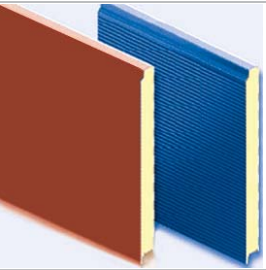




# LLOYD BUILDING PANELS



"CERTIFICATE OF ACCREDITATION"



## LLOYD INSULATIONS (INDIA) LIMITED

Registered Office: Punj House M-13, Connaught Place, New Delhi - 110 001  
 Phones : 011 - 23415621, 41517245, Fax : 011 - 23416255.  
 Regional Offices: New Delhi Post Box No. 4321, Punj Star Premises, Kalkaji Industrial Area, Kalkaji, New Delhi - 110 019. Phones : 011 - 30882900 - 30882906 Fax : 011 - 30882894, 30882895.  
 E-mail : lloyd@del2.vsnl.net. in/LII\_DELHI@eth.net  
 Mumbai 386, Veer Savarkar Marg, Prabhadevi, Mumbai - 400 025.  
 Phones : 022 - 30480000, 30480110 Fax : 022 - 24376858 / 24373557. E-mail : lloyd@giabm01.vsnl.net.in  
 Kolkata 6, Middleton Street, Kolkata - 700 071.  
 Phones : 033 - 22401606, 22475479, 30585201, 30585202, 30585211  
 Fax : 033 - 22402629. E-mail : lloyd@cal2.vsnl. net. in  
 Chennai 5, Haddows Lane, Nungambakkam, Chennai-600 006.  
 Phones : 044 - 282 73753 / 5506 / 8418, 28267964 / 53, 28283031,  
 28277965, 30908368, 30283753, Fax : 044 - 28279728. E-mail : lloyds@dataone.in  
 Visit us at: www.lloydindia.com or www.lloydinsulation.com



Think Energy Conservation  
 Think Environment Protection  
 Think Lloyd Insulations



ESCO



## LLOYD INSULATIONS (I) LTD.

The Total Solution Company

ISO: 9001, ISO:14001, OHSAS:18001 Certified





# LLOYD Building Panels

Prefabricated sandwich Polyisocyanurate foam panels of metal facings with a core of Polyurethane Foam & Rockwool Insulation. Precoated or Prepainted Galvalume (Zinc - Aluminium coated) & Galvanized steel coils are delivered to the panel factory. These coils are profiled (roll formed) in to ribbed surface finish to provide stiffness to the completed panels or larger depth (one side) to act as roofing panels and fed into the foaming section. The profile sheets can be fed as cut lengths or fed continuously from top and bottom into the foaming machine. Polyurethane Foam or Polyisocyanurate Foam chemicals are sprayed with blowing agent either from the sides or uniformly sprayed continuously on to the bottom sheet. The foam gets deposited uniformly over the bottom sheet and rises up instantly touching the top sheet. The chemicals act as excellent adhesives to the metal sheet. The foam reacts rapidly, achieving full rise and a tack free surface in matter of seconds. The edges of the profile sheet are specially bent inwards at the edges. The foamed panels then enter a heated conveyor/press which is specially designed to match the edges of the panel profile sheet. The heated press is long enough to offer large transportable length panels. After

curing the panels enter the saw section where the panels are cut to proper length using mechanized cutting equipments. The machine cut & sized panels are then allowed to cool down in natural air on specially designed carrier racks. The panels are then packed for dispatches. In case of side foamed panels, the curing is done in the foaming tray itself.

In case of Rockwool infill panels, high density Lamella Rockwool is used. Rockwool Slabs are cut and turned at ninety degrees so that the fibres are in turn placed at ninety degree

to the metal profile sheet. Then special adhesive is sprayed on to the Rockwool fibres and the metal profile sheet is pressed over, sandwiching the Rockwool. The panel then enters the curing section and cured at preset temperatures. Careful handling of the panels through all the steps is essential and important to maintain the aesthetic surfaces.

These State-of-the-Art prefabricated panels are made in the most modern factories located at Pithampur, Baddi & Cheyyar with Quality Certifications by Lloyd Insulations (India) Limited - the country's oldest and premium insulation field and over 25 years in insulated building façade system. Lloyd Panel System is offered complete with all accessories like flashings, cappings, filler blocks Fastner etc. and duly installed with trained in-house professionals following safety guidelines, Industry norms & Procedures.

In-house NABL approved laboratory are equipped with all testing facilities including Thermal Conductivity value testing.

Lloyd Panels are environment friendly and Green rated. The foamed panels are CFC, HCFC free and Zero ODP rated with cyclo pentane blowing facilities.

Lloyd Panels are used as insulated roof and wall panels for conventional or special temperature controlled environments in Buildings. These panels act as external walls. These structural panels provide the ability to quickly erect complete buildings in a short period of time anywhere in the country. The highly designed edge details practically eliminate thermal leaks and provides an absolutely water tight enclosure with no infiltration. Since the panels are light in weight the supporting structure can also be simpler and faster to assemble. The panels can be erected at any time of the year irrespective of weather related construction delays. The benefit is an energy efficient custom building tailored to a customer's needs, cost effective and visually appealing.

Lloyd Panels are Fire Safe with Self Extinguishing quality PUF & PIR and of non-combustible grade Rockwool.

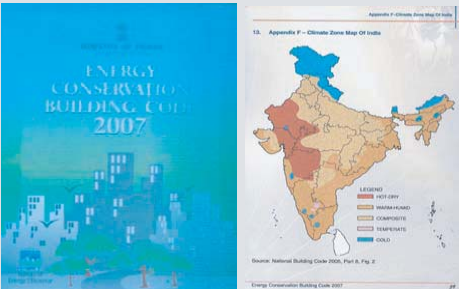
**Lloyd Panels are Green Panels with Green Points rating of 5 for PUF /PIR Panels and 9 for Rockwool Panels.**

**Manufacturing capacity - 2 million sqm. per annum.**



**Lloyd Building Panels can be designed to meet Energy Conservation Building Code - 'ECBC 2007'.**

Lloyd Building Panels are ideal for Roofing & Wall Paneling of Industrial / Commercial Buildings, Airport Terminal Buildings, Residential Buildings, Power Plant TG Buildings, AHU Rooms, Clean Rooms, Ware Houses, Hangars, High Altitude Shelters, Telecommunication machine room shelters, Frangible huts, Refrigerated Vans, Electronic Rooms, Partition Walls and many more applications.



ACCORDING TO ECBC			AS PER LLOYD INSULATIONS MATERIALS	
A) Roof Assembly U-factor and Insulation R-value Requirements			Thickness of Lloyd Building Panels	
Climate Zone	24-Hour use buildings Hospitals, Hotels, Call Centers etc/ Daytime use buildings Other Building Types		Prefab factory made panels	
	Maximum U-factor of the overall assembly (W/m <sup>2</sup> -°C)	Maximum R-value of insulation alone (m <sup>2</sup> - °C/W)	Lloyd Roc Rockwool Panel (MM)	Lloyd PUF/PIR Panel (MM)
Composite	U-0.261 / U-0.409	R-3.5 / R-2.1	140 / 85	85 / 50
Hot and dry	U-0.261 / U-0.409	R-3.5 / R-2.1	140 / 85	85 / 50
Warm & Humid	U-0.261 / U-0.409	R-3.5 / R-2.1	140 / 85	85 / 50
Moderate	U-0.409 / U-0.409	R-2.1 / R-2.1	85 / 85	50 / 50
Cold	U-0.261 / U-0.409	R-3.5 / R-2.1	140 / 85	85 / 50

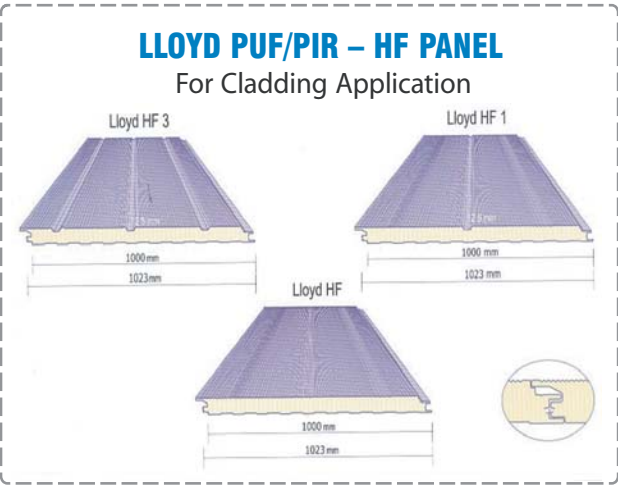
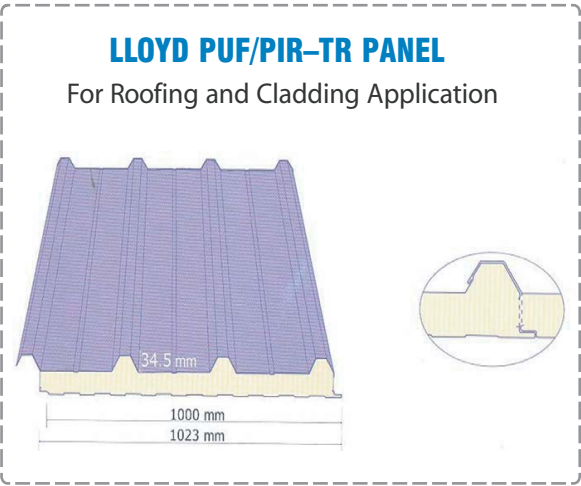
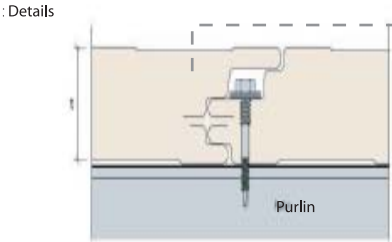
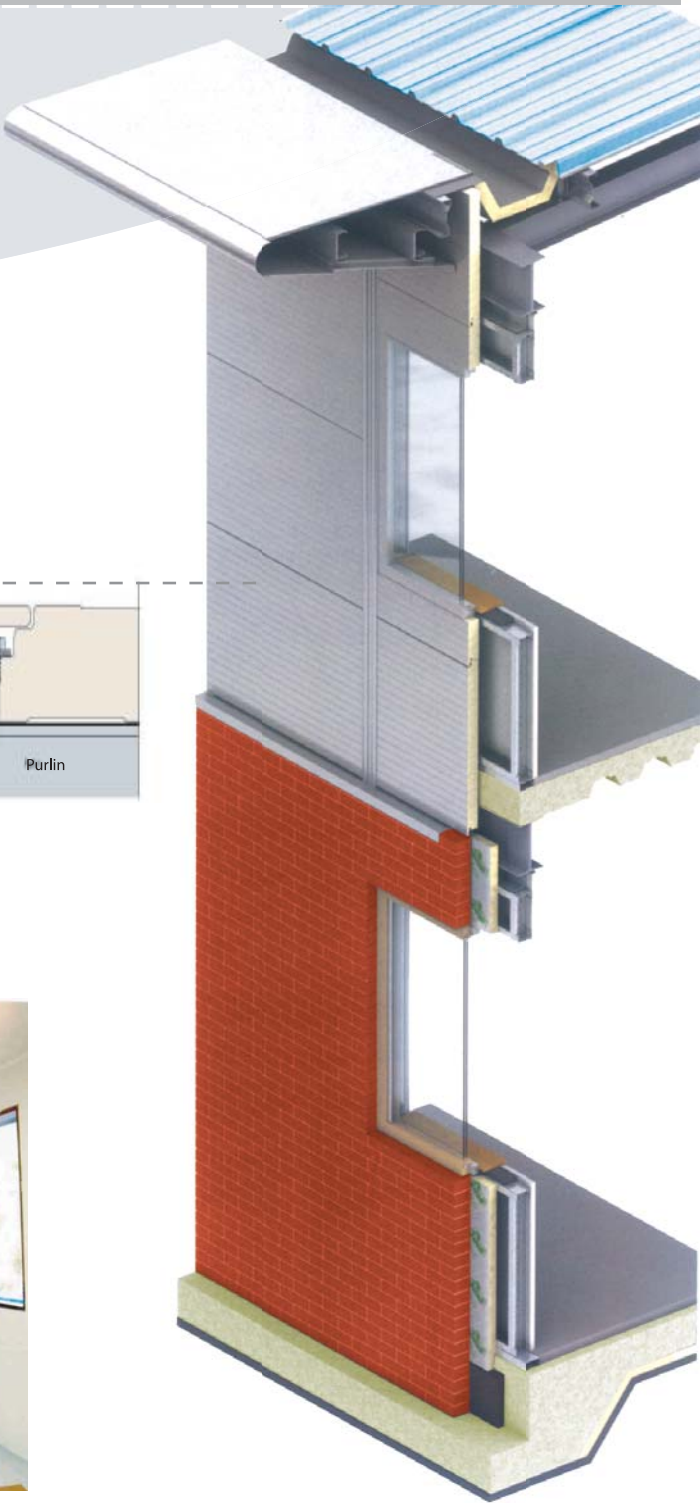
ACCORDING TO ECBC			AS PER LLOYD INSULATIONS MATERIALS	
A) Wall Assembly U-factor and Insulation R-value Requirements			Thickness of Insulation Materials	
Climate Zone	24-Hour use buildings Hospitals, Hotels, Call Centers etc/ Daytime use buildings Other Building Types		Thickness of Insulation Materials	
	Maximum U-factor of the overall assembly (W/m <sup>2</sup> -°C)	Maximum R-value of insulation alone (m <sup>2</sup> - °C/W)	Lloyd Roc Rockwool Panel (MM)	Lloyd PUF/PIR Panel (MM)
Composite	U-0.440 / U-0.440	R-2.10 / R-2.10	85	50
Hot and dry	U-0.440 / U-0.440	R-2.10 / R-2.10	85	50
Warm & Humid	U-0.440 / U-0.440	R-2.10 / R-2.10	85	50
Moderate	U-0.431 / U-0.397	R-1.80 / R-2.00	85	50
Cold	U-0.369 / U-0.352	R-2.20 / R-2.35	90/85	55



LLOYD PUF/PIR PANELS

Prefab Sandwich Panels with profile and plain sheet finish and Polyurethane or Polyisocyanurate Foam insulation. These panels are manufactured from semi continuous or continuous machines. Steel Buildings and Light Metal framed buildings with PUF/PIR panels as Roofing & Wall have become the preferred construction methods for construction of today’s industrial buildings, Warehouses, Sports facilities, partition walls, Residential Blocks.

Prefab PUF / PIR panels are lighter in weight and can safely bridge wider spans. Such buildings can be erected in approximately half the time and are less material intensive compared to conventional brick and concrete constructions and at a competitive cost.



DATA

Top Sheet Profile	LLOYD TR/Lloyddeck Trapezoidal profile sheet
Bottom Sheet Profile	Plain sheet with slight ribs
Panel Thickness	30mm, 50mm, 80mm 85mm
Flex Roof with Aluminium Foil on one side	
Facing Material	240 MPa GI with 180 GSM Zn Coating/300 MPa Galvalume Steel with 150 GSM Alu-Zn Coating
Facing Material Thickness	0.4 / 0.5 / 0.6/ 0.7mm TCT
Facing Material Coating	DFT 20 microns colour coated RMP/SMP/ PVDF coating over 5 micron primer

FIXING

- ✓ Lloyd TR Panel shall be fixed on to the Purlin / Girt with hot dipped galvanized self drilling fasteners with EPDM washers and with necessary overlap as per manufacturer's specification.
- ✓ Lloyd TR Panel shall be supplied in a maximum length of 12M without any joints.

PROPERTIES

INSULATION

Foam Overall Density  
Foam Thermal Conductivity (K-Value) at 10° C mean Temp.  
Compressive Strength @ 10% deformation  
Tensile Strength  
Flextural/ Bending Strength  
Shear Strength

Closed Cell Contents  
Horizontal Burning Characteristics  
Water absorption  
Water Vapour Permeability  
Dimensional Stability at:  
-25° C Cold Temp.  
+ 70° C Hot Temp.  
Green Rating Point

POLYURETHANE FOAM (PUF)/ POLYISOCYANURATE FOAM (PIR)  
CFC & HCFC FREE RIGID POLYURETHANE  
FOAM (PUF) as per IS 12436 STANDARD

40+/-2 kg/ cu.m / 45+/-2 kg/ cu.m (PIR)  
0.023 W/m² K  
2.10 Kg/ sq.cm.  
2.5 Kg/ sq.cm.  
3.0 Kg/ sq.cm.  
2.5 Kg/sq.cm.  
90-95 %  
125 mm (Extent of Burn) - Max.,  
25 mm (Extent of Burn) - Max., (PIR)

Fire Retardent, Self extinguishing  
Quality Foam.  
0.2% volume at 100% RH. - Max  
0.12 ng/pasm at 88% RH & 38° C-Max  
±2%  
±2%  
5

DATA

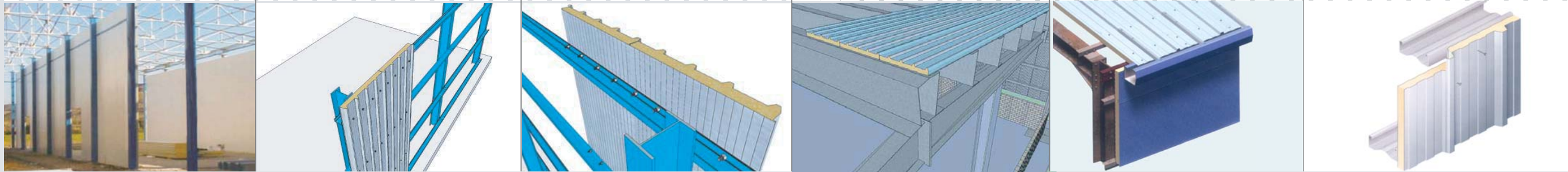
Top Sheet Profile	LLOYD HF-3 / H-1 / profiled HF plain sheet
Bottom Sheet Profile	Plain sheet with slight ribs
Panel Thickness	50mm, 60mm, 80mm, 100mm
Facing Material	240 MPa GI with 180 GSM Zn Coating/300 MPa Galvalume Steel with 150 GSM Alu-Zn Coating
Facing Material Thickness	0.4 / 0.5 / 0.6/ 0.7mm TCT
Facing Material Coating	DFT 20 microns colour coated RMP/SMP/PVDF coating over 5 micron primer

FIXING

- ✓ Lloyd HF Panel shall have tongue and groove joint with concealed fixing system and shall be fixed on to the Girt with hot dipped galvanized self drilling fasteners with EPDM washes and with necessary overlap as per manufacturer's specification.
- ✓ Lloyd HF Panels can be installed horizontally or vertically.
- ✓ Lloyd HF Panel shall be supplied in upto 1M effective width and in single length upto 12M without any joints.







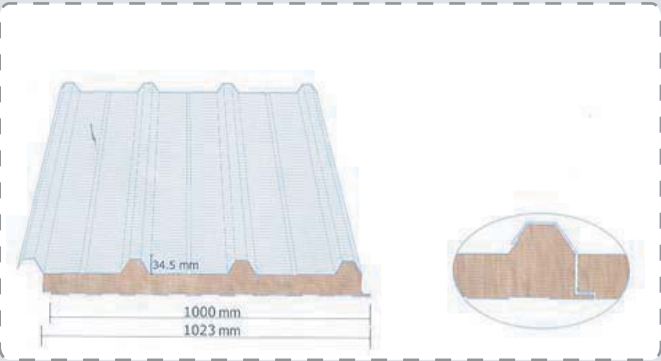
## LLOYDROC ROCKWOOL PANEL SYSTEM

Lloydroc Rockwool Panel System comprises of Pre-fabricated Composite Sandwich Panels with high density Rockwool converted to Lamellar as core and profiled/Plain, colour coated Galvanized Steel/Galvalume Steel Sheet facing on both sides, complete with special joint sealants and fixing ancillaries. Lloydroc Rockwool Panel system provides a one step solution in the form of insulated Wall and Roofing for easy and quicker construction of Turbine – Generator Buildings. DG Set Power Plant buildings, Airports, Terminal Buildings Auditoriums, Driers, Ovens Partitions and other Industrial & Commercial Buildings.

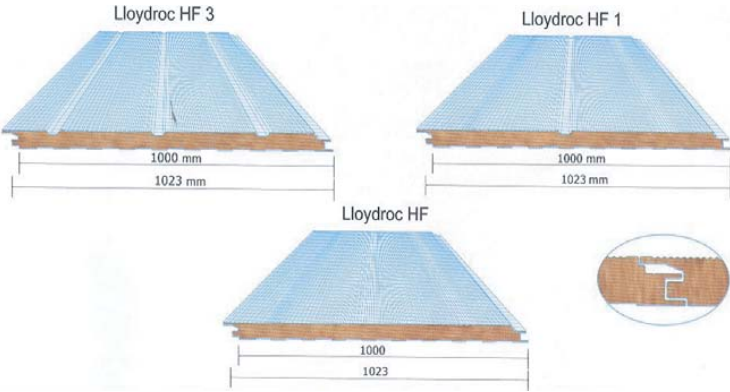
Lloydroc Rockwool Panels come with concealed system arrangement for cladding of Buildings and with Profiled Sheets for Roofing and Cladding Applications. The panels have an unique hidden fastening arrangement whereby the fasteners are not visible. The edge of subsequent panels overlaps and conceals the fasteners. Lloydroc Rockwool Panels offer considerable mechanical strength due to the sandwich effect and Acoustic Insulation properties besides being totally non-combustible, fire proof constructions are possible with Rockwool Panels covering roof, wall and internal partition.

## LLOYDROC ROCKWOOL– TR PANEL For Roofing & Cladding Applications

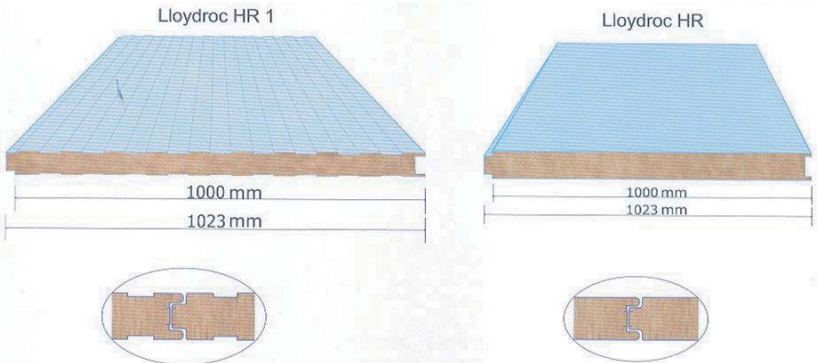
Lloyd Rockwool Panels come with top profile sheet finish, inner plain liner tray and Rockwool Insulation suitable for roofing & wall cladding of buildings. Lloydroc Rockwool TR panel is ideal for Roofing & Cladding of buildings requiring fire safe properties. Even Solar Panels can be installed on Rockwool Panels as a single system, which is an unique roofing concept. These panels are suitable and ideal for replacement of site fabricated double skin wall cladding of TG building in Power Plants.



## LLOYDROC ROCKWOOL– HF PANEL For Cladding Application



## LLOYDROC ROCKWOOL– HR PANEL For Partitions/Hot Rooms/Driers



### DATA

Top Sheet Profile	LLOYD HF-3/H-1/profiled sheet & HF plain sheet
Bottom Sheet Profile	Plain sheet with slight ribs
Panel Thickness	50mm, 80mm, 100mm
Facing Material	240 MPa GI with 180 GSM Zn Coating /300 MPa Galvalume Steel with 150 GSM Alu-Zn Coating
Facing Material Thickness	0.4 / 0.5 / 0.6/ 0.7mm TCT
Facing Material Coating	DFT 20 microns colour coated RMP/SMP/PVDF coating over 5 micron primer

### FIXING

- ✓ Lloydroc HF Panel shall have tongue and groove joint with concealed fixing system & shall be fixed on to the Girt with hot dipped galvanized self drilling fasteners with EPDM washers and with necessary overlap as per manufacturer's specification.
- ✓ Lloydroc HF Panels can be installed horizontally or vertically.
- ✓ Lloydroc HF Panel shall be supplied in upto 1M effective width and in single length upto 12M without any joints.

### PROPERTIES INSULATION

Overall Density	High density lamellar Rockwool 100+/-15 kg/cu.m
Thermal Conductivity (K-Value) at 10° C mean Temp.	0.040 W/m° K-max.
Compressive Strength	50 KPa (Parallel to MW-Lamellar Dir.) Min.
Shear Strength	75 KPa (Parallel to MW-Lamellar Dir.) Min.
Water absorption	Absorbs less than 1% as per BS 2972:75
Moisture Resistance	Absorbs less than 0.02 vol% as per ASTM C 1104
Melting Point of Rockwool	>1000°C
Application Temp Range	-30°C to 250°C
Sound Reduction	Transmission Losses 28 to 30 db
Combustibility	Non-combustible as per BS 476 Part 4
Euro Fire Class	A1 as per EN 13501-1
Green Rating	9 Point

### DATA

Top Sheet Profile	Plain sheet with slight ribbed profile for HR 1 and plain sheet for HR profile
Bottom Sheet Profile	Plain sheet with slight ribbed profile for HR 1 and plain sheet for HR profile
Panel Thickness	80mm, 100mm & 120mm
Facing Material	240 MPa GI with 180 GSM Zn Coating/Stainless Steel/300 MPa Galvalume Steel with 150 GSM Alu-Zn Coating
Facing Material Thickness	0.4/0.5/0.6/0.7mm TCT
Facing Material Coating	DFT 20 microns colour coated RMP/SMP/PVDF coating over 5 micron primer

### FIXING

- ✓ Lloydroc HR Panel shall have tongue and groove joint and shall be fixed on to the chanel on the floor and on to suitable structure with fasteners.
- ✓ Lloydroc HR Panel shall be supplied in upto 1M effective width and in single length upto 12M without any joints depending on site requirements.

### DATA

Top Sheet Profile	LLOYD TR Trapezoidal profiled sheet
Bottom Sheet Profile	Plain sheet with slight ribs
Panel Thickness	50mm, 80mm
Facing Material	240 MPa GI with 180 GSM Zn Coating/ 300 MPa Galvalume Steel with 150 GSM Alu-Zn Coating
Facing Material Thickness	0.4/0.5/0.6/0.7mm TCT
Facing Material Coating	DFT 20 microns colour coated RMP/ SMP/PVDF coating over 5 micron primerr

### FIXING

- ✓ Lloydroc TR Panel shall be fixed on to the Purlin / Girt with hot dipped galvanized self drilling fasteners with EPDM washers and with necessary overlap as per manufacturer's specification.
- ✓ Lloydroc TR Panel shall be supplied in upto 1M effective width and in single length upto 12M without any joints depending on site requirements.