GEOMETRIC STEELS®

CERTIFIED ISO 9001 CERTIFIED

METAhybrid®

ROOFING EVOLUTION

UNDER DECK MULTILAYER THERMAL INSULATION METAL SHEET

GEOMETRIC STEEL ROLL FORMING PVT LTD

WE PROVIDE STRENGHTH TO STEEL

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ABOUT

METAhybrid®

Is a unique Thermal Insulated metal roofing sheets solution developed by GEOMETRIC STEELS. An under-deck multilayer thermal insulated metal roof and wall cladding sheet. It has a unique composition of thermal insulating material as per application and customer's needs.

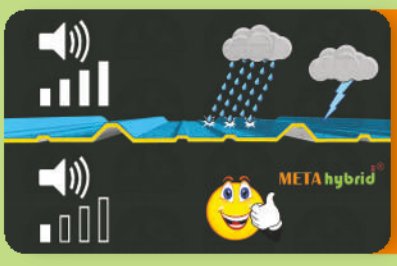
Today due to global warming, people are experiencing unpredictable weather conditions. In such situations, constructing and maintaining energy-efficient, safe, long-lasting, & pleasing structures demand innovative technology, which will enhance the entire building envelope for the most outstanding performance. GEOMETRIC STEELS understands that solutions can come from anywhere. Therefore, we look further afield than the traditional construction category to bring engineering and inspired ideas to build & construct projects. As a result, we get thermal insulated metal roofing solutions that help insulate, protect, & enhance residential, commercial, & industrial buildings to help you achieve the most durable, reliable, &valuable results for your projects.

METAhybrid Thermal Insulated metal roofing sheets consist of three different materials to give the product their features & combine them to make a new generation of sound and Thermal Insulated metal roofing sheets. METAhybrid Thermal Insulated metal roofing sheets aim to maintain a comfortable and hygienic indoor climate at low ambient. To make the workplace feel alive, vital, healthy, and refreshing. Ease of installation and diversity of applications. METAhybrid Thermal Insulated metal roofing sheets Radiant Barriers are easy to handle and install and have a strong water vapor permeability to resist moisture absorption. All that is required are simple hand tools. METAhybrid Thermal Insulated metal roofing sheets are some of the most diverse, energy-conserving roofing & wall cladding materials available, with verified applications for residences/ industrial/commercial/warehouse/school/college/hall/public buildings & agricultural storage structures applications for residences, industrial/commercial/warehouse/school/college/hall/public buildings & agricultural structures.

PROVEN BENEFITS of METAhybrid® multi-layer under deck Thermal Insulations profile metal sheets

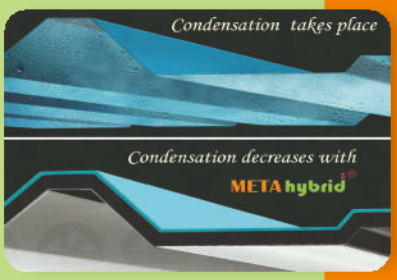
1. METAhybrid is Lightweight, easy to lift at height for thermal roof installation.
2. METAhybrid is time saving Fast Installation. No need for any base support as required to rest insulation material. No extra tools are needed standard application of the thermal roof insulation procedure.
3. METAhybrid environment friendly its Non-toxic/non-carcinogenic
4. METAhybrid sheets prevent rain impact and other sounds.
5. METAhybrid resists moisture & reduces condensation, preventing a conflict of temperature level difference.
6. METAhybrid act as a circuit breaker that blocks the inflow of the radiant heat from the roof surface top & reduces it,
7. METAhybrid enhances corrosion resistance.
8. METAhybrid is Easy thermal roof fixing. The fitter uses a simple tools use for roof installation.
9. METAhybrid: there is no separate waterproof storage required, no insulation wastage, nor any security person deployment to take care of insulation material stored.
10. METAhybrid possesses a characteristic of not providing space for the nesting, Rodents, birds and bugs.
11. METAhybrid with Strength of steel profile that is available in 550Mpa Steel with thermal insulation roof properties.
12. Money saver with a profile cover width of 1060 mm reduces side lap loss compared to other profiles in the market . NO bottom support, NO wires mesh required, NO separate transport, NO separate Installation for the insulating layer.

Noise Reduction



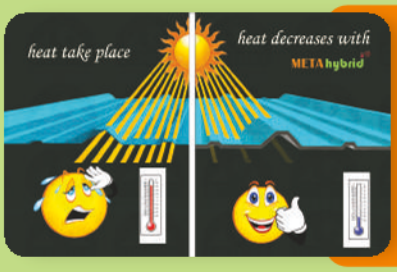
The roof of a building is an integral part of the building. Defended and insulated against external Noise. METAhybrid® Noise insulated metal roofing and cladding sheets technology means that 4 or 5 tenths of metal can be improved by 6 mm of high-density sound insulation, adhering perfectly to the sheet (aluminum, pre-painted steel.). As a result, we can have a sound-insulated metal roof that decreases the impact of rain and hailstorm sound. METAhybrid® will not vibrate. Thus, there is no diapason effect. This gives a padded emission quite similar to brick roofs. This Noise. A roofing packet consists of components with different physical characteristics.

Condensation Effect Reduction



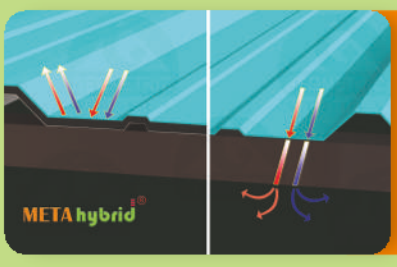
Condensation in metal sheds is a commonly reported problem resulting in a damp atmosphere and rust forming. In addition, the inside of the roof runs with water, which creates a bad moist atmosphere for the items stored in roof sheds, and as a result, tools and machinery go rusty, and fabric and food items become mildewed. METAhybrid® is most useful in such conditions. METAhybrid® Heat insulated metal roofing and cladding sheet in winter preserves thermal insulation and keeps the roof dry, sweeping away any condensation phenomenon. In addition, heat filtered through METAhybrid® prevents direct contact between steam and "naked" sheet, limiting condensation. The composite METAhybrid® Heat insulated metal roofing and cladding sheets system with foam insulation elements has different functions. The most important is to determine the condensation effect. The solution to this problem is that the layer of foam insulation inside the roof (with a high thermal inertia function) interrupts contact between the inside Environment and the external roofing sheet, preventing steam from coming into contact with a cold surface and condensing, reducing condensation

Heat Reduction



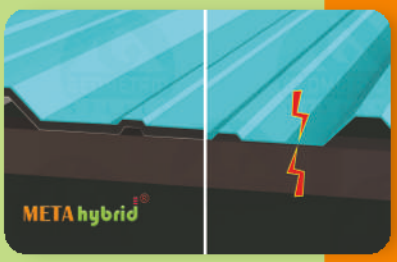
Heat insulated metal roofing and cladding sheets is common knowledge that a metal roof exposed to the sun's rays gets hot. Thermal insulated roof buildings are an essential factor in achieving thermal comfort. Thermal roof insulation interrupts the heat flow. Heat barrier material blocks the inflow of radiant heat from the roof surface, reduces temperature, and gives the better thermal resistance. Consequently, this insulating layer can provide a much better result. Constant air circulation removes heat transmitted through the roof. In addition, the thermal Insulated layer on the inner surface of the roof reduces the transmission of heat through the sheet helping inside occupants and better level of living comfort.

Thermal Mass and Condition



When outside, temperatures fluctuate throughout the day. It is crucial to have good insulating material below roof sheet METAhybrid® Heat insulated metal roofing and cladding sheets with high-density insulating material give better thermal mass insulation. Heat energy is passed through roof sheets from molecule to molecule in a material. For the heat to be conducted, there should be physical contact between particles and some temperature difference to minimize this phenomenon METAhybrid® insulation material with aluminum foil act as the barrier to direct heat coming from the rooftop. METAhybrid® act as a circuit breaker.

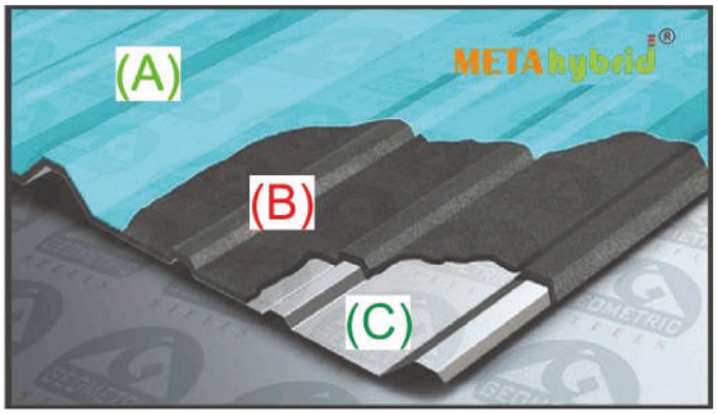
Thermal Bridge Elimination

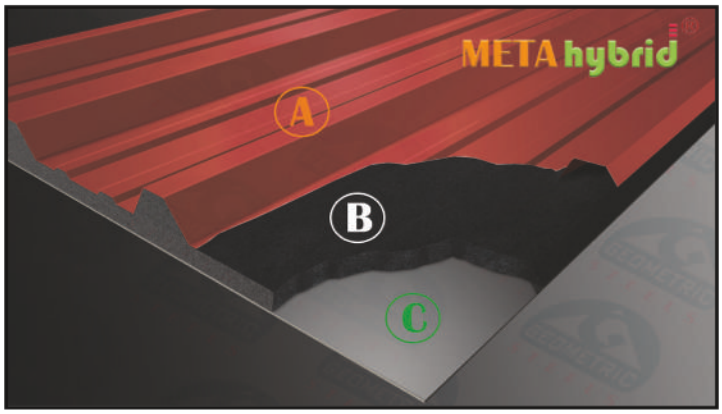


It is important in metal structures to isolate the roof sheet from the underlying metal structure. By using METAhybrid® Heat insulated metal roofing and cladding sheets with its protective layer covering the roof sheet at the intrados, the head load that bears on the surface of the roof sheet is reduced by about 25% and attenuates heat bridges noticeably, constituting a barrier to heat dispersion. This phenomenon happens when in the presence of electrolytic solutions, two different metals are in contact with each other and a "potential" difference occurs between them. The conduct of the two metals is that of a battery with one metal acting as an anode and the other as a cathode which, over time, leads to a more or less pronounced dissolution of the anodic part. This type of corrosion is known by the name of "galvanic corrosion". Any kind of contact between the sheet & the underlying structure can be avoided by applying a Galvanic couples elimination.

Excellent Walkability

Impact resistance for metal roof shed helps in reducing vibration caused by industrial activity. If just metal sheets are used on the roof they often come up against difficulties in guaranteeing good walk ability resistance. A metal roof must guarantee tradability also over time to allow correct maintenance, necessary to ensure a long life of the roof. Using some "softer" materials often increases the risk of denting which, even if these dents do not undermine the functionality of the roo¬fing system itself, they do create permanent roof flaws. The answer to this important problem is to increase walking surface "consistency": this can be done by Its thickness, of the roofing sheet or coupling it with another material to form one whole system with a specific consistency. METAhybrid® Heat insulated metal roofing and cladding sheets have a system with an intermediate layer of insulation which provides impact resistance and good walkability with the advantage of 295mm valley profile.





A **Top surface layer:** Is profile metal sheet which provide strength and durability of steel, available in PPGI/GL/PPGL in profile of 1125mm actual width and 1060mm Cover width.

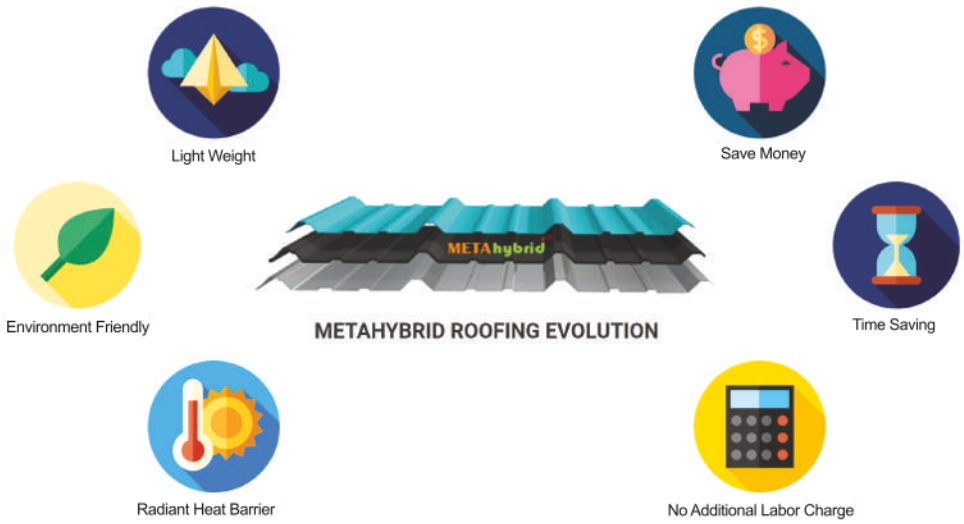
B **Intermediate Layer:** Its special insulation material as per application and customer requirement.

C **Bottom lying layer:** Its Aluminum foil Radiant Barriers / colour coated metal sheet that provide aesthetics look.

METAhybrid is three kinds of different materials to give the product their own features & combined to make a new generation of heat insulation profile sheets.

Site Assembled single skin & sandwich type insulating system with 50 mm thick 48 kg/m3 density Rockwool & top bottom metal sheets

Multilayer under Deck Thermal Insulated Metal Profile Sheets with Strength of Steel



Product Specification

METAhybrid® Heat insulated metal roofing and cladding sheets are under-deck multilayer thermal insulated colour coated metal sheet. Top profile sheet Hot dip galvanized in CRCA steel confirming to IS 513 with zinc coating as per IS 277 with specially formulated and applied with chemical conversion coating followed by 5 to 7 micron epoxy primer coating on both top and back surfaces and finished top coat of 20micron (DFT) on exposed surface and 5 micron (DFT) on unexposed surface. Thickness 0.50mm (TCT) with profile dimensions 355mm Pitch ,crest height 28mm with cover width of 1060mm, Intermediate layer of close cell 6.00mm insulation with bottom side Aluminum foil.

Application

- Pharma Industries
- Chemical Industries
- Manufacturing industries
- Animal House
- Agriculture Farms
- Factory Building
- Construction
- House
- Poultry Farms
- School & colleges
- Food Industry
- Warehouse
- Textile Industries
- Construction, Houses, Market,
- Resorts, Auditorium, Sport, complex,
- Market, Hotel, Farmhouse,
- Marriage Hall, other & commercial buildings.

Material	Intermediate insulation is chemically cross-linked closed cell polyolefin foam with or without facing material and acrylic pressure sensitive adhesive

Physical Properties

Parameter	Standard	Value		
Density	ASTM D3575	25 & 30 KG/M3 (Foam core only)		
Thermal Conductivity	IS 3346/ASTM C518	Mean Temperature (°C)	W/m oK	Kcal/hr m
		0	0.0318	0.0273
		23	0.0329	0.0283
		46	0.0382	0.0328
Water Vapor Permeability	ASTM E96	1.4×10^{-13} kg/pa.s.m		
Water Vapor Permeanse	ASTM E96	Almost zero		
Water Absorption by Volume	JIS K6767	0.00056mg/m2		
Water Vapour Resistance Factor (μ) - mu	EN 12086	> 9000 (for plain foam)		
		> 14000(for Al foil faced foam)		
Resistance to Fungi	ASTM G21	Zero Growth		
Resistance to Bacteria	ASTM E2180	No Growth		
CFC & HCFC Free	USEPA 8260 B	Comply		
UV Resistance	ASTM G155	Excellent		
Accelerated Weathering Test	ISO 4892	Excellent		
VOC Level (Green Star Rating)	ASTM D5116	0.018 mg/m2/hr		
ROHS	IEC 62321	Comply		
Resistance to Chemical	ASTM C543	Very Good		

Fire & Smoke Properties

Class O	BS 476 Part 6 & 7	Comply
Reaction to Fire (NFPA 90A & B)	ASTM E84	FLAME Spread Index <25
		Smoke Development Index <50
Hot Surface Performance (NFPA 90A & B)	ASTM C411	
European Railway Standard for Fire & Smoke	EN 45545	Comply to R1HL3 Requirement
Fire Classification of Construction Products	EN 13501	Comply to B-s1 d0
Smoke Density	ISO 5659-2	Comply
Deterioration of visibility due to smoke	ULC 564	Class A
Horizontal Burning Test	UL-94	Approved with HF-1 Class (File No: E 504824)
FM Approval	FM 4924	COC Approval Identification:3063893

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