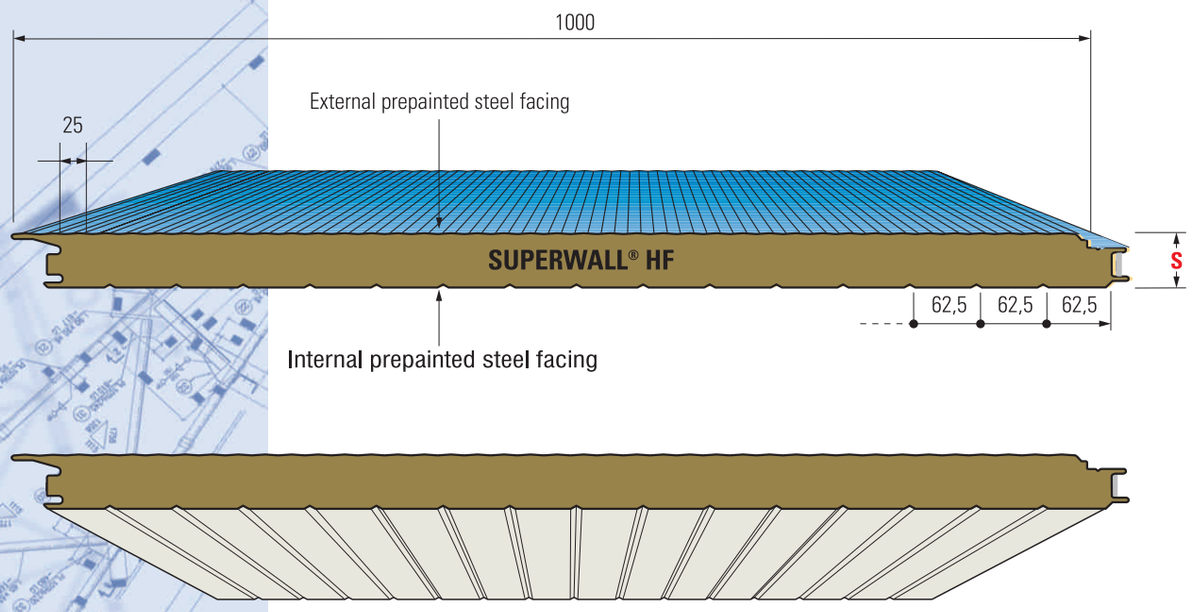
WALL

DESIGN

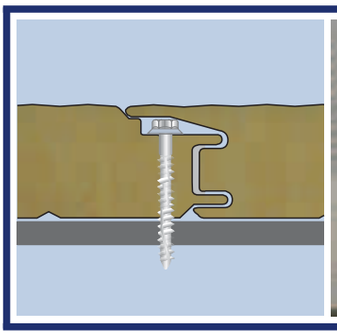
Self -supporting metal system, insulated with rockwool foam, a concealed-fixing method for high quality industrial and commercial buildings, where good aesthetics are paramount.
The SUPERWALL® HF panel, manufactured in accordance with a system patented by Metecno, consists of two micro-ribbed steel sheets, with an insulation core of orientated fibre high density rockwool, arranged perpendicularly to the pane of the panel and positioned in strips, laid longitudinally with off-set joints and transversely compacted, in such a way as to completely fill the space between the metal facings. The special double labyrinth joint of this panel, provides mechanical resistance and insulation superior to any other wall panel product of this kind, the panel external micro-V increases the aesthetic appeal of this panel, which can be orientated both vertically and horizontally as required.

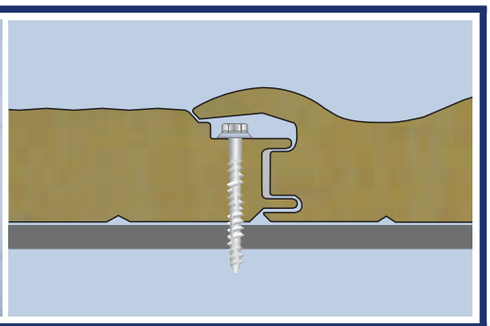
Because of the particular shape of the joint, blind fastening are applied to the V-cut on the male edge of the outside sheet. Two screws with centre distance of 30mm should be used for each panel and each stud.

Outstanding walls are made mounting such panels one next to the other.



Panels can be assembled either horizontally or vertically





MAJOR PRODUCT TECHNICAL APPROVAL :

Zulassung Dibt Z - 10.4 - 237.

RESISTANCE TO FIRE

EI 60 - 120 mm - EN 1364-1 - RINA n° 1131 - 02/05

REACTION TO FIRE

France: Class MD

Table of safe spans

Values guaranteed with steel sheets, thickness 0.6 + 0.6 mm. Spans *l* in metres, as a function of a uniformly distributed load p (daN/m^2), have been obtained from experimental data and calculated to provide a deflection limit: f≤*l*/200 of the span and a minimum safety coefficient that complies with the UEAtc standards for insulated panels, which have been established and are implemented by primary European Certifying Organizations.

For safe spans relevant to relative loads, please contact us.

steel - steel

S mm	K Kcal m^{2}h °C	K Watt m^2 °C	Panel weight kg/m^2 0,6+ 0,6	Color group of external metal sheet	p = (daN/m^2)	60	80	100	120	150	60	80	100	120	150
						p p p					p				
						l *l* *l*					*l*				
80	0,42	0,49	19,36	I	*l* =	5,33	4,50	3,65	3,08	2,48	5,05	4,38	3,91	3,54	2,88
100	0,34	0,40	21,36	I	*l* =	5,33	5,33	4,55	3,82	3,09	5,65	4,89	4,38	3,99	3,56

The values in red have been limited for manufacturing reasons.

Corrugated sheet METECNO A38-P980-G4 is made through cold shaping of colour coated coil in various thickness. This process gives the product an optional mechanical resistance, high walkability and remarkable resistance to corrosion. The sheets are available in colour coated GI, Colour coated Galvalume and Bare Galvalume.

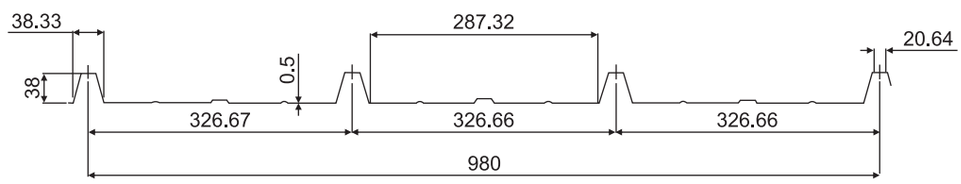
The standard painting cycle is polyester resins applied using a coil coating technique.

In addition to the standard colour available, custom-made colour based on samples or the RAL table can be made.

We also have facilities to manufacture standing seam profiled roofing sheets.

A38-P980-G4

ROOFMET



A38-P980-G4 - steel

THICK mm	Ixx cm⁴/m	Zxx(TOP) cm³/m	Zxx (BOTTOM) cm³/m	LOAD kgf/m²	W Kgf/m²	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
0.30	4.54	1.45	7.98			127	82	57	-	-	-	-	-	-	-	-	-	-
0.35	5.28	1.69	9.26			173	110	77	56	-	-	-	-	-	-	-	-	-
0.50	7.50	2.40	13.03			349	223	155	114	87	69	56	46	-	-	-	-	-
0.60	8.96	2.87	15.47			499	319	222	163	125	99	80	66	-	-	-	-	-
0.70	10.40	3.33	17.86			672	430	299	219	168	133	108	89	75	64	-	-	-
0.80	11.84	3.80	20.20			875	560	389	286	219	173	140	116	97	83	71	-	-
1.00	14.66	4.72	24.72			1350	864	600	441	338	267	216	179	150	128	110	96	84

THICK mm	Ixx cm⁴/m	Zxx(TOP) cm³/m	Zxx (BOTTOM) cm³/m	LOAD kgf/m²	W Kgf/m²	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
0.30	4.54	1.45	7.98			199	127	88	65	50	-	-	-	-	-	-	-	-
0.35	5.28	1.69	9.26			270	173	120	88	68	-	-	-	-	-	-	-	-
0.50	7.50	2.40	13.03			545	349	242	178	136	108	87	-	-	-	-	-	-
0.60	8.96	2.87	15.47			780	499	347	255	195	154	125	103	87	74	-	-	-
0.70	10.40	3.33	17.86			1031	660	458	337	258	204	165	136	114	98	84	-	-
0.80	11.84	3.80	20.20			1367	875	608	446	342	270	219	181	152	129	112	97	85
1.00	14.66	4.72	24.72			2110	1350	937	688	527	416	337	278	234	199	172	150	131

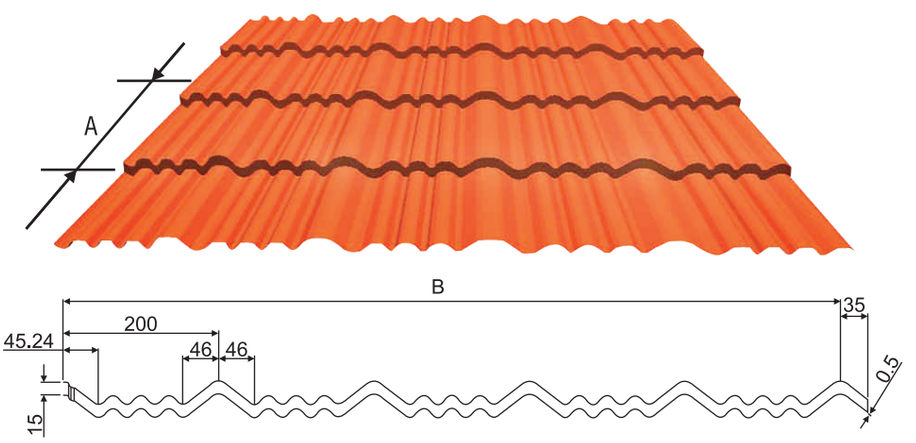
Corrugated sheet METECNO STILE is made through cold shaping of colour coated coil in various thickness. This process gives the product an optional mechanical resistance, high walkability and remarkable resistance to corrosion. The sheets are available in colour coated GI, Colour coated Galvalume and Bare Galvalume.

The standard painting cycle is polyester resins applied using a coil coating technique.

In addition to the standard colour available, custom-made colour based on samples or the RAL table can be made.

Available in 0.35 / 0.5 / 0.6 mm

STILE



A
150
200
250

B
800
1000

THICK mm	Ixx cm^4/m	Zxx (TOP) cm^3/m	Zxx (BOTTOM) cm^3/m	LOAD kgf/m^2	W Kgf/m^2 1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75
0.35	6.40	1.02	0.89		279	124	91	-	-	-	-	-
0.50	7.69	1.15	1.16		355	227	158	116	89	-	-	-
0.60	8.49	1.23	1.33		403	260	180	133	102	69	56	46

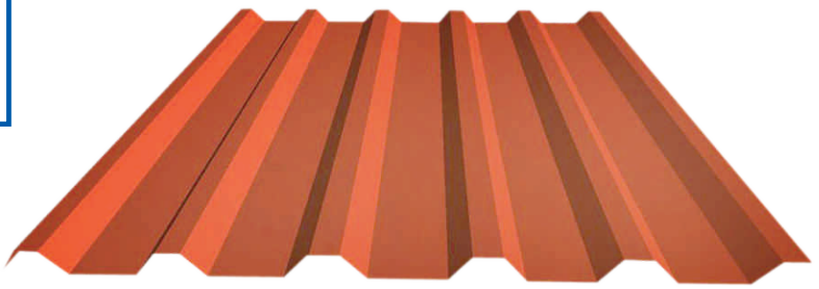
THICK mm	Ixx cm^4/m	Zxx (TOP) cm^3/m	Zxx (BOTTOM) cm^3/m	LOAD kgf/m^2	W Kgf/m^2 1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75
0.35	6.40	1.02	0.89		315	201	140	102	78	62	50	41
0.50	7.69	1.15	1.16		526	337	234	171	132	104	84	69
0.60	8.49	1.23	1.33		602	385	267	197	150	118	96	79

Corrugated sheet METECNO A35-P920-G6 is made through cold shaping of colour coated coil in various thickness. This process gives the product an optional mechanical resistance, high walkability and remarkable resistance to corrosion. The sheets are available in colour coated GI, Colour coated Galvalume and Bare Galvalume.

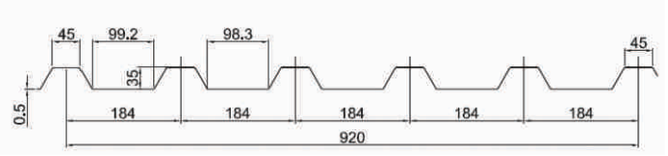
The standard painting cycle is polyester resins applied using a coil coating technique.

In addition to the standard colour available, custom-made colour based on samples or the RAL table can be made.

A35-P920-G6



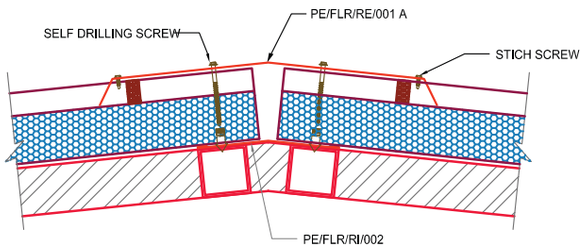
METWALL



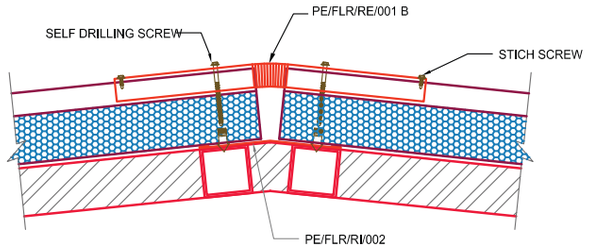
A35-P920-G6 - steel

THICK mm	Ixx cm^4/m	Zxx(TOP) cm³/m	Zxx (BOTTOM) cm³/m	LOAD kgf/m²	W Kgf/m² — l	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
0.30	5.35	2.27	5.27			99	63	44	32	25	-	-	-	-	-	-	-	-
0.35	6.232	2.59	6.12			129	83	57	42	32	-	-	-	-	-	-	-	-
0.50	8.84	3.68	8.67			260	167	116	85	65	51	-	-	-	-	-	-	-
0.60	10.55	4.40	10.33			372	238	165	122	93	74	60	-	-	-	-	-	-
0.70	12.26	5.11	11.97			502	321	223	164	126	99	80	66	-	-	-	-	-
0.80	13.94	5.82	13.59			651	417	289	213	163	122	104	86	72	62	-	-	-
1.00	17.27	7.22	16.76			1002	642	442	327	251	198	160	133	111	95	82	71	65

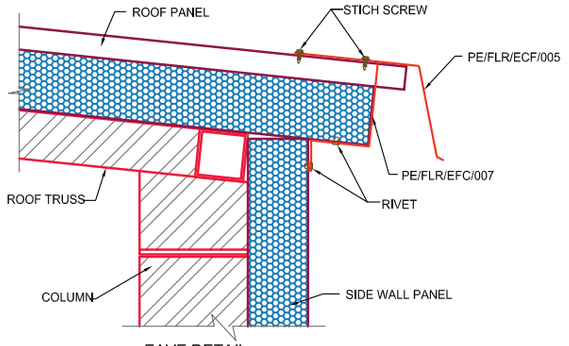
THICK mm	Ixx cm^4/m	Zxx(TOP) cm³/m	Zxx (BOTTOM) cm³/m	LOAD kgf/m²	W Kgf/m² — l — l — l	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
0.30	5.35	2.27	5.27			155	89	69	51	-	-	-	-	-	-	-	-	-
0.35	6.232	2.59	6.12			202	129	90	66	-	-	-	-	-	-	-	-	-
0.50	8.84	3.68	8.67			407	260	181	133	102	80	65	-	-	-	-	-	-
0.60	10.55	4.40	10.33			582	372	259	190	145	115	93	77	-	-	-	-	-
0.70	12.26	5.11	11.97			785	502	349	256	196	155	126	104	87	-	-	-	-
0.80	13.94	5.82	13.59			1018	651	452	332	254	201	163	135	113	96	-	-	-
1.00	17.27	7.22	16.76			1566	1102	696	511	392	309	251	207	174	148	128	111	98



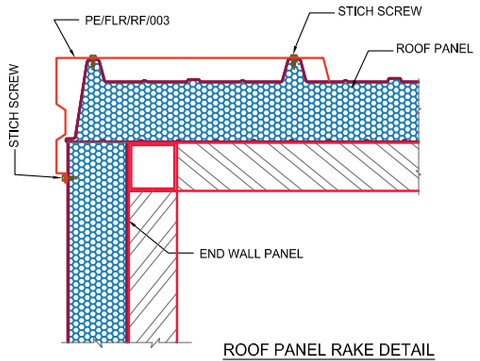
ROOF PANEL RIDGE DETAIL



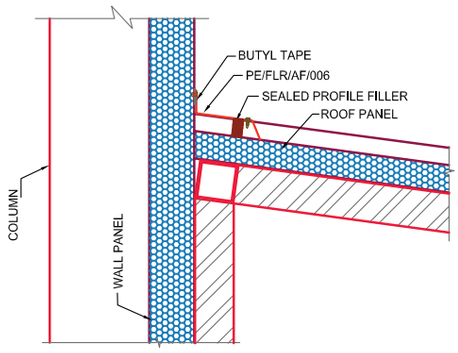
ROOF PANEL RIDGE DETAIL



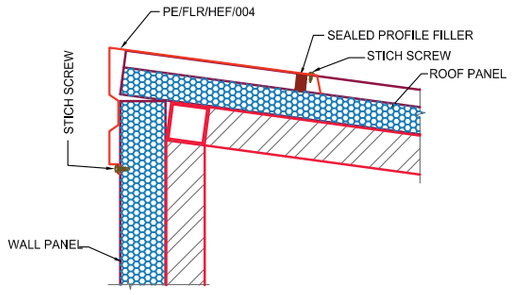
EAVE DETAIL



ROOF PANEL RAKE DETAIL



ROOF PANEL LEAN TWO DETAIL



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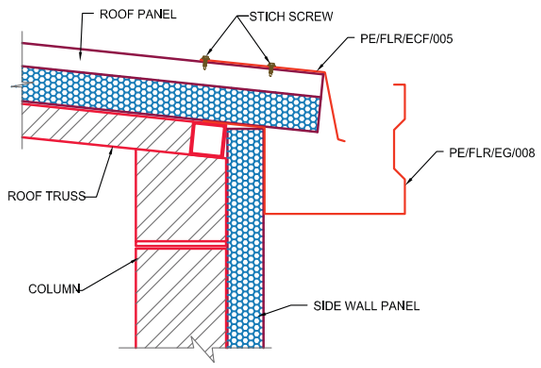
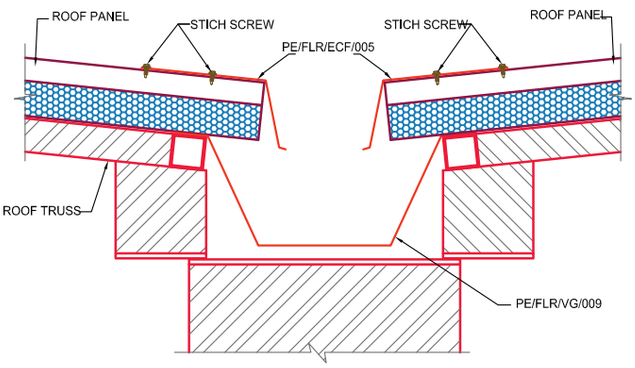
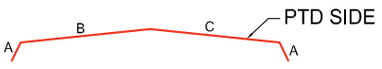


EAVE DETAIL



VALLEY DETAIL

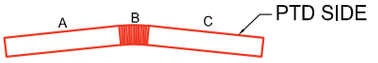
RIDGE EXTERNAL FLASHING



PE/FLR/RE/001 A

FLASHING NO.- PE/FLR/RE/001 A	
MATERIAL - PPGI	THK. - 0.5
A	40 (N)
B	265
C	265

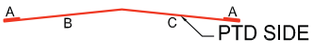
CRIMPPED PROFILE SHEET FOR RIDGE EXTERNAL



PE/FLR/RE/001 B

FLASHING NO.- PE/FLR/RE/001 B	
MATERIAL - PPGI	THK. - 0.5
A	300
B	75
C	300

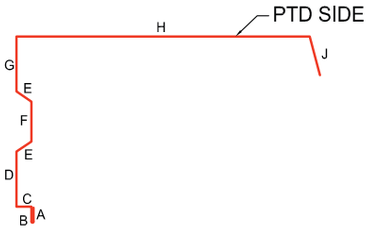
RIDGE INTERNAL FLASHING



PE/FLR/RI/002

FLASHING NO.- PE/FLR/RI/002	
MATERIAL - PPGI	THK. - 0.5
A	10
B	193
C	193

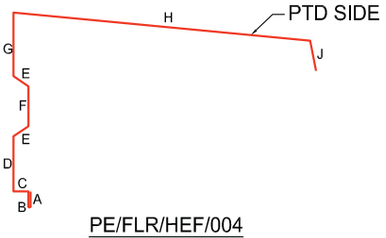
RAKE FLASHING



PE/FLR/RF/003

FLASHING NO.- PE/FLR/RF/003	
MATERIAL - PPGI	THK. - 0.5
A	10
B	20
C	20
D	55
E	20
F	55
G	55
H	375
J	40

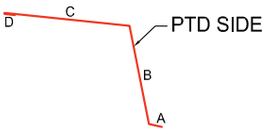
HIGH SIDE EAVES FLASHING



PE/FLR/HEF/004

FLASHING NO.- PE/FLR/HEF/004	
MATERIAL - PPGI	THK. - 0.5
A	10
B	20
C	20
D	55
E	20
F	55
G	55
H	335
J	40 (N)

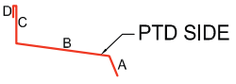
EAVE COVER FLASHING



PE/FLR/ECF/005

FLASHING NO.- PE/FLR/ECF/005	
MATERIAL - PPGI	THK. - 0.5
A	20
B	89
C	125
D	10

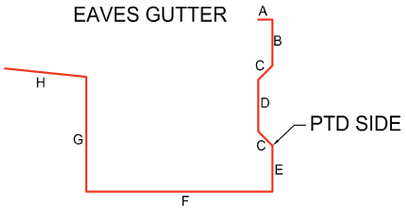
APRON FLASHING



PE/FLR/AF/006

FLASHING NO.- PE/FLR/AF/006	
MATERIAL - PPGI	THK. - 0.5
A	40 (N)
B	125
C	100
D	10

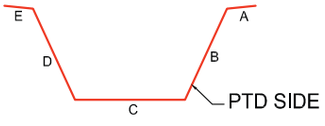
EAVES GUTTER



PE/FLR/EG/008

FLASHING NO.- PE/FLR/EG/008	
MATERIAL - PPGI	THK. - 0.5
A	20
B	65
C	25
D	65
E	65
F	200
G	175
H	200

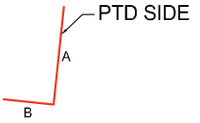
VALLEY GUTTER



PE/FLR/VG/009

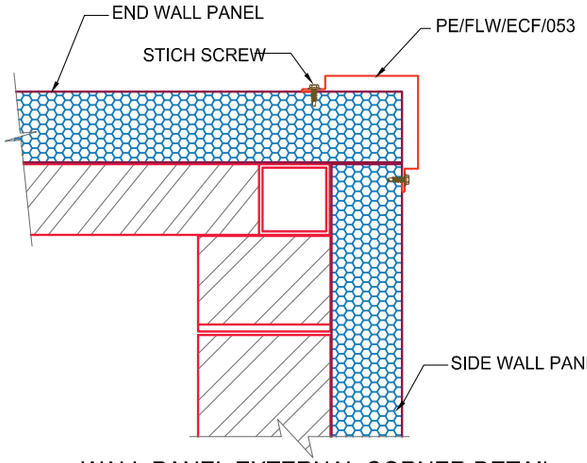
FLASHING NO.- PE/FLR/VG/009	
MATERIAL - PPGI	THK. - 0.5
A	200
B	190
C	190
D	190
E	200

FOAM COVER FLASHING

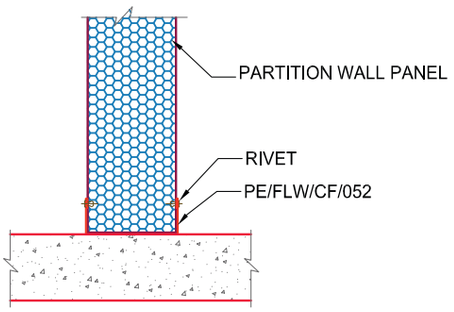


PE/FLR/EFC/007

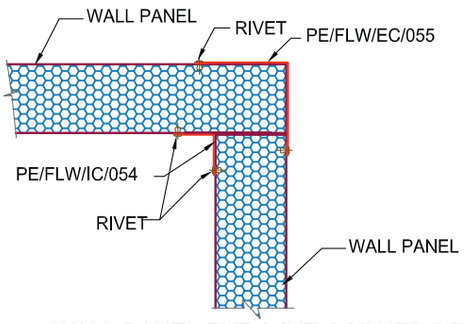
FLASHING NO.- PE/FLR/EFC/007	
MATERIAL - PPGI	THK. - 0.5
A	88 (N)
B	50



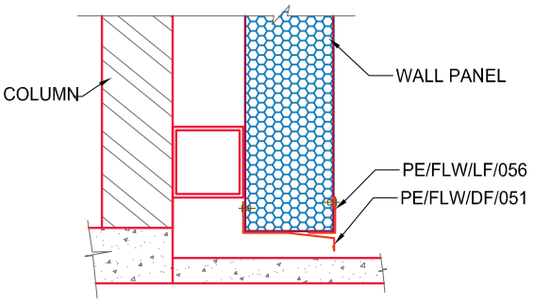
WALL PANEL EXTERNAL CORNER DETAIL



WALL PANEL PARTITION DETAIL

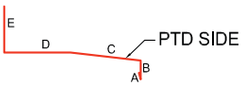


WALL PANEL EXT & INT CORNER DETAIL



WALL PANEL BOTTOM DETAIL

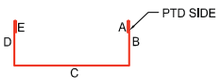
BASE DRIP FLASHING



PE/FLW/DF/051

FLASHING NO.- PE/FLW/DF/051	
MATERIAL - PPGI	THK. - 0.6
A	15
B	30
C	35
D	30
E	134

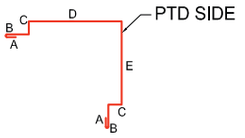
C FLASHING



PE/FLW/CF/052

FLASHING NO.- PE/FLW/CF/052	
MATERIAL - PPGI	THK. - 0.6
A	10
B	45
C	62
D	45
E	10

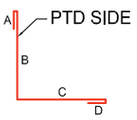
EXTERNAL CORNER FLASHING



PE/FLW/ECF/053

FLASHING NO.- PE/FLW/ECF/053	
MATERIAL - PPGI	THK. - 0.6
A	10
B	25
C	20
D	100
E	100

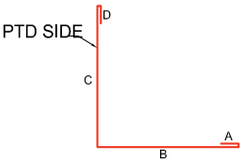
INTERNAL CORNER FLASHING



PE/FLW/IC/054

FLASHING NO.- PE/FLW/IC/054	
MATERIAL - PPGI	THK. - 0.6
A	10
B	50
C	50
D	10

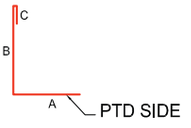
EXTERNAL CORNER FLASHING



PE/FLW/EC/055

FLASHING NO.- PE/FLW/EC/055	
MATERIAL - PPGI	THK. - 0.6
A	10
B	80
C	80
D	10

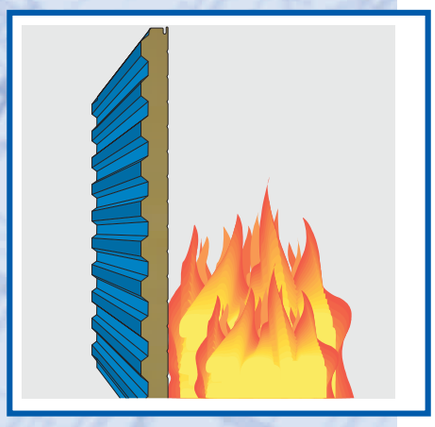
L FLASHING



PE/FLW/LF/056

FLASHING NO.- PE/FLW/LF/056	
MATERIAL - PPGI	THK. - 0.6
A	30
B	50
C	10

NOTE : Details shown are standard and may change specially to given applications



FIRE

BEHAVIOUR IN A FIRE

Establishing the behavior of metal panels insulated with extruded polyurethane in a fire has always been difficult.
Additionally, the complexities of the various National Standards do not the help matters.
This applies particularly to the "Reaction to the fire" and "Resistance to fire" concepts, which define the behavior of materials.

REACTION TO FIRE

Reaction to fire is the degree to which a material resists combustion.
With regard to this, materials are assigned a class (0, 1, 2, 3, 4, 5): the higher the class, the higher the degree of combustion.
The fire reaction class is established through tests of small sized samples, which are carried out by following extremely strict standards, which vary from country to country.
For this reason, except for Class 0, which is an ISO standard, it is difficult to make any correlation between the classifications accepted by the various national standards.

Class 0

The non-combustibility test to assign Class 0 is carried out to the ISO-DIS 1182.2 standard, which envisages to a very small sample material to 750^{0}C and checking the following parameters:

- Formation of flames
- Increase in temperature
- Loss of weight

In Italy, when the material passes this test, it is assigned Class 0, which in Germany is called A1 and in France MO.

Class 1-5

No organic substances achieve Class 0, so they must be classified with other methods. For the Italian laws, they are:

CSE RF 1/75/A	Suspended materials attacked by flames on both sides
CSE RF 2/75A	Materials attacked by flames on one side
CSE RF 3/75A	Materials subject to one flame and radiant heating

Methods CSE RF 1/75A or CSE RF 2/75A are used according to the type of material.
The Fire Reaction Class of the product is established by combining these categories.
The other European countries classify the fire reaction in a different way, and particularly:

GERMANY : B1 - B2 or B3 (DIN 4102)

The material is tested with a small flame (B2) and in a furnace as the walls of a fireplace.
If it doesn't pass the B2 test, the last class B3 is automatically assigned.

FRANCE : from M1 to M5 (ANFORM NFP 92-501)

The test is carried out by means of an "Epiradiateur", with the same attendance presence flames and head supplied by a radiating surface. The M1 class is the best one, for organic material while the M5 is the worst.
Ref: Ministerial Decree of 26.06.84 - Fire reaction classification and approval of materials for fire prevention purposes.

RESISTANCE TO FIRE

The resistance to fire is the ability of the building material to keep its mechanical stability, not to spread flames, or to have a thermal insulation for a certain period of time.
The resistance to fire is expressed as the time, in minutes, from the beginning of the heating period until the tested component ceases to comply with the requirements that it must meet.
The fire resistance test is carried out by following the instructions of Circular no. 91 of the Ministry of the Interior (1961), which requires the installation of a portion of wall (or floor) at the hole of a furnace. The furnace is heated following a well-defined temperature scale, and some parameters are controlled that help identify the fire resistance class of the material.
The following aspects are controlled:

1) Mechanical stability (symbol : R)
2) Resistance to flames, fumes and exhausts (Symbol : E)
3) Thermal insulation (symbol : I)

The building material can have a variable fire resistance level, resulting from the combination of the REI, RE, R requirements.

TECHNICAL INFORMATION - STRUCTURAL

In the description of the several types of panels presented in this catalogue, the value of **K,** the thermal insulation coefficient, was given as a function of the types and the relevant thickness of the insulator used. It is probably useful, however, to give you some details for an easy comparison.
If x is the value of **K** for a polyurethane foam 5mm-thick panel, the thickness of other insulating materials that may be used is very different, when the same value of thermal insulation is required.

POLYURETHANE FOAM	5 cm	CARBOARD	13 cm
POLYSTRYRENE	7, 5 cm	WOOD BOARD	28 cm
ROCK WOOL	9 cm	CONCRETE BLOCK WALL	76 cm
CORK	10 cm	BRICK WALL	173 cm

The average densities used in the building industry were used for this comparison.

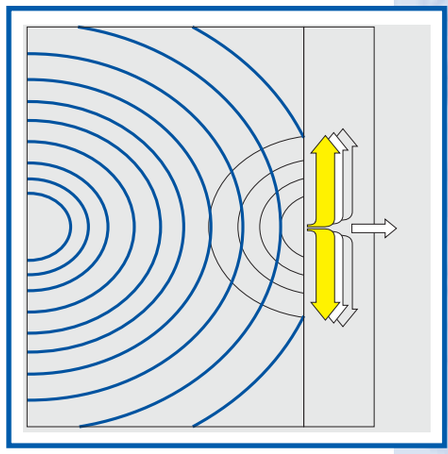
ACOUSTICS

SOUND INSULATION - SOUND ABSORPTION

The sound level is measured in decibels (dB), which are established by a given sound intensity and pressure, calculated in a logarithmic scale. When the sound is increased (reduced) by twofold the sound level increases (or decreases) by 10 dB.

Examples of sound pressure

1 - Light leaf rustling	20 dB
2 - Sound level in a reading room	30 dB
3 - Low-noise humming	40 dB
4 - Background noise at home	50 dB
5 - Standard conversation at the distance of 1 m	60 dB
6 - Background noise of computing machines	70 dB
7 - Compact sized car at 80 km/h	80 dB
8 - Automatic lathe	90 dB
9 - Turboprop engined airplane (inside)	100 dB
10 - Car Hooter	110 dB
11 - Pneumatic hammer	120 dB
12 - Hydraulic press	130 dB
13 - 4-engine airplane (take-off)	140 dB
14 - Launching rocket	200 dB



SOUND INSULATION

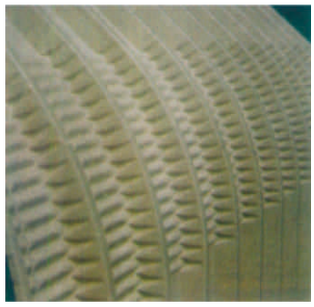
The decibel scale is also used to measure the sound insulation. A barrier reduces the sound energy that hits it by a fixed ratio, which is constant for that types of building regardless of the sound source.

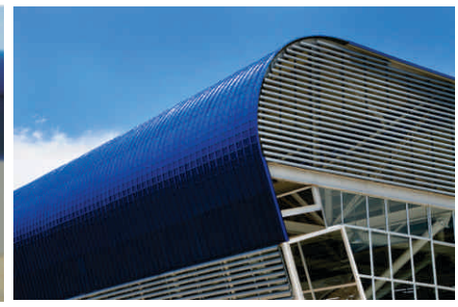
SOUND ABSORBING POWER

It is the capacity of the material to transform the sound energy into thermal energy (vibrations) and to reflect a very small portion. In environments built with traditional materials like bricks, marble and glass...., which do not have a high sound absorbing power, the echo, caused by the wave reflection, is heard, which leads to the overall increase in the sound level, with often serious consequences for occupants. A pleasant and relaxing sensation for the ears can be experienced in acoustically designed rooms.

SOUND INSULATION POWER

It is the impossibility for the sound energy to pass through any material similar to other materials that are poor conductors of heat or electricity.
This capacity is a function of the mass of materials limited to some mechanical characteristics that make such materials, for specific frequencies, practically "transparent" to the sound and cause the echo effect.





STEEL STRUCTURE DESIGN PARAMETERS

DESIGN CRITERIA

Structural Steel design is based on the following criteria:

- Dead Load
- Live Load
- Wind Load
- Seismic Load
- Crane Load - Gantry Girder design
- Auxiliary Load
- Collateral Load
- Snow Load

Design Code IS (INDIA)

Load are applied in accordance with:

IS 875 Part I : Code of practice for Design Dead loads for Building and Structures

IS 875 Part II : Code of practice for Design imposed loads for Building and Structures

IS 875 Part III : Code of practice for Design wind loads for Building and Structures

IS 1893 (2002) : Criteria for Earthquake Resistance Design of Structures

Hot Rolled Built up sections and designed in accordance with:

IS 800 (2007): Code of Practice for general Construction in Steel (Latest Revision)

Cold-formed members are designed in accordance with:

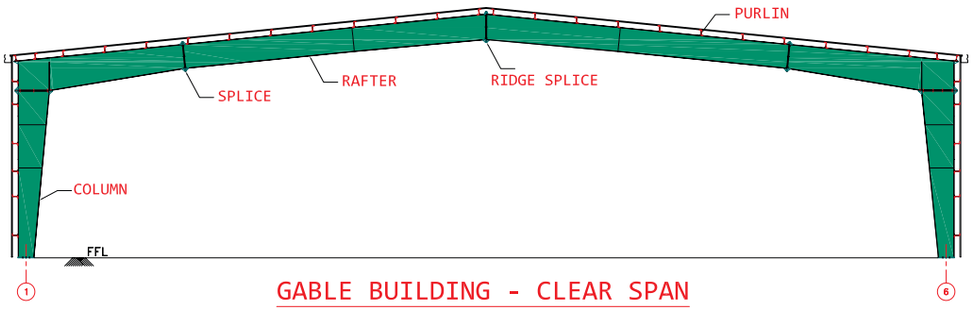
IS 801 (1975): Code of Practice for use of Cold-formed Light Gauge Steel Structure

International Quality Standards

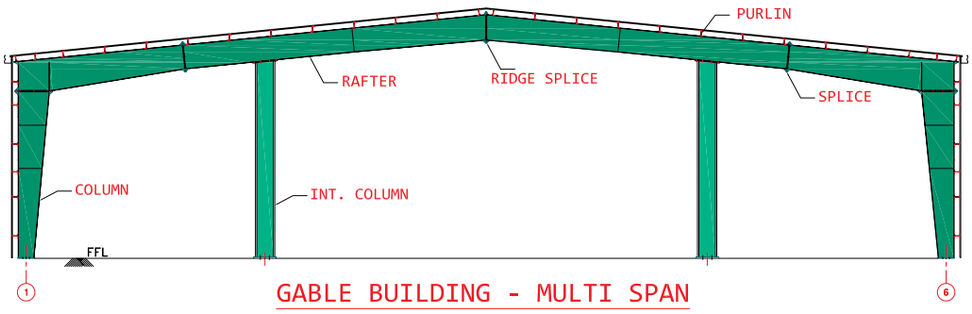
Hot rolled built-up sections are designed in accordance with following American codes:

- Low Rise Building Systems Manual (MBMA) Metal Building Manufacturer's Association, Inc.
- Allowable Stress Design (AISC) American Institute of Steel Construction, Inc.
- Cold Formed Steel Design Manual (AISC) American Iron & Steel Institute
- Structural Welding Code - Steel (AWS) American Welding Society

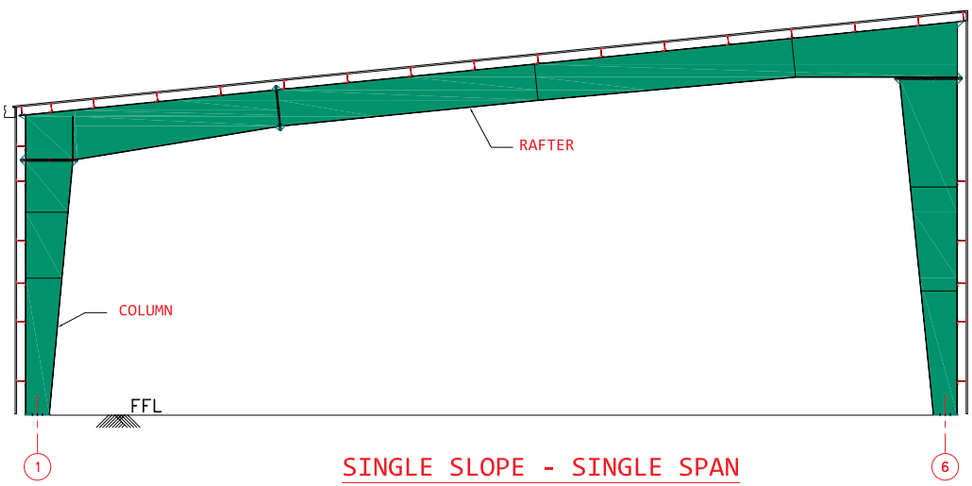




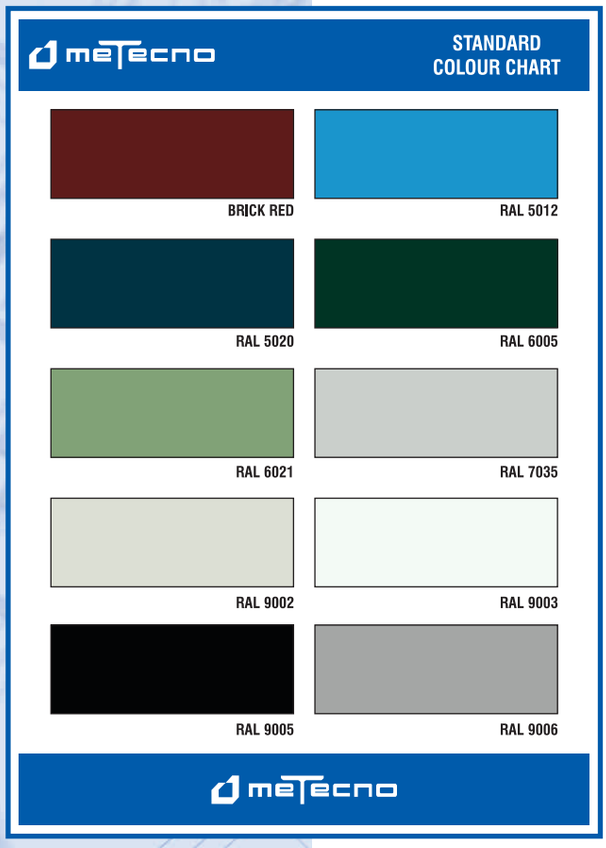
GABLE BUILDING - CLEAR SPAN



GABLE BUILDING - MULTI SPAN



SINGLE SLOPE - SINGLE SPAN



INFORMATION ON PAINTING SYSTEMS

STEEL

The metal support used for the Metecno pre-painting is cold-rolled and galvanized steel for hot dipping of structural quality called S 280 GD + Z according to UNI EN 10147 standards.

The surface look used for pre-painting is established by UNI EN 10142 standards and is obtained through skinpassing (surface cold-rolling) the galvanized sheet after reducing the flowering of zinc or through the use of anti-cracking galvanized sheets.

Before the true painting, the galvanized and skinpassed strip undergoes a pre-treatment divided into various stages, whose purpose is eliminating any undesirable greasy deposits and oxides, and preparing the surface with inert salts that enhance the grip and adhesion of the paint coat.

The pre-treated galvanized strip passes through the first painting head, which applies the first primer coat, and then through the first baking oven. In case of strips designed for the production of monolithic panels, a specific primer is necessary that guarantees the adhesion and grip of the polyurethane foam. When the strip passes through the second painting head and the second polymerizing oven, the final paint of the desired type and color is applied and baked.

Out of the existing paints, Metecno has selected three product lines, based on the opinion that this range is enough to face all kinds of weather conditions, from standard ones to the most aggressive ones.

1. STANDARD system

It is a polyester-based system with an excellent stability when exposed to weather conditions and a good resistance to chemicals.

2. SUPER system

These are superpolyester-based and silicone-polyester systems. The resulting films are characterized by high resistance to the exposure to the sun, and have an excellent resistance to chalking and color changing.

3. PVdF system

These systems are based on polyvinyldenfluorurate mixed in variable ratios with acrylic resins. Since these films are highly chemical inert, the life of these coatings is particularly long when they are applied to building elements that are in touch with the external environment.

The Metcno Coil Coating line can also manufacture Plastisol films, which are formed by a dispersion of PVC in a plasticizer; the thickness can vary between 100 and 200 microns. Plastisol films are suitable for particularly corroding environments, like iron metallurgic and chemical plants, but are mainly used in North European countries, where the insulation is lower than in the Mediterranean area. In fact, since these films are particularly sensitive to the UV rays, they easily chalk and change their color.

ALUMINIUM ALLOYS

In this case, the metal support used for the Metecno pre-painting is made of aluminum alloys of grade 3105 H18 or 3003 H18. The aluminum strip is also subject to a pre-treatment aimed at preparing the surface for the paint adhesion before painting, but using different chemicals from those used for steel.

The strip is painted with the same methodology and process as those used for steel, and the painting cycles are the same as those described for steel, and also the behavior of the organic coatings is similar, considering the differences of the metal support.

Details

The **Security Hut**™, which not only improves the building Aesthetics but also provides many other benefits like :

Benefits of Security Hut™ are:

- Made from long lasting prepainted Galvanized iron / Steel
- Corrosion resistant Galvanized steel structure / frame for longer life
- Comfortable working condition
- Aesthetic Look
- Painting not required for 10 years
- Weather proof, Dust proof
- Zero maintenance cost
- Eco-friendly material - 100% recyclable
- Immediate delivery subject to availability
- Colors - Off-White, Blue

SECURITY HUT™

METECNO Shelters™

METECNO shelter made of pre coated steel sheets and thermally insulated with PUF. It has strength of steel, good aesthetics, light weight and have very effective heat and sound insulation.

METECNO Shelters ™ is available in

MATERIAL	Size in mm		
	H	L	W
Normal CR	2600	18000	6000

Walls

Made of pre-fabricated sandwich PUF panel 60 mm thick. Outer & inner having pre coated color coated micro ribbed profile sheet & core of PUF.

The panels have tongue and groove joints for air tightness and supported on steel floor with U channel.

Roof : Made of pre-fabricated PUF sandwich panel with outer sheet color coated Glamet roofing panel & inner plain with core of Polyurethane 30mm thickness.

Doors: Size:-Length: 1000mm, height: 2100mm 2 No. (**Per requirement**)

Window: Size: - Height: 1200mm 10 Nos.

Floor: Base of the floor can be made of PCC & pavers blocks.

Frame Structure:

All the wall, roof panels are supported by Steel frame structure such that floor level is 300mm above the ground level.

Electrical points:

All wiring is provided with the provision of point for A/C, Light and Fan.

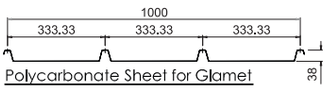
POLYCARBONATE SHEET / FRP:-

Polycarbonate sheets are designed for an endless range of glazing and roofing applications, for extreme weather conditions, and are known for their light-transmitting and reflective qualities. They are attractive, durable, easy to install and protect the people and property inside a structure from the elements and from damaging UV radiation. The Polycarbonate sheets are available in a wide range of models and technical specifications.

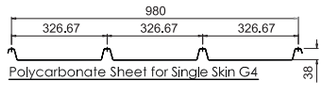
PC SHEET SUPPORT DETAILS:-

PC Sheet Types:

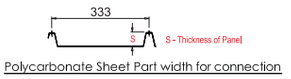
1. G4-1000 mm width -- Clear/Opaque/Embossed clear

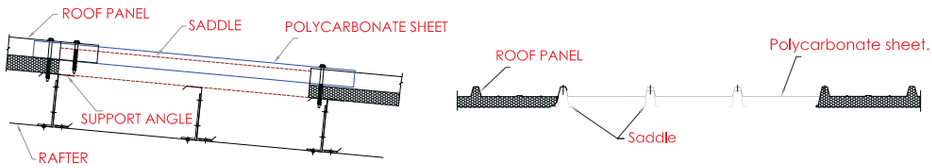


2. G4-980 mm width-- Clear/Opaque/Embossed clear



3. G2-333 mm width-- Clear/Opaque/Embossed clear





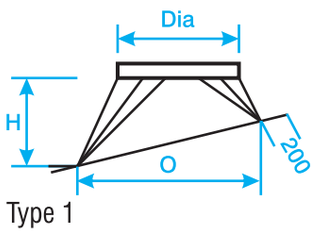
Polycarbonate Sheet to Glamet Assembly Details.

TURBO VENTILATORS:-

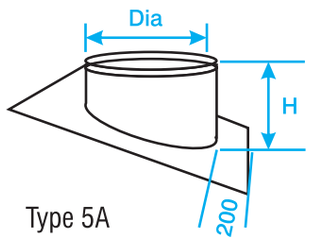
Formula for Number of Turbo ventilators required:
= (Volume of shed X No. Of Air Changes) / 60 sec} / Exhaust Capacity of Ventilator.
Volume of Shed = Length X Width X Height

Conversions:

1 Ft	0.3048 Mtrs
1 Mtrs	3.2808 Ft
1 CFT	0.028317 CUM
1CUM	35.315 CFT



Type 1



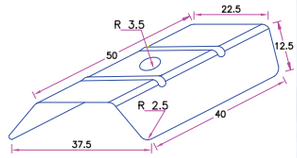
Type 5A

THE IMPORTANCE OF GOOD VENTILATION

The introduction of clean, fresh air into factories and workplaces is important for the following reasons :

1. To dilute and remove process odours, volatile compounds and carbon dioxide thereby rendering the building a safe working environment
2. To neutralise the effect of heat produced by factory processes, lighting and human beings
3. To remove trapped ceiling air - This trapped air reaches temperatures well above ambient due to the effects of radiant heat transfer
4. To remove heat generated through incidence of solar energy on large window panels
5. To improve worker productivity by providing the benefits (1) - (4) above

SCREWS



Cyclone Washer for (Glamet)

	THK. OF PANEL	SIZE OF SCREW	DIAMETER mm
GLAMET / HIPERTEC ROOF	30	110 mm	5.5 / 6.3
	40	120 mm	5.5 / 6.3
	50	130 mm	5.5 / 6.3
	60	140 mm	5.5 / 6.3
	80	160 mm	5.5 / 6.3
	100	180 mm	5.5 / 6.3

	THK. OF PANEL	SIZE OF SCREW	DIAMETER mm
MONOWALL / HIPERTEC WALL	30	70 mm	5.5 / 6.3
	40	80 mm	5.5 / 6.3
	50	90 mm	5.5 / 6.3
	60	100 mm	5.5 / 6.3
	80	120 mm	5.5 / 6.3
	100	140 mm	5.5 / 6.3

	LENGTH OF SCREW	DIAMETER mm
STITCHING SCREW	15 mm	5.5 / 6.3
	19 mm	5.5 / 6.3
	25 mm	5.5 / 6.3

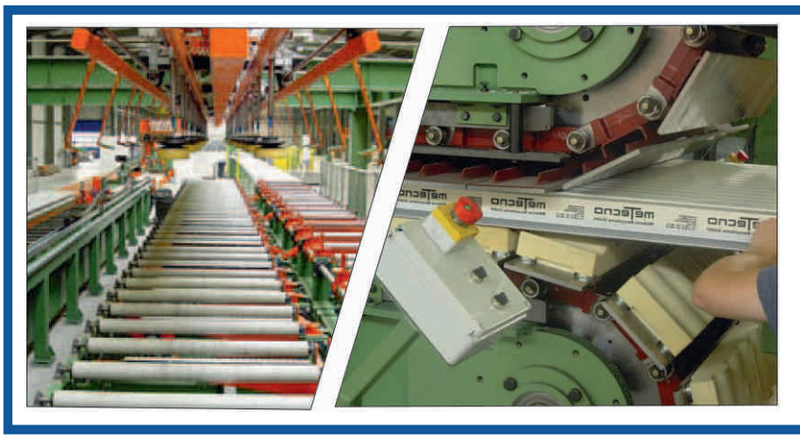
METECNO's "state of the art" production facility which is first of its kind in India to produce sandwich Polyurethane / Mineral Wool Insulated panels in continuous line. The plant is fully automated right from corona treatment, guard film or external surface of coil roll forming (profiling), glueing, polyurethane foaming, cutting to size, stacking and packing, etc.,

The plant produces environment friendly pentane as the blowing agent thus meeting the highest International regulations and standards

Metecno India follows quality management system as per ISO 9001:2008

In-house quality tests are conducted and test certificates are provided with the delivery of panels.

- Foam density
- Compressive strength
- Dimensional stability at 85^{0}C temperature
- Adhesion strength (foam to steel)
- Other test requirements on the products are done through NABL approved test laboratories externally.



Quality Standard

We lay great emphasis on the quality of our products and maintain a high standard system at every stage of production process.

Our product conforms to the following standards

IS 12436 (Indian Standards)

Pr EN 14509 (European Standards)

DIN 4102 (German Standards)


ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD South Asia

CERTIFICATE

The Certification Body
of TÜV SÜD South Asia Private Limited

certifies that

METECNO INDIA PVT.LTD.
E-11, SIPCOT INDUSTRIAL AREA, NH-4, SRIPERUMPUDUR,
KANCHIPURAM DISTRICT - 602 105, TAMIL NADU, INDIA

has established
and applies a Quality Management System for

MANUFACTURE & SUPPLY OF RIGID POLYURETHANE FOAM (PUF) ,
POLYISOCYANURATE FOAM (PIR) –
SANDWICH PANELS, SLABS, INSULATED DOORS,
SINGLE SKIN METAL SHEET PRODUCTS & FLASHINGS

An audit was performed, Report No. 20057429

Proof has been furnished that the requirements according to
ISO 9001 : 2008

are fulfilled. The certificate is Valid until 2017-03-10
Subject to successful completion of the Annual Audit before 2015-02-05
The present status of this Certificate can be obtained on www.tuv-sud.in
Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the certification body

Certificate Registration No. 99 100 12398

Mumbai,

Effective Date: 2014-03-14

Certification Body
of TÜV SÜD South Asia Private Limited
Member of TÜV SÜD Group

TÜV SÜD South Asia ● TÜV SÜD Group ● Off Saki Vihar Road ● Saki Naka ● Andheri (East) ● Mumbai – 400072

FM Approvals
Member of FM Global Group

WALL

WALL

WALL

ROOF

ROOF &
WALL

ROOF

FM Approvals®

Member of the FM Global Group

APPROVAL REPORT

MONOWALL AND FRIGOWALL WALL & CEILING PANELS AND GLAMET WALL & ROOF PANELS PRODUCED WITH THE RUBITHERM LR 18437/ RUBITHERM LR 18439/ SUPRASEC 2085 FOAM SYSTEM

Prepared for:

Metecno (India) Private Limited
138/30, 2nd Floor, Florida Towers
Nelson Manickam Road
Chennai, 600 029, India

Project ID: 3030361
Class: 4880, 4471
Date of Approval: June 23 2008
Authorized by:

R. P. Ferron, P.E., V.P., Group Manager

FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102
Norwood, MA 02062

Notes

We encourage our esteemed customers to fill-in this questionnaire and send to fax # 044-43553351 or email to info@metecno.in to help us to serve better.

1) PROJECT LOCATION: _____

2) TYPE OF BUILDING

☐ A-TYPE ☐ LEAN TO ☐ BOTH

3) SIZE OF BUILDING

LENGTH _____m SPAN_____m EAVE HEIGHT_____m

4) SLOPE OF ROOF

5) REQUIREMENT

☐ ROOF ONLY ☐ WALL CLADDING ☐ BOTH

6) THICKNESS OF PANEL REQUIRED

WALL PANEL _____ mm ROOF PANEL _____ mm

7) STEEL SPECIFICATIONS

(i) EXTERNAL STEEL WALL FACING

(ii) INTERNAL STEEL WALL FACING FOR THE PANEL.

8) POLYURETHANE (PUF) FOAM DENSITY

9) PLEASE ATTACH LAYOUT, SECTIONAL ELEVATION DRAWINGS & SIDE ELEVATION.

10) ANY OTHER INFORMATION:

Date :
Place :

Name & Address of the customer

Signature_____

Corporate Office - India

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Tamil Nadu & Pondy
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Rest of South

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E-mail : info@metecno.bg

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www.metecno.com

VIETNAM

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