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MANUFACTURING SUSTAINABLE INNOVATIONS



GE PANEL

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THE RISE & HIGHS OF GEOPANEL

Geopanel: A Journey of Innovation and Excellence

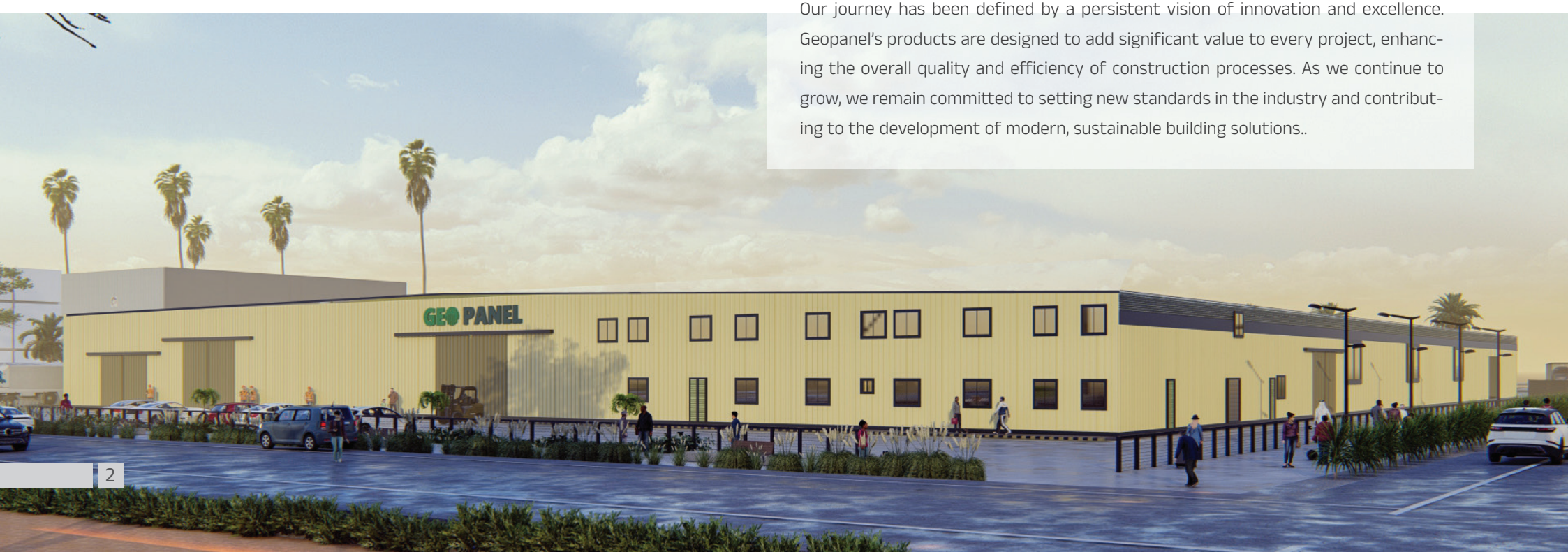
Established in 2008, Geopanel has evolved into a global leader in manufacturing insulating materials for the construction industry. Initially focused on marketing sandwich panels in Qatar through contract manufacturing, our products quickly became integral to numerous prestigious projects across the country.

Our commitment to quality and innovation has been a cornerstone of our growth. Over the years, we have expanded our product range to include not only insulated panels but also corrugated sheets, purlins, and other essential construction accessories. Each product is engineered with sophisticated technology and futuristic design, ensuring enhanced performance and durability

In 2023, we marked a significant milestone by establishing our state-of-the-art production facility at Mesaieed Industrial City. This facility is equipped with Qatar's largest continuous sandwich panel line, incorporating advanced Italian technology. This development underscores our dedication to enhancing our production capabilities and delivering superior products to our clients.

Geopanel's contributions to the construction industry extend beyond products. We offer comprehensive consultancy services and technical support, covering every phase of a project from design and execution to maintenance. Our experience team is dedicated to providing tailored solutions that meet the specific needs of each project, ensuring optimal outcomes.

Our journey has been defined by a persistent vision of innovation and excellence. Geopanel's products are designed to add significant value to every project, enhancing the overall quality and efficiency of construction processes. As we continue to grow, we remain committed to setting new standards in the industry and contributing to the development of modern, sustainable building solutions..





Our Strength

Geopanel is at the forefront of innovation and capability in the construction materials industry, fully equipped to manufacture high-quality PU sandwich panels tailored to a wide array of requirements. Our advanced production facility enables us to cater to both large-scale and small-scale projects, meeting diverse technical specifications with unmatched efficiency. Whether the need is for high insulation, fire resistance, or structural strength, our panels are designed to excel under various conditions and applications. Our unique GEOCORE technology provides us with a significant market advantage, offering specialized solutions that enhance the performance and durability of construction projects. With our state-of-the-art equipment and streamlined processes, we ensure rapid delivery schedules, ensuring that our clients can meet their construction timelines without compromising on quality. Our commitment to excellence and innovation positions Geopanel as a trusted partner in the construction industry, capable of delivering bespoke solutions that address the specific needs of each project, from the simplest to the most complex.

Our Factory





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Production Facility with Commitment to Sustainability, Quality, and Innovation

At Geopanel, our management policies emphasize producing nature-friendly products and ensuring sustainability by efficiently utilizing natural resources throughout our production processes. We are dedicated to creating social, cultural, and economic values that enhance the region where we operate. Our products and services are centered around maximum quality and reliability, always prioritizing the health, safety, and happiness of our employees.

Our state-of-the-art production facility is strategically located at Mesaieed Industrial City, covering a sprawling 200,000 sqm of land with a built-up area of 10,000 sqm. The proximity to Hamad Port enhances our logistical capabilities, ensuring efficient supply chain management and rapid delivery to our customers. The facility operates continuously and efficiently, implementing modern management systems to ensure optimal performance.

We utilize advanced technology to conduct rigorous testing on real-size products, allowing us to simulate and address potential issues before delivery to our customers. Our production processes are regularly audited by accredited bodies and subjected to continuous improvement through internal audits.

We are dedicated to meeting the needs of the sector with a customer- and service-oriented approach. This involves maintaining open communication among our personnel, suppliers, and customers, and keeping our innovation, automation, and digitalization efforts dynamic and responsive. Our expert staff, a young and dynamic team working like a close-knit family, is focused on building the structures of tomorrow and producing solutions that contribute to a more livable world for future generations.

Geopanel's commitment to nature-friendly technology, strict adherence to product quality, comprehensive employee welfare policies, and a relentless pursuit of innovation set us apart as a leader in the industry. We are dedicated to providing products and services that not only meet but exceed the expectations of our customers, while fostering a sustainable and supportive work environment for our employees.

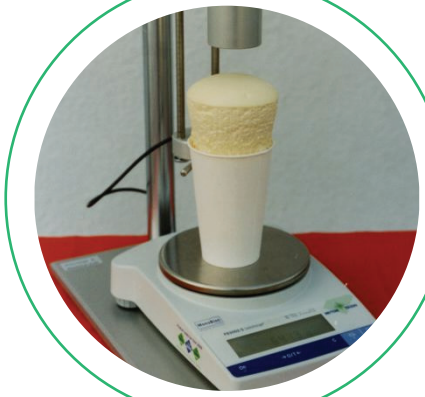
Research and development Facility

Geopanel's Research and development Center, established in 2024, is dedicated to pioneering new technologies using advanced scientific methods to address global needs. Our focus lies in developing extraordinary green products based on patented and utility models, ensuring competitiveness in the global market, and fostering innovative ideas and universal solutions.

We are committed to transforming scientific development into economic prosperity, harnessing the dynamic intellectual capital of our nation through industry and university collaborations in the field of R&D. Throughout our endeavors, we remain steadfast in our dedication to environmental conservation, embracing principles of green and circular economy practices.

Geopanel's R&D Center is not just a hub for innovation; it's a testament to our commitment to pushing the boundaries of technological advancement while ensuring a sustainable future for generations to come.







Quality policy & Certifications

At Geopanel, we are dedicated to delivering excellence in every aspect of our operations. Our commitment to quality is unwavering, and we strive to exceed the expectations of our customers at every opportunity. We adhere strictly to international standards and best practices, ensuring that our products and services consistently meet or surpass regulatory requirements.

We are committed to continuous improvement, fostering a culture of innovation and excellence throughout our organization. By investing in advanced technology, ongoing training programs, and employee development initiatives, we empower our team to achieve the highest levels of performance and efficiency.

Our quality management system is built on a foundation of transparency, accountability, and integrity. We maintain open communication channels with our customers, suppliers, and stakeholders, actively seeking feedback and input to drive further improvements.

At Geopanel, quality is not just a goal; it's a way of life. We are dedicated to providing products and services of the highest caliber, earning the trust and loyalty of our customers, and contributing to the success and sustainability of our industry and community

CERTIFICATIONS

Geopanel takes great pride in its ISO certifications, which serve as a testament to our unwavering commitment to excellence, environmental stewardship, and the safety and well-being of our employees. These certifications represent internationally recognized standards that guide our operations and ensure that we consistently meet the highest levels of quality, environmental responsibility, and occupational health and safety.

ISO 9001 Certification: Quality Management System Geopanel holds ISO 9001 certification, which signifies our adherence to rigorous quality management standards. This certification demonstrates our ability to consistently provide products and services that meet customer and regulatory requirements while enhancing customer satisfaction. Through our ISO 9001-certified quality management system, we continually monitor and improve our processes to deliver excellence in every aspect of our operations.

ISO 14001 Certification: Environmental Management System We are proud to have achieved ISO 14001 certification for our environmental management system. This certification reflects our commitment to minimizing our environmental impact and promoting sustainability throughout our operations. By implementing effective environmental management practices, we strive to reduce waste, conserve resources, and mitigate environmental risks, contributing to a healthier planet for future generations.

ISO 45001 Certification: Occupational Health & Safety Management System Geopanel is dedicated to ensuring the health, safety, and well-being of our employees, and our ISO 45001 certification underscores this commitment. This certification demonstrates our adherence to best practices in occupational health and safety management, providing a framework for identifying and mitigating workplace hazards, promoting a culture of safety, and continuously improving our safety performance.







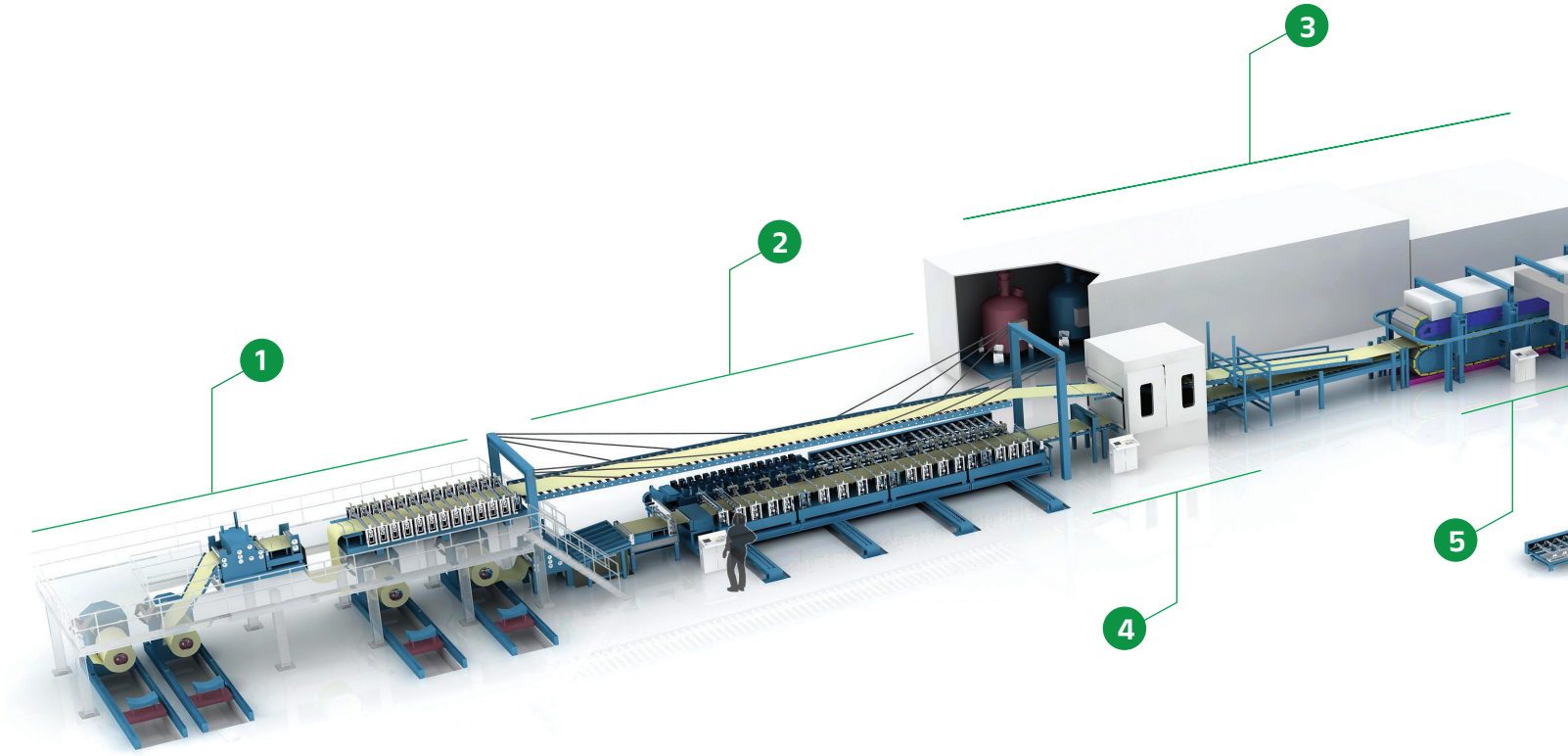
Sandwich Panels

Sandwich panels represent a groundbreaking advancement in construction materials, serving as composite roof and wall sheet materials primarily utilized in industrial structures. Manufactured with core materials such as injected Polyurethane (PUR), or Polyisocyanurate (PIR), sandwich panels boast varying thicknesses and densities between interior and exterior metal sheets (including Painted Galvanized Sheet and Painted Aluminum).

The choice of core material is pivotal, influencing thermal insulation performance, sound insulation capabilities, fire reaction, and overall weight. Geopanel produces sandwich panels tailored to meet specific building performance requirements, ensuring optimal performance in diverse environments.

Internationally recognized for their practicality and cost-effectiveness, sandwich panels offer unparalleled protection against external factors, including corrosion, water ingress, and noise pollution, while providing superior thermal insulation and fire resistance.

Geopanel's sandwich panels feature metal components treated with the Coil Coating technique, ensuring long-lasting durability. Surface coatings adhere to food regulations, with options including Polyester (PE), Polyvinylidene Fluoride (PVDF), Plastisol (PVC-P), PVC film (PVC-F), and Polyurethane (PUR) paint.

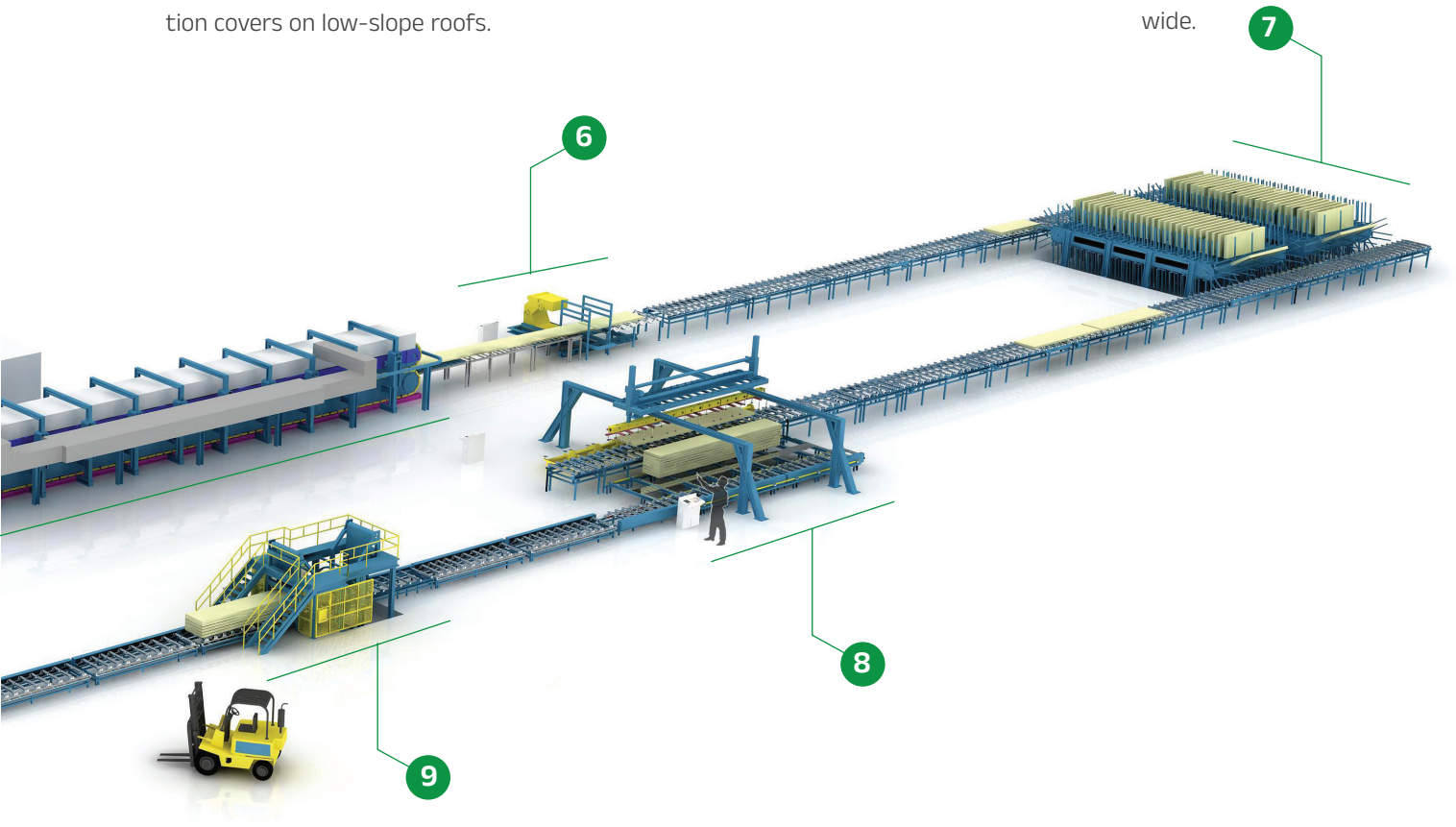


Thanks to their lightweight construction, rapid production, and ease of installation, the versatility of sandwich panels continues to expand across various sectors. Geopanel's panels find applications in industrial structures, thermal power plants, shopping malls, military and social facilities, sports complexes, containers, cold rooms, clean rooms, animal shelters, and poultry farms.

Geopanel's sandwich panels are not only renowned for their structural integrity but also for their versatility. Outer surfaces coated with metal, including embossed aluminum, painted aluminum, or painted galvanized sheet, can serve as water insulation covers on low-slope roofs.

in environments prone to acidity, agricultural buildings, and animal shelters, Geopanel's innovative sandwich panels, featuring CTP or PET sheets, offer self-sustaining solutions.

Leveraging its registered trademarks, commitment to total quality management, dedicated workforce, and ongoing R&D initiatives, Geopanel stands as a visionary leader in the industry. Our sandwich panel products redefine industry standards, offering a harmonious blend of technical superiority and aesthetic appeal, making Geopanel the preferred choice for prestigious buildings worldwide.



1. Decoiler
2. Roll forming Unit
3. PUR/PIR Stock Tank
4. PUR/PIR Injection Unit
5. Double Belt Press
6. Sandwich panel Length Cut
7. Cooling Unit
8. Vaccuming
9. Packaging

Sandwich Panel Top & Bottom Sheet

Prepainted Galvanised Sheet

PPGI Sheet is a versatile material used extensively in the construction industry, particularly in the manufacturing of sandwich panels. The process begins with galvanization, where the surface sheet undergoes hot-dip galvanization at continuous lines. This method applies a zinc coating of 90-275 gr/m2 in accordance with EN 10142 standards, significantly enhancing corrosion resistance.

Following galvanization, a 5-7 micron primer and the desired paint or coating are applied to the pre-painted galvanized sheet using the Coil Coating system. This advanced coating process ensures uniform coverage and superior adhesion, resulting in a durable and visually appealing finish.

PPGI Sheet typically utilizes galvanized sheets of Sheet Quality DX51 D+Z, known for their exceptional corrosion resistance and load-bearing capacity. These sheets offer long-term durability, minimizing maintenance costs due to their resistance against impact and wear-and-tear. Additionally, galvanized sheets are environmentally friendly, as they are fully recyclable, aligning with sustainable construction practices

Galvanised Sheet Quality	dx51d+z	TS EN 10346
Thickness Tolerance 0.40 mm{Sheet Thickness{ 0.7mm	+ 0.05 mm	EN 10143
Tensile Strength	500 Mpa (Max)	TSE N10346
Elongation %	22 (min)	TSEN 10346
Coating (zinc) hot Dip	90-275 gr/m²	TSEN 10346
Paint type	Polyester,pvdf,Plastisol,PVC etc.	



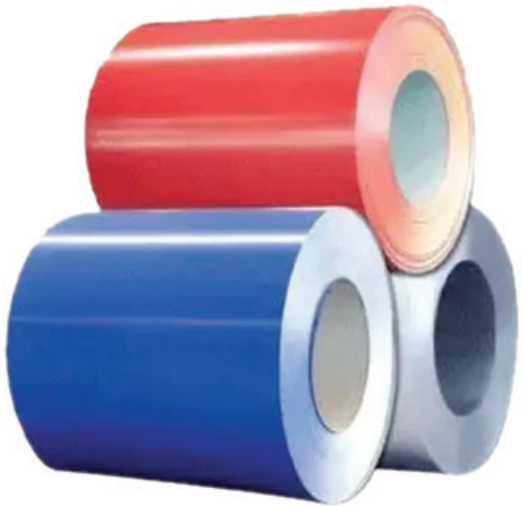
Aluminium

Pre-painted aluminium sheet stands as a premier choice for architectural and industrial applications, prized for its exceptional durability, corrosion resistance, and aesthetic appeal. Whether embossed or painted, aluminium offers unparalleled conductivity and a natural resistance to corrosion, making it an ideal material for environments prone to acidity or heavy industrial activity.

Compared to galvanized sheet, aluminium boasts a higher expansion coefficient, rendering it more suitable for demanding environments. This inherent resilience ensures longevity and reliability, even in harsh conditions. In single-layer trapezoidal or sandwich panels, the carrier surface width should be a minimum of 0.50 mm, ensuring structural integrity and stability.

Pre-painted aluminium sheet offers versatility in design and application, lending itself to a wide range of architectural and industrial projects. Its lightweight nature facilitates ease of installation, while its corrosion-resistant properties guarantee long-term performance and minimal maintenance requirements.

Composition	AW 3000 Serisi	EN 573-3
Condition	H16 - H46	EN 485-2
Thickness Tolerance 0.5mm{Sheet Thickness{0.6mm	+ 0.05 mm	EN 485-4
Yield Tolarence	150 Mpa	EN 485-25
Tensile strength	175 Mpa	EN 485-25
Elongation %	3 (Min)	EN 485-25
Surface	Embossed or Painted	





Painting Protection

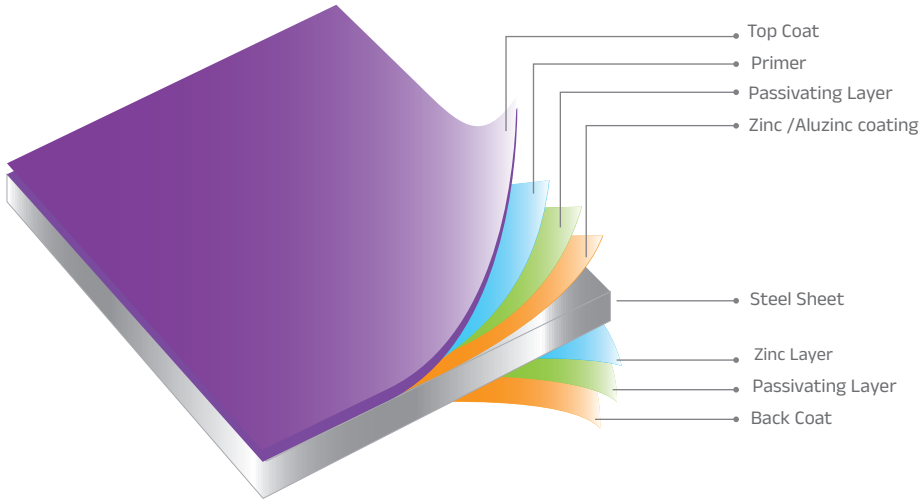
Coil coating, also known as the continuous painting technique, represents a highly efficient method for applying protective coatings to metal surfaces. This process utilizes a range of paint types, including PVDF (polyvinylidene fluoride), plastisol, polyester, and polyurethane, all in compliance with food regulations. The selection of paint type and thickness is influenced by the geographic conditions of the region, ensuring optimal performance and durability.

In the coil coating process, metal surfaces receive a meticulous application of paint and primer coats, providing essential protection against environmental factors and corrosion. Typically, a combination of a 5-micron primer coat and a 20-micron polyester paint is applied under normal conditions. The durability of polyester paint ranges from 10 to 12 years under standard conditions, but with periodic maintenance, this lifespan can extend up to 40 years.

Both the primer coat and paint play critical roles in protecting the metal and ensuring the integrity of sandwich panel construction. The primer coat enhances the adhesion of insulation materials or adhesives, while the paint shields the metal from environmental effects and corrosion. Metals treated with primer coat and paint are processed into panels in the form of rolls, ready for installation in various construction projects.

When it comes to selecting colors for sandwich panels, the RAL catalogue serves as a comprehensive guide. However, it's essential to note that tone differences may arise between the RAL catalogue and the actual application on metal, particularly for metallic colors like RAL 9006-9007. To maintain consistency, it's advisable to paint all metals for a project in a single batch or lot, minimizing the risk of tone discrepancies across different panels.

coil coating stands as a cornerstone of protective coating application, providing continuous protection and aesthetic enhancement to metal surfaces. With its versatility and durability, coil coating ensures that sandwich panels not only withstand the rigors of the environment but also maintain their visual appeal for years to come.



Comparison of days and Coatings in terms of Their Characteristics

Type of Dye	Code	Application Thickness	Chemical Resisitance	UV Resisitance	Impact Resisitance	Corrossion Resisitance	Humidity Resisitance	Color Difference Stability	ASM Resisitance	(max/min/°c) Heat Resisitance
Polyester	PES	20-25	**	*	***	**	***	***	***	90/-30
High Duble Plyeater	HDP	20-25	***	**	***	**	****	****	****	90/-30
Polyviniliden Fluorid	PVDF	20-27	****	****	***	****	*****	*****	*****	80/-40
Polyurethane	PUR	25	****	***	***	****	****	***	***	80/-40
Polyviniliden Plastisol	PVC(P)	100-200	*****	****	****	*****	****	**	****	70/-40
Film	PVC	100-200	*****	*	*****	*****	****	*	****	70/-40

***** Excellent, **** Very Good, *** Good, ** Average, * Poor

Endurance period of anti-bacterial paints with food security should be assessed in the same manner as the endurance periods of polyester paints. No heavy metals are used for manufacturing antibacterial or food-safe paints. Warranty is provided for all types of paint. However, warranty periods may vary for each project because such periods depend on environmental conditions, geographic location and application.

Polyester Paints

This paint type is widely favored for its cost-effectiveness, extensive color range, and widespread availability. It serves as a fundamental and straightforward option among various paint types. However, its resistance to corrosion, UV radiation, and chemicals is relatively lower compared to other types. When coils are painted simultaneously but produced and installed at different times and locations, variations in tone and brightness may occur. This variability highlights the paint's limited endurance in terms of color and brightness, especially noticeable on dark-colored panels. To enhance the chemical and mechanical strength of polyester paints, additives can be introduced into the resin, resulting in what is known as High Double Polyester. However, despite the benefits, high-endurance polyester paints are often less preferred due to their higher cost.

PVDF Paints

When compared to polyester paints, PVDF exhibits superior mechanical and chemical durability. With exceptional UV resistance, it maintains its color integrity for an extended period, making it highly resistant to discoloration. PVDF stands out as the most resilient paint against chemicals, stains, and dirt accumulation. While it offers high brightness and impressive resistance to scratches and corrosion, it falls slightly short of plastisol in these regards. Due to its elevated cost, PVDF is typically favored for prestigious buildings and areas exposed to high levels of UV radiation.

Paint Types According Corrossion and UV Resistancet		Corrosion Resistance	UV Resistance
Polyester	PE	RC3	RUV2
Polyviniliden Fluorid	PVDF	RC4	RUV4
Polyviniliden Plastisol	PVC	RC4	RUV2
Polyurethane	PUR	RC3	RUV3

Plastisol Paints

Plastisol stands out as a paint/coating renowned for its unparalleled corrosion resistance. Its versatility to be crafted with patterns makes it a top choice for aesthetic applications. While its UV and chemical resistance are commendable, they may not match the standards set by PVDF. Nevertheless, factors such as local climate and weather conditions can impact its susceptibility to abrasion and discoloration. Plastisol is particularly recommended for use in wet regions due to its exceptional corrosion resistance and for roofs with minimal slopes. However, caution should be exercised in environments where surface temperatures may exceed 80°C, as Plastisol may not perform optimally under such conditions.



Examples for Mild Climatic Environments

	Outdooe Environment	Indoor Environment
C1- Very Low		For buildings heated with clean atmosphere, eg:Offices, shops, schools, hotels
C2- Low	Atmospheres with lower level of pollution. (Mostly rural areas)	Unheated buildings, places where condensation may occure. eg: wearhouses, sports hall
C3- Mild	Urban and Industrial atmospheres, medium level of sulfur dioxide pollution (Coastal areas with lower level of saltness)	places with high humuidity and air pollution such as mess halls, manufacturing-processing plants, laundries, beer factories, dairies.
C4- High	Industrial areas (Coastal areas with medium level of saltness)	CChemical plants, swimming pools, shores, ships and shipyards.
C5-I- Very High (Industrial)	High Humidity-Containing and aggressive atospheres and industrial areas	Buildings or areas with nearly continuous condensation and high pollution.
C5-M -Very High(Sea)	Coastal and marine areas with high level of saltness	Buildings or areas with nearly continuous condensation and high pollution.

UV Resistance Category According to Regions

RUV2	Zones on the north of Latitude 45°in the Northern Hemisphere and places up to an altitude of 900 m.
RUV3	Zones on the south of Latitude 45° and zones on the north of Latitude 37° in the Northern Hemisphere and places up to an altitude of 900 m.
RUV4	Zones on the south of Latitude 37° in the Northern Hemisphere and all places located at an altitude higher than 900 m.

For example, Ankara is located on 390 57' of northern latitude. Its altitude varies between 790 -1.150 m and pollution level is high. PVDF and light-colored paints are recommended to be used in the exterior metal because of their high UV and pollution resistance.

Criteria of Color Tone Difference

Type of Paint	PE, PVDF, PU	PVC
Color Tone Difference (ΔE)	(ΔE≤ 2 for metallic and luminous colors)	ΔE≤2
WARNING: Tone differences and deformation on the metal are among the problems mostly encountered at metallic and luminous colors.		
Metallic Colors	RAL 9006 - RAL 9007	
Luminous Colors	RAL 1026 - RAL 2005 - RAL 2007 - RAL 3024 - RAL 3026	

Color Groups

In the European Continent, four different lowest winter temperature value (T1) is used depending on the distance to sea, height from the sea level and latitude: 0°C, -10°C, -20°C and -30°C. External surface temperature of roof panels which are covered with a snow layer is 0°C. T1 temperature of external surface has the highest summer temperature, depending on the color and reflexivity of the surface.

Very Light Colors T1 = +55°C RG= 75-90
Light Colors T1 = +65°C RG= 40-74
Dark Colors T1 = +80°C RG= 8-39

Suggested Panel Sizes By Color Groups				
Insulation	Panel Type	Color Groups		
		Group 1 / Very Light Colors	Group 2 / Light Colors	Group 3 / Dark Colors
PUR/ PIR	HS-OS Wall panels	12.00 m	10.00 m	8.00 m
	Wall, Cold Room	12.00 m	12.00 m	6.00 m
	Roof	13.50 m	13.50 m	10.00 m

*The measurements on the table have been calculated according to TS 13902 standards. The lengths not stated on the table are considered within special conditions. Please contact with your sales representative.

Conditions For Dark Colored Group Panels

If dark color is chosen for exterior surface of the panel, the following conditions should be considered in order to minimize the deformation:

- The construction where panel will be installed should be free from errors in vertical and horizontal;

- Team to perform panel installation needs to be experienced and has to act in line with the rules applicable to installation, lifting and lowering.
- Screws and equipment suitable for panels and construction should be chosen and installation should be proceeded with an appropriate torque.
- Projects should be assessed well and panel and metal thickness should be chosen conforming to static tables (load bearing tables).
- Table of 'Panel Sizes According to Color Groups' shall be taken as basis for roof and wall panels.
- Ambient temperature when installation will be made should be +10°C or above in order to minimize thermal stress.
- Recommended purlin spacing is 1.5m – 1.8m. Load bearing tables should be taken into consideration of distributed load bearing capacity.
- (15mm – 20mm) metal elongation margin should be allowed for the panels that will be installed. The length is directly proportional to the coeficient of expansion and the temperature difference. Expansion coeficient (α) of the steel per temperature (1/0C) is maximum 12,5 (m / (m 0C)) and related formula is : $\Delta L = L0 * \alpha * \Delta T (t1 - t0)$

Even if all these conditions are satisfled, PANELSAN does not guarantee nor undertake liability for the homogeneity smoothness on the dark color group for exterior surfaces.

*In facade panels; Minimum length over 2.5 m and maximum 8 m, very light coloured, bottom sheet thickness min. 0.35 mm, top sheet thickness min. 0.45 mm panels will be considered under warranty. (See RH.KYS.05 Sandvich Panel Color and Paint Type Details)

RAL Codes for Color Groups

Color Groups	RAL Codes
Group 1 Very Light Color	9001-9002-9003-9010-9016
Group 2 Light Colors	1000 - 1002 - 1003 - 1004 - 1013 - 1014 - 1015 - 1016 - 1017 -1018- 1019 - 1021 - 1023 - 1028 - 1033 -1035-2000 - 2003 - 2004 - 2008 2011 - 2012 - 5012 - 5015 - 5018 - 5024 - 6018 - 6019 - 6021 - 6027 - 6033-6034 - 7000 - 7035 - 7037 - 7038 - 7040 - 9018 - 9022
Group3 Dark Colors	3000 - 3002 - 3003 - 3005 - 3011 - 3013 - 5002 - 5005 - 5009 - 5010 - 5011 - 5022 - 6000 - 6003-6005 - 6011 - 6020 - 6029 -7015 7016 - 7022 - 7024 - 7026 - 7031 - 7043 - 8011 - 8012-8014 - 8016 - 8017 - 8019 - 8022 - 8023 - 9004 - 9005 - 9006 - 9007 - 9017

*For colors other than the RAL colors in the table above, please contact your sales representative.



RAL * The colors in the original catalog are given for informative purposes only and may vary from shown above. The original RAL values and tolerances are valid.



Sandwich Panel Insulation Cores

Polyurethane (PUR)

PUR, known as rigid polyurethane foam, is a composite material composed of two primary components: polyol and isocyanurate. These components are meticulously mixed with catalyzers under high pressure, resulting in a rigid foam with a closed-cell structure. This unique cellular arrangement contributes to its exceptional thermal insulation capabilities, making PUR a preferred choice in construction and insulation applications.

One of the key advantages of PUR is its resistance to water absorption, rendering it buoyant and impervious to moisture. This characteristic not only ensures its durability in humid environments but also prevents the growth of bacteria within the foam. Additionally, PUR exhibits high dimensional stability and compression strength, enhancing its utility performance in various structural applications.

However, it's crucial to note that PUR has temperature limitations. While it can withstand temperatures of up to 70-80°C for prolonged periods, its maximum thermal resistance peaks at 100-110°C. Beyond this threshold, the material may begin to degrade, compromising its insulation properties and structural integrity.

To optimize the support provided by PUR panels, it's recommended to maintain a density of around 40 (± 2) kg/m3. This density ensures sufficient structural support while also allowing for ease of installation and handling during construction.

Density(kg/m³	38-42	EN 1602
Thermal Conductivity Coefficient (W/mK)	0,022	EN 12667
Vapor Diffusion	55-60	EN 12086
Compression Strength in Slab Width Direction at 10% Expansion (N/mm2)	0,11	TS EN 29469
Water Absorption (%, after 160 hours)	0,05-0,020	Manufatur's decleration
Maximum Utilization Temperature (°C)	-40 ~ +80	
Shear Strength	min. 0. 11	
Closed Cell Content	91-95%	
Fire Class	PUR Bs3d0 EN 13501-1 Bs2d0 EN 13501-1 Cs2d0 EN 13501-1 Cs3d0 EN 13501	

Polyisocyanurate (PIR)

PIR (Polyisocyanurate) foam is meticulously crafted through a multi-step process. Initially, the isocyanate groups undergo a reaction to form isocyanurate, creating a stable trimer ring structure. This reaction is facilitated by specialized catalysts and conducted under various reaction medium conditions. Subsequently, the remaining isocyanate groups engage in a reaction with polyol derivatives, acting as secondary components, to complete the formation of polymeric structures.

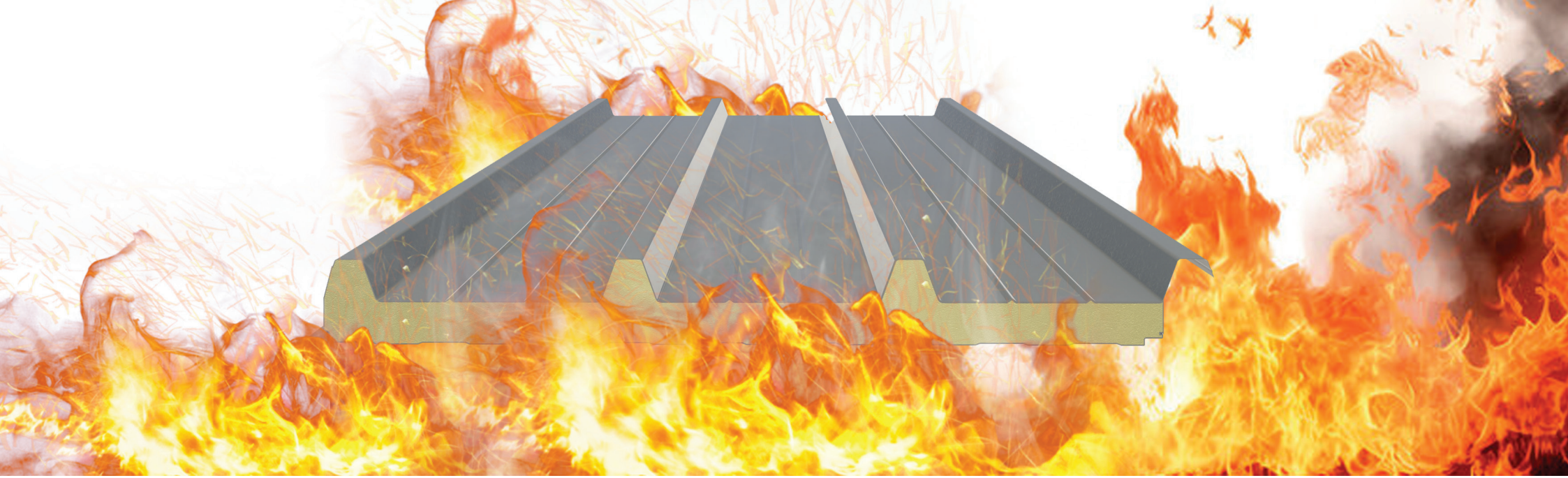
One notable advantage of PIR foam is its superior fire resistance compared to PUR (Polyurethane) foam. PIR exhibits significantly lower flammability and smoke formation, making it an excellent choice for applications where fire safety is paramount. Additionally, PIR shares with PUR a closed-cell structure, which contributes to its excellent thermal insulation properties.

Due to its exceptional characteristics, PIR foam occupies the top tier in non-flammability classifications. Its ability to provide superior thermal insulation makes it highly sought after in various industries and applications, from construction to insulation in refrigeration systems. With its combination of fire resistance, thermal insulation, and structural integrity, PIR foam stands as a top-tier choice for demanding applications where safety and performance are critical considerations.



Density(kg/m³	40-45	EN 1602
Thermal Conductivity Coefficient (W/mK)	0,022	EN 12667
Vapor Diffusion	55-60	EN 12086
Compression Strength in Slab Width Direction at 10% Expansion (N/mm2)	0,11	TS EN 29469
Water Absorption (%, after 160 hours)	0,05-0,020	Manufatur's decleration
Maximum Utilization Temperature (°C)	-40 ~ +90	
Shear Strength	min. 0. 11	
Closed Cell Content	91-95%	
Fire Class	PIR Bs1d0 EN 13501-1 FM Bs2d0 EN 13501-1	





QCDD Approved Sandwich Panels

Sandwich panels stand out as fast, efficient, and energy-efficient solutions in the building sector. Among these, QCDD approved
sandwich panels emerge as products with superior properties in terms of fire safety and structural performance.

The QCDD approval ensures that the sandwich panels meet the department's strict safety and fire resistance standards. To obtain approval, the panels must undergo rigorous testing and meet specific requirements, including:

1. Fire resistance: The panels must be able to withstand fires for a certain period without collapsing or spreading the fire.
2. Thermal insulation: The panels must provide adequate thermal insulation to reduce heat transfer.
3. Structural integrity: The panels must be able to withstand various loads and stresses without compromising their structural integrity.
4. Material quality: The panels must be made from high-quality materials that meet QCDD standards.

Using QCDD-approved sandwich panels ensures that buildings in Qatar meet the necessary safety and fire resistance standards, providing a safer environment for occupants and emergency responders.

Benefits of QCDD-approved sandwich panels include:

1. Improved fire safety
2. Energy efficiency
3. Reduced construction time
4. Increased building durability
5. Compliance with Qatar's building codes and regulations

QCDD
APPROVED

GEOPANEL
MANUFACTURING SUSTAINABLE INNOVATIONS

References



Shooting range Complex at ASPIRE ZONE, Doha-Qatar



Reserch and development complex- qatar foundation, Doah- Qatar





Development and Operation of a warehousing complex in Um Shahrein





Warehouse project in Barwa al baraha ▲

Al shifa, New Industrial area ▼





DHL- Manateq



Al muftah Store

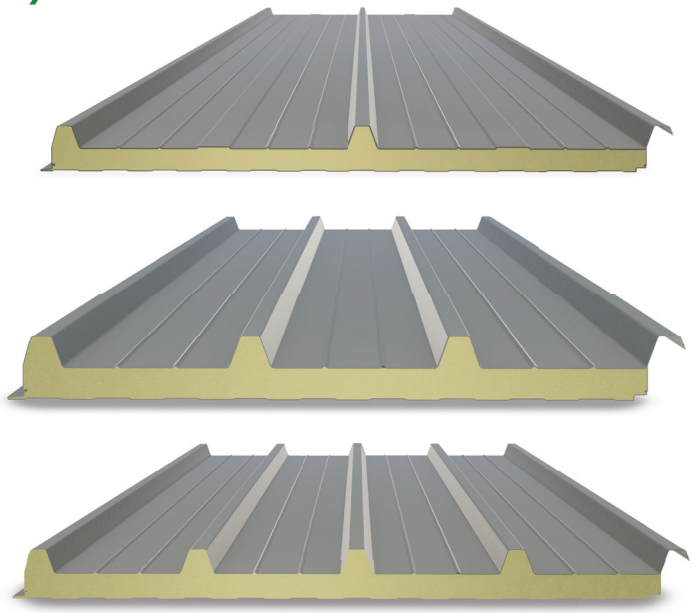




GeoPanel Sandwich Panels

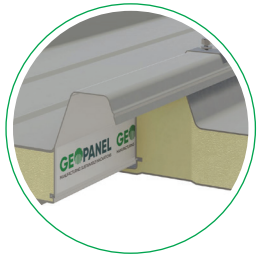
Polyurethane (PUR) - Polyisocyanurate (PIR) Insulated Roof Panels

As the compression strength of polyurethane insulated roof panels is high, it has good load support performance and vapor resistance, which prevents water absorption. 3,4 and 5 ribs form options are available that allow you to choose the most economic form suitable for your building. PIR insulation provides high thermal resistance, does not propagate fire, self-extinguishes and emits minimum smoke

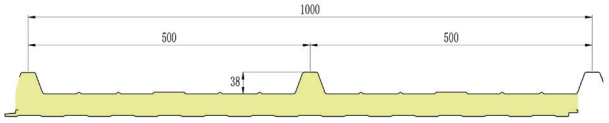


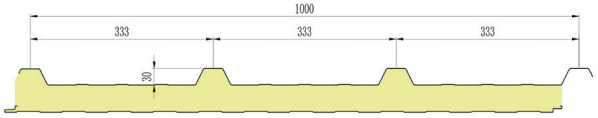
Technical Specifications

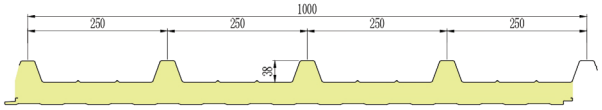
Core Thicknesses (K)	Insulation Density	Steel Thickness PPGI	Thermal Conductivity	Reaction To Fire
30-50-75-100-150 mm	PUR 40 (±2) kg/m3 PIR 42 (±3) kg/m3	External Thickness 0,45-0,50-0,60-0, 70-0,80 mm Internal Thickness 0,35-0,40-0,50-0, 60-0,70-0,80 mm	λ = 0,022 W/mK	PUR Bs2d0 EN 13501-1 Bs3d0 EN 13501-1 Cs2d0 EN 13501-1 Cs3d0 EN 13501-1 PIR Bs1d0 EN 13501-1, FM Bs2d0 EN 13501-1



Joint Details







Hidden Screw Wall Panel

Our Hidden screw wall panel Provides high insulation and aesthetic solutions:

• Panel form is hidden screw.

• Our panel can be manufactured with micro wave, Diamond and mesa surface form.

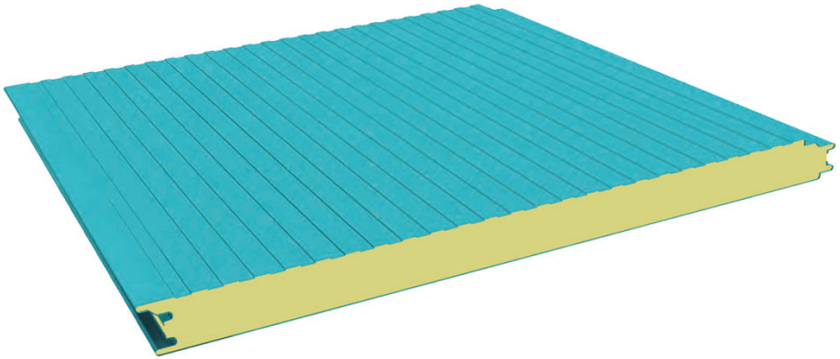
• It can be combined with the sinus and semi-sinus hidden screw type panels.

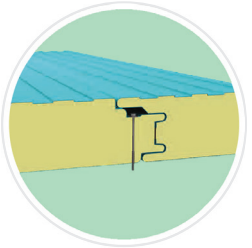
• It can be manufactured with PIR and PUR core alternative.

• It allows vertical and horizontal installation. Provides high insulation

• Core materials protect your structures against water, heat and sound; PIR insulation provides superior fire protection.

• Can be manufactured with several color options

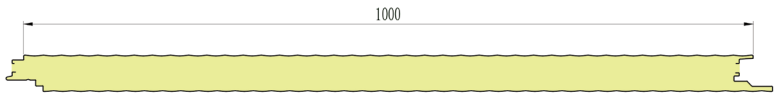




Joint Details

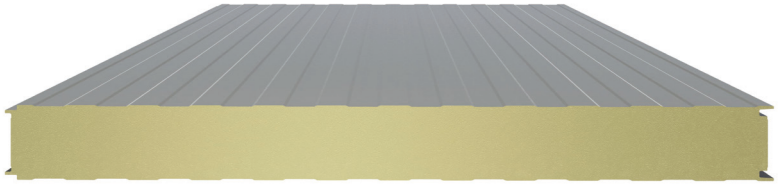
Technical Specifications

Core Thicknesses (K)	Insulation Density	Steel Thickness PPGI	Thermal Conductivity	Reaction To Fire
50 - 75 mm	PUR 40 (±2) kg/m3 PIR 42 (±3) kg/m3	External Thickness 0,50-0,60-0,70-0, 80 mm Internal Thickness 0,40-0,50-0,60-0, 70-0,80 mm	λ = 0,022 W/mK	PUR Bs2d0 EN 13501-1 Bs3d0 EN 13501-1 Cs2d0 EN 13501-1 Cs3d0 EN 13501-1 PIR Bs1d0 EN 13501-1, FM Bs2d0 EN 13501-1



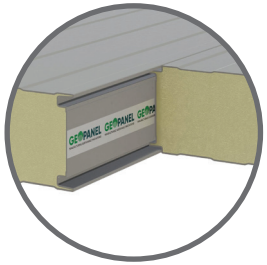
PUR - PIR Insulated Cold Room Panel

In order to improve the impermeability at the connection detail of two panels, 3-5 mm gap has been left for mastic/ sealant application. Thereby, energy efficiency has been elevated to the highest level

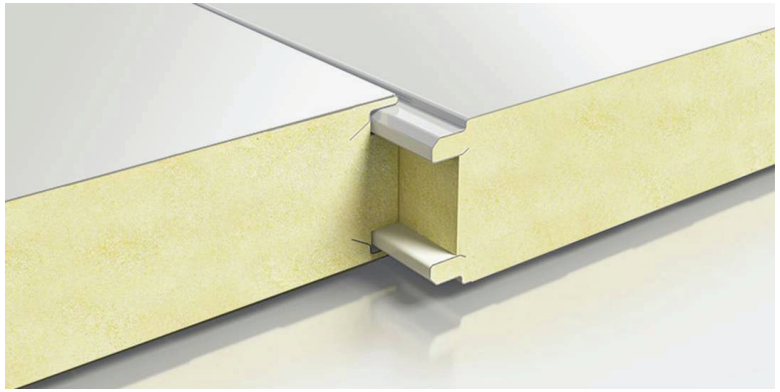


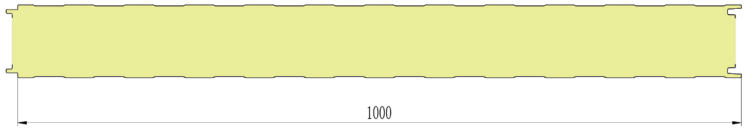
Technical Specifications

Core Thicknesses (K)	Insulation Density	Steel Thickness PPGI	Thermal Conductivity	Reaction To Fire
75, 100, 150, 200 mm	PUR 40 (±2) kg/m3 PIR 42 (±3) kg/m3	External Thickness 0,40-0,50-0,60-0, 70-0,80 mm Internal Thickness 0,40-0,50-0,60-0, 70-0,80 mm	λ = 0,022 W/mK	PUR Bs2d0 EN 13501-1 Bs3d0 EN 13501-1 Cs2d0 EN 13501-1 Cs3d0 EN 13501-1 PIR Bs1d0 EN 13501-1, FM Bs2d0 EN 13501-1



Joint Details







Geopanel cold room panels prevent formation of thermal bridge with the help of its special connection detail, ensure impermeability and thus meet high thermal control needs.

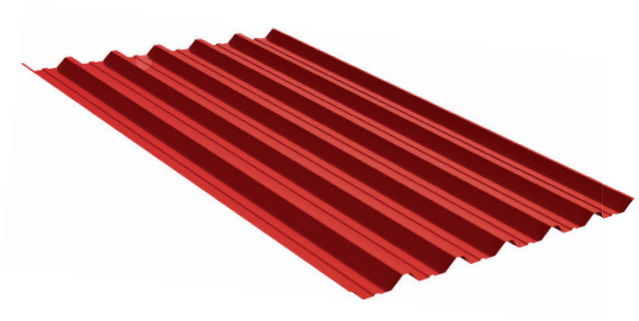
Preferred at structures that necessitate high level of thermal insulation such as food processing, frozen food, medicine, frozen depots and clean rooms, as well as at hygienically highsafety requiring environment, our panels can be manufactured at different thicknesses at width of 1000 mm depending on the demands, and with Polyurethane (PUR) – Polyisocyanurate (PIR) insulation options.

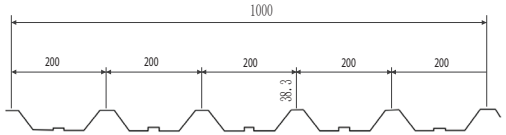
Our cold room panels are painted as per the food regulations, thereby meeting the necessary hygienic conditions. They can be produced for different process types or with stainless properties. in addition to its airproof and heat-loss-preventing structure, the cool room panels also provide smart solutions with their easy assembly and fast installation.

Corrugated Sheet

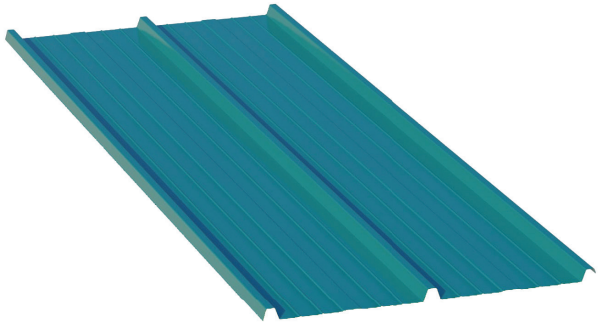
Geopanel roof and wall sheets, presenting different solutions in roof and wall coating, are produced from aluminum, galvanized sheet and pre-painted galvanized sheet at differing thicknesses and forms (38/200, 38/500 and 30/333). They can be painted to any color from the RAL catalogue. Corrugated sheets can be used with insulation material or as uninsulated (single sheet), and they are suitable for hangars, warehouses, industrial buildings, conveyors, farms & poultries and etc. Its special radius designs can meet different technical aspects and aesthetic demands

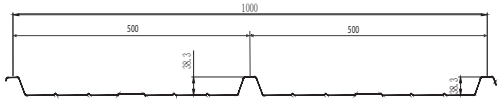
38/200



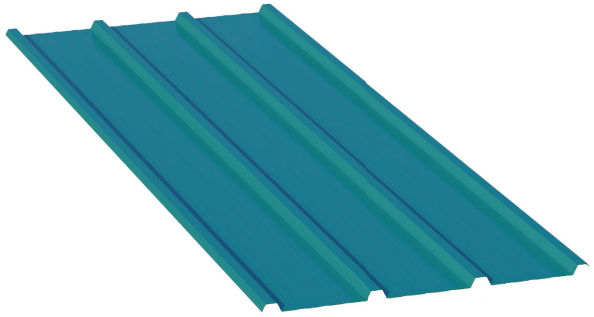


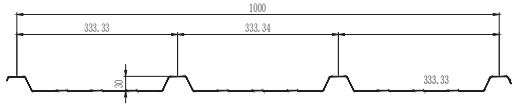
38/500





30/333





System Details



System Details

Metal Process Service : GEOPANEL's very own machinery park also includes a 30 tones of hydraulic press & casting set and 80 tones of CNC Abkant press & hydraulic guillotine with 3 mm bending capacity to produce project basis system details to provide required accessories and flnishing materials.



Drip Box Detail



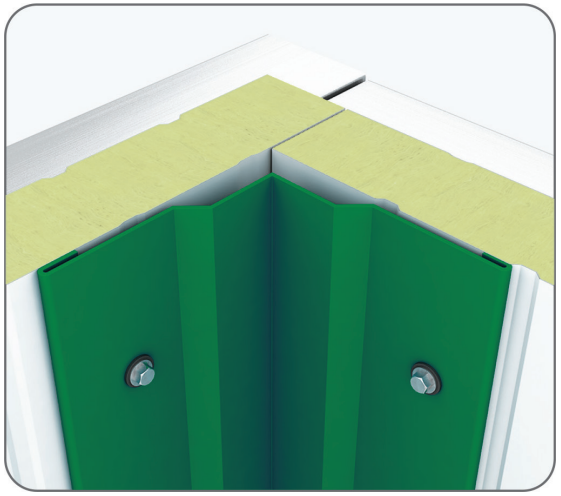
Facade Panel Supplementary Detail



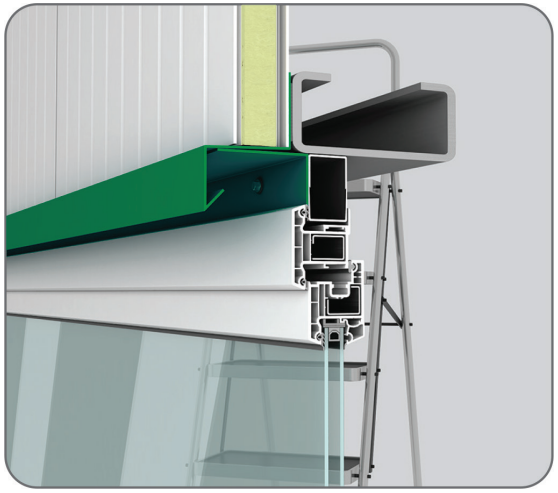
Horizontal Panel Drip Box Detail



Omega Detail



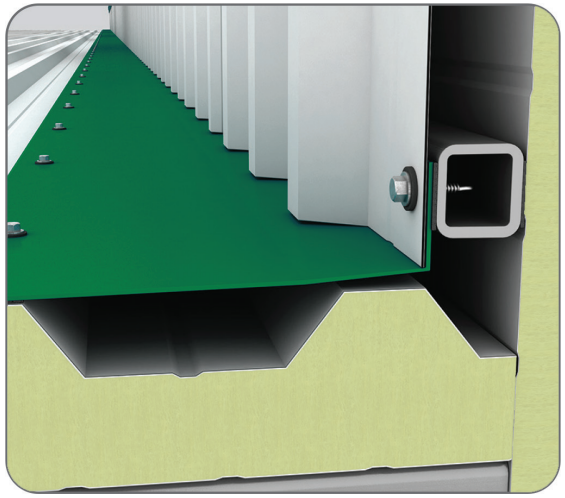
Inner Corner Detail



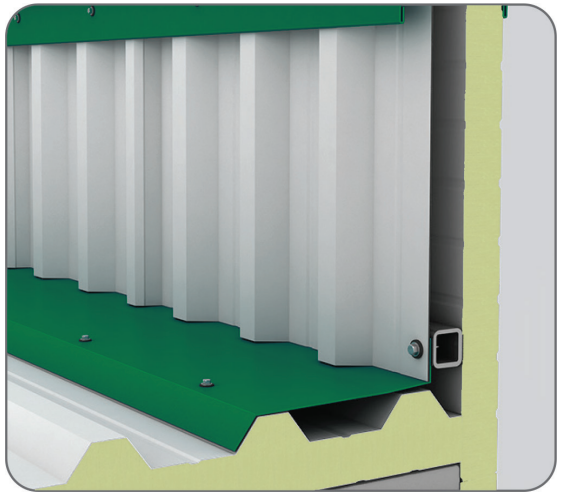
Window Upper Detail



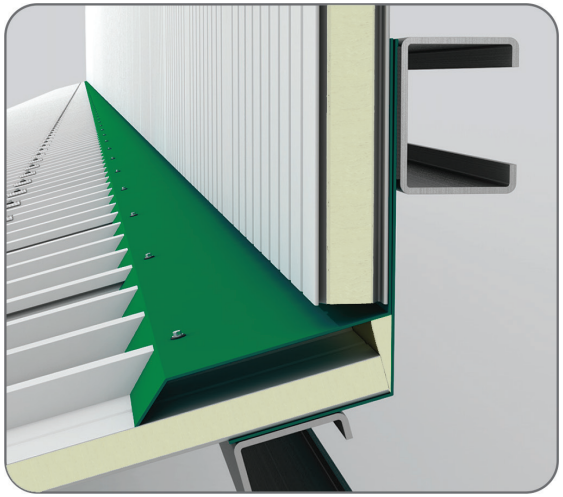
Window Lower Detail



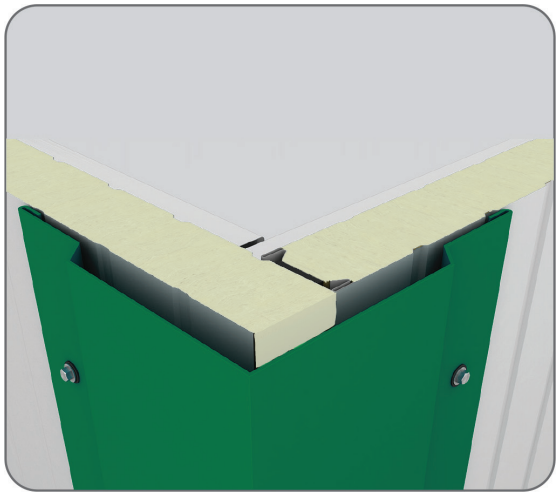
Shield Roof-Wall Connection Detail-1



Shield Roof-Wall Connection Detail-2



Side Front Covering Detail



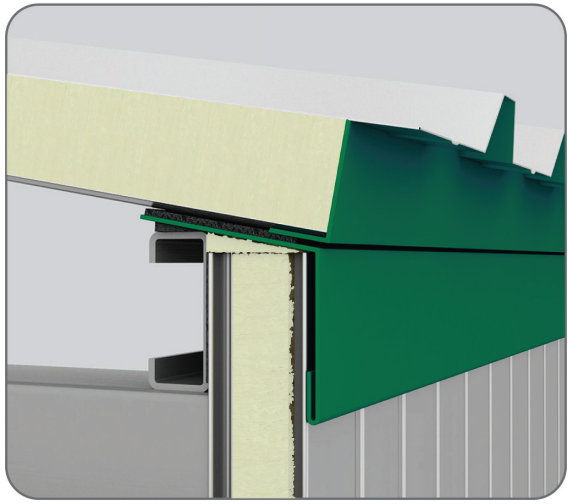
Protection Cap Detail



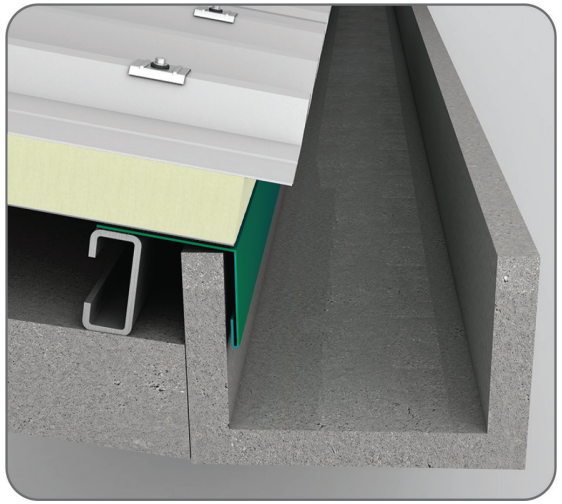
Gutter Detail



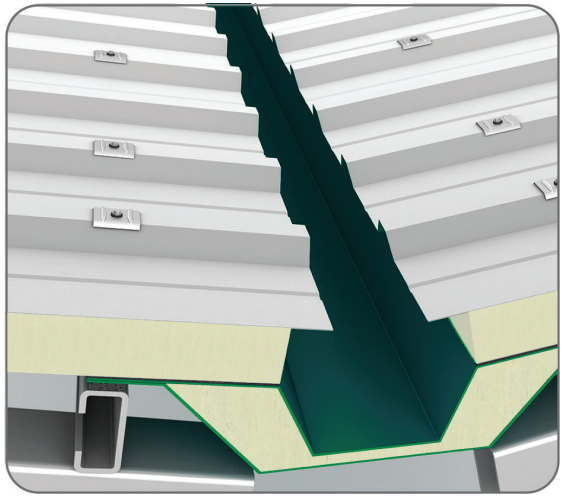
Wall-Roof Connection Detail



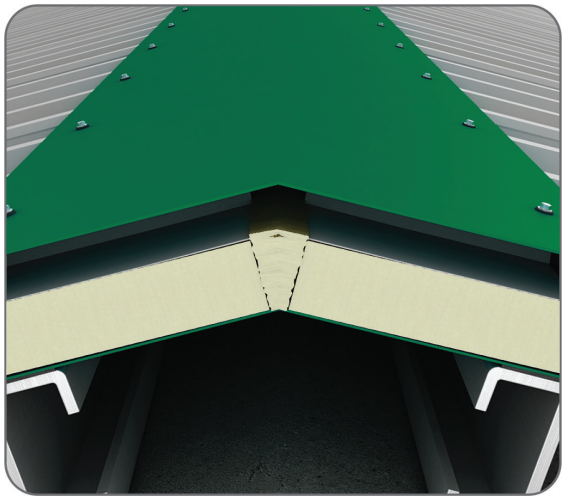
Outer Corner Detail



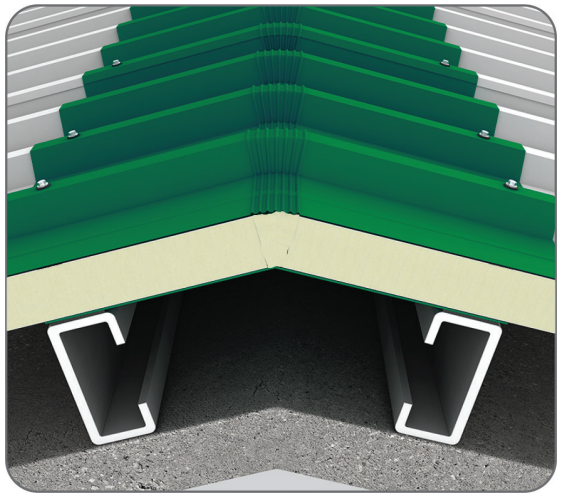
Front Covering Detail



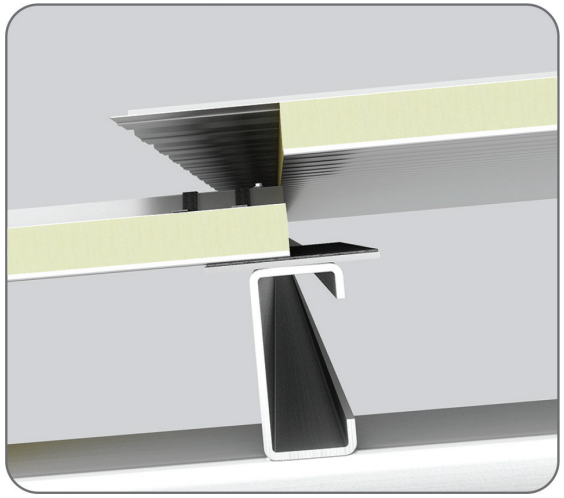
Gutter Detail



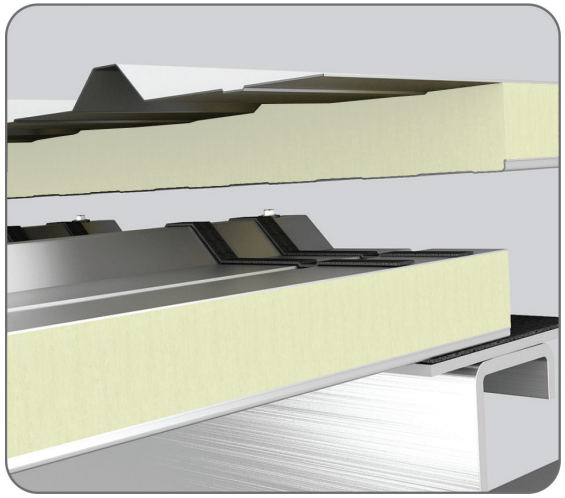
Ridge Detail



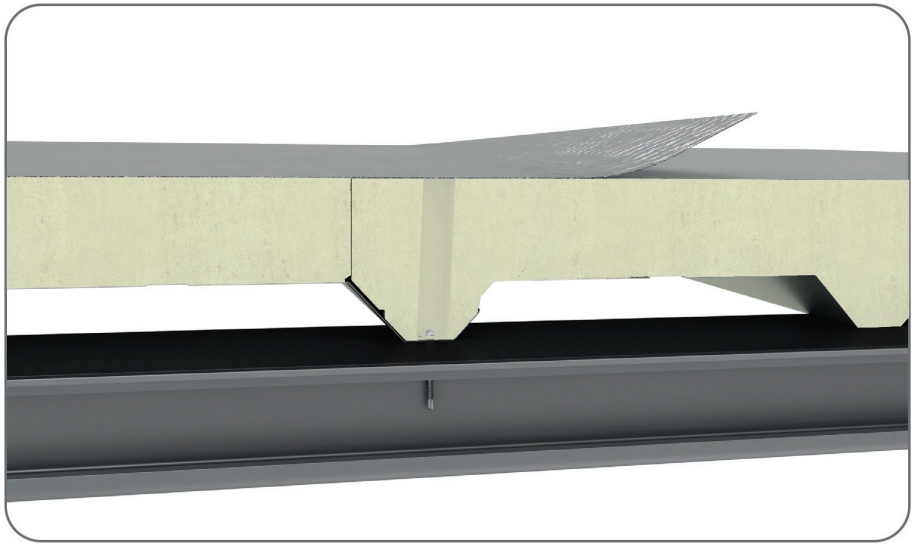
Trapezoidal Ridge Detail



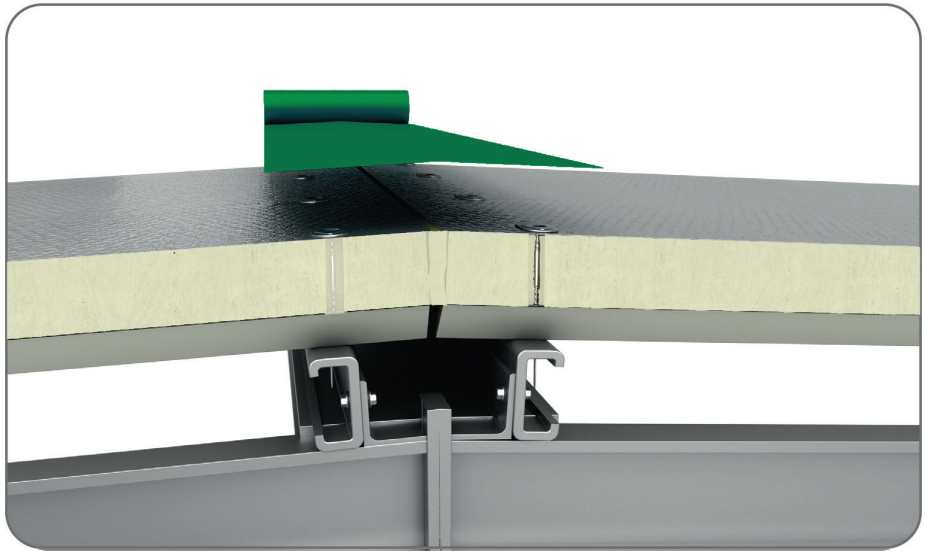
Panel Connection Detail-1



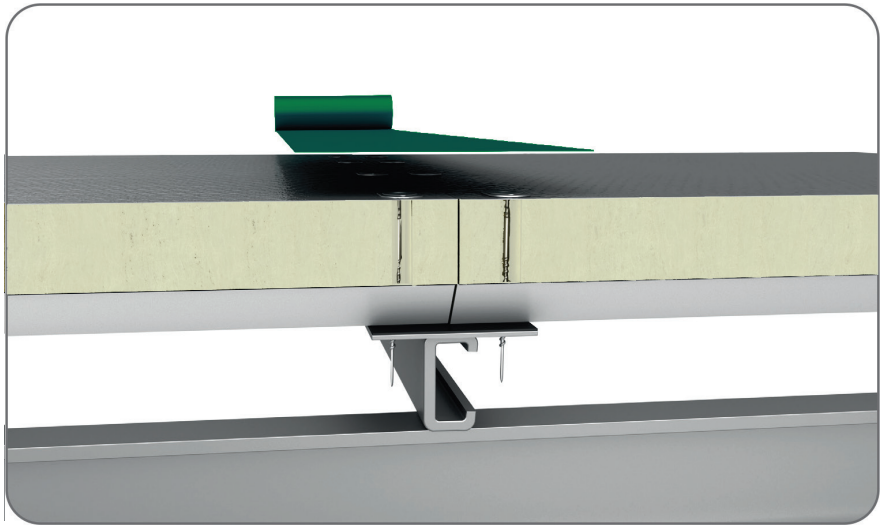
Panel Connection Detail-2



Membrane Panel Connection Detail

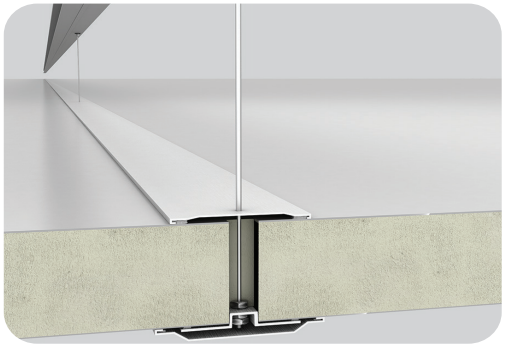


Membrane Panel Ridge Detail

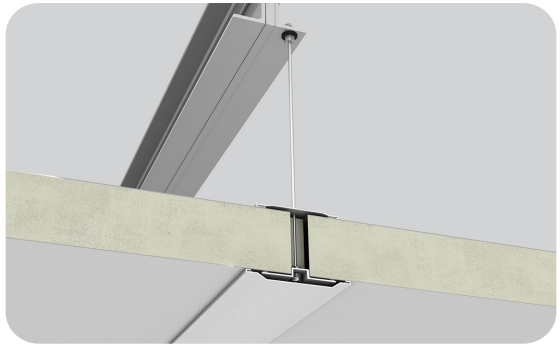


Membrane Panel Longitudinal Connection Detail

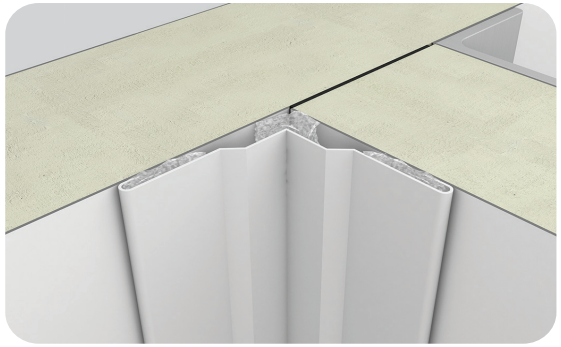
System Details - Cold Room Panels



Cold Room Suspender Tiji Detail-1



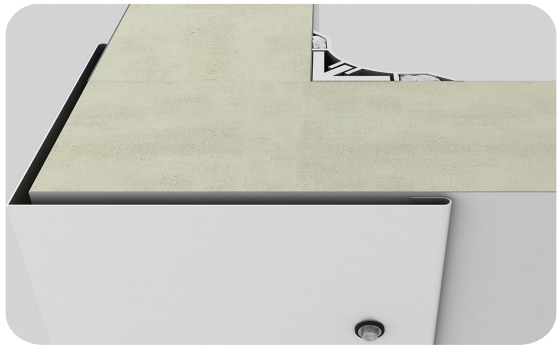
Cold Room Suspender Tiji Detail-2



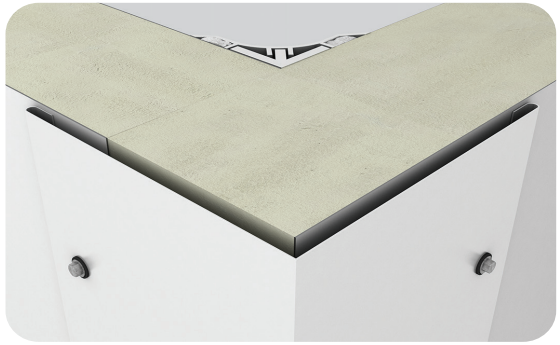
Cold Room Inner Corner Ceiling Detail-1



Cold Room Inner Corner Ceiling Detail-2



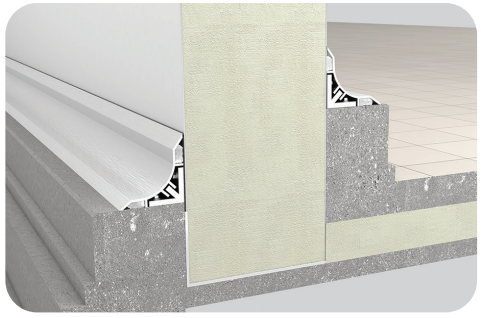
Cold Room Outer Corner Detail-1



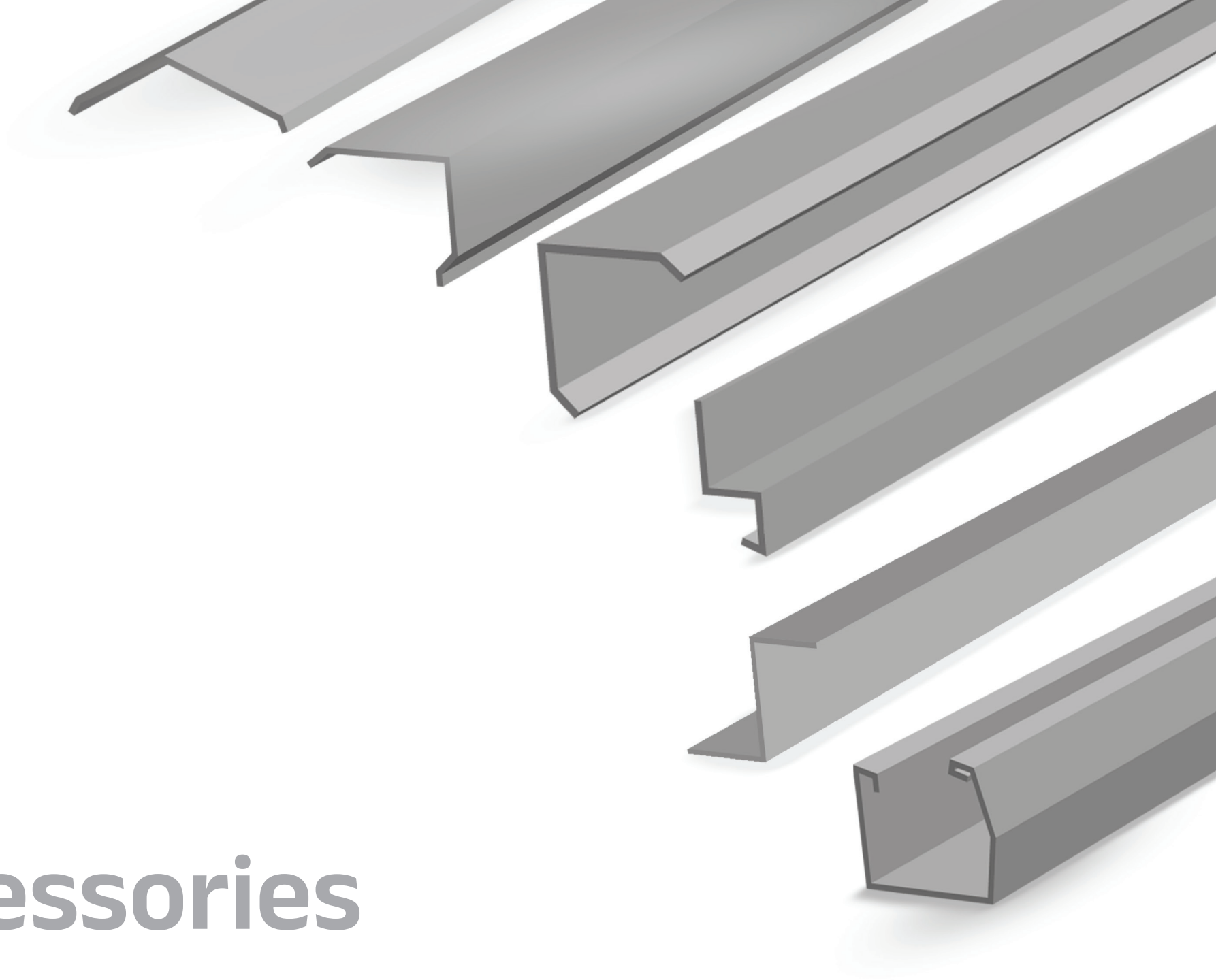
Cold Room Outer Corner Detail-2



Cold Room Inner Corner Detail

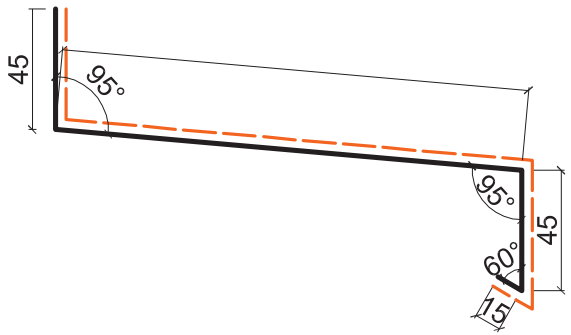


Cold Room Wall-Floor Connection Detail

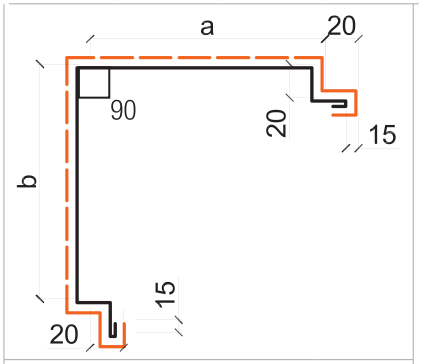


Accessories

ACCESSORIES

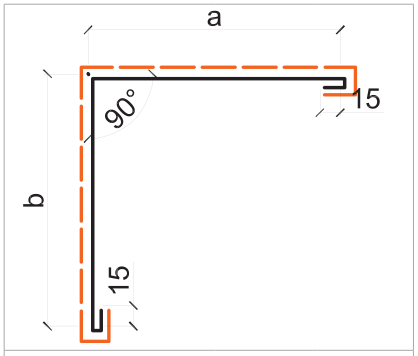


Drip Profile			
Material	Thickness	Expansion	Length
Galvanize Aluminium	0,60 ~1,50 mm	170 ~ 280 mm	3,000 mm



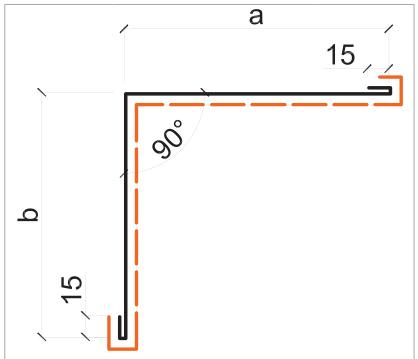
Outer Corner Profile

Material	Thickness	Expansion	Length
Galvanize Aluminium	0,50 ~1,50 mm	Various	3,000 mm



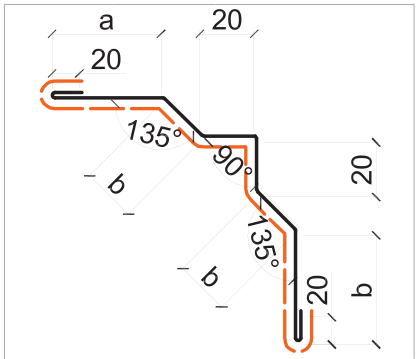
Outer Corner Profile

Material	Thickness	Expansion	Length
Galvanize Aluminium	0,50 ~1,50 mm	Various	3,000 mm



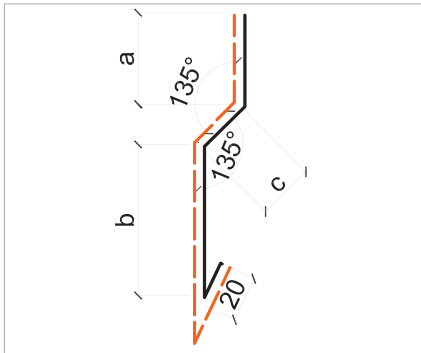
Interior Profile

Material	Thickness	Expansion	Length
Galvanize Aluminium	0,50 ~1,50 mm	Various	3,000 mm



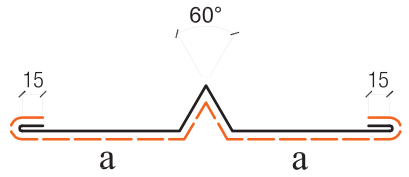
Interior Profile

Material	Thickness	Expansion	Length
Galvanize Aluminium	0,50 ~1,50 mm	Various	3,000 mm



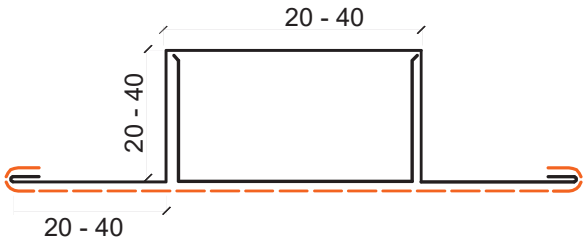
Screw Closing Profile

Material	Thickness	Expansion	Length
Galvanize Aluminium	0,60 ~1,50 mm	Various	3,000 mm



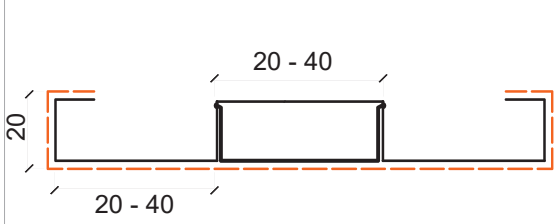
Dilatasyon Expansion Profile

Material	Thickness	Expansion	Length
Galvanize Aluminium	0,60 ~300 mm	Various	3,000 mm



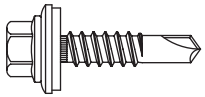
Omega Profile

Material	Thickness	Expansion	Length
Galvanize	0,60 ~300 mm	Various	3,000 mm
Aluminium			



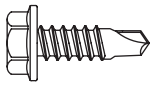
Omega Profile

Material	Thickness	Expansion	Length
Galvanize	0,60 ~300 mm	Various	3,000 mm
Aluminium			



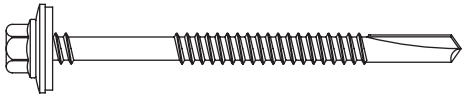
Single & Twin-Skin Screws

Drilling Capasity	Length	Radius
5 mm	25-32-38-50-60 mm	5,5 mm
12 mm	32-50-60 mm	



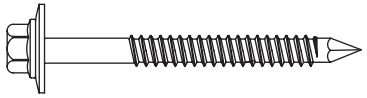
Accessories Screw

Drilling Capasity	Length	Radius
2 mm	20 mm	4,8 mm



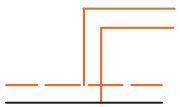
Self Drilling Sandvich Panel Screws

Drilling Capasity	Length	Radius
5 mm	66-75-90-105-120- 135-140-145-155-165-175-180-190-200 mm	5,5 mm
12 mm		



Corrugated Fibre Cement Screws

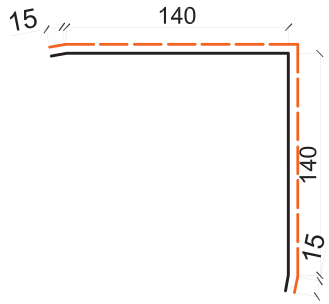
Drilling Capasity	Length	Radius
	35-45-60-75-95-105-115-125-135-145-175-200 mm	6,3 mm





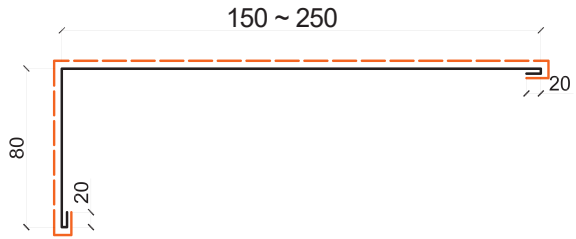
Ground U Profile Cold Storage

Material	Thickness	Expansion	Length
Galvanize	0,70~1,50 mm	183 ~ 303 mm	3,000 mm
Aluminium			



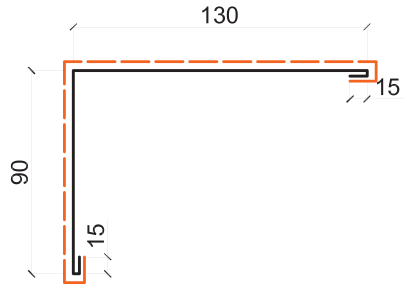
Cold Storage Outer Corner Profile

Material	Thickness	Expansion	Length
Galvanize	0,60 ~300	300 mm	3,000 mm
Aluminium	0,60-0,70 mm		



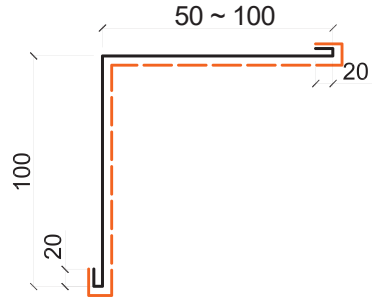
Cold Storage Outer Corner Profile

Material	Thickness	Expansion	Length
Galvanize	0,50-0,60-0,70 mm	250 ~ 370 mm	3,000 mm
Aluminium	0,60-0,70 mm		



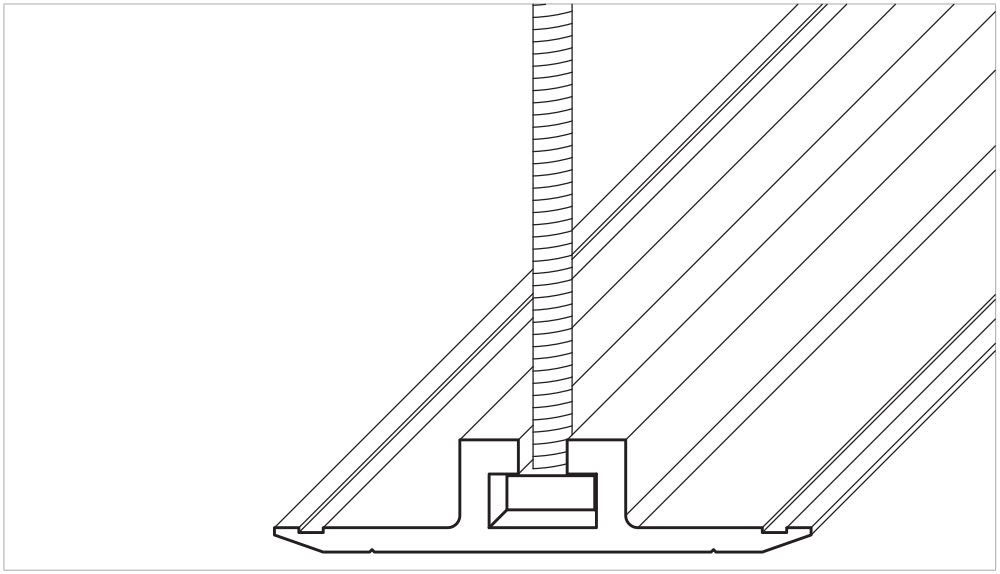
Cold Storage Outer Corner Profile

Material	Thickness	Expansion	Length
Galvanize	0,50-0,60-0,70 mm	250 mm	3,000 mm
Aluminium	0,60-0,70 mm		



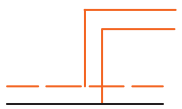
Cold Storage Inner Corner Profile

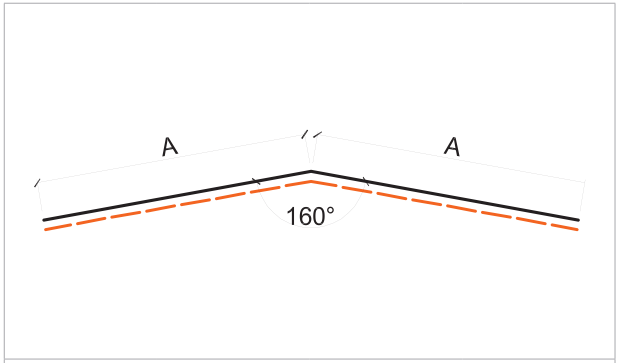
Material	Thickness	Expansion	Length
Galvanize	0,50-0,60-0,70 mm	140-240 mm	3,000 mm
Aluminium	0,60-0,70 mm		



Cold Storage Hangar Profile

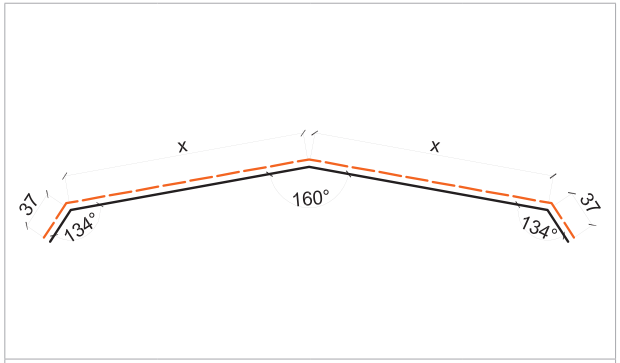
Material	Thickness	Expansion	Length
Galvanize	1,00-1,50-3,00 mm	-	5,000 mm





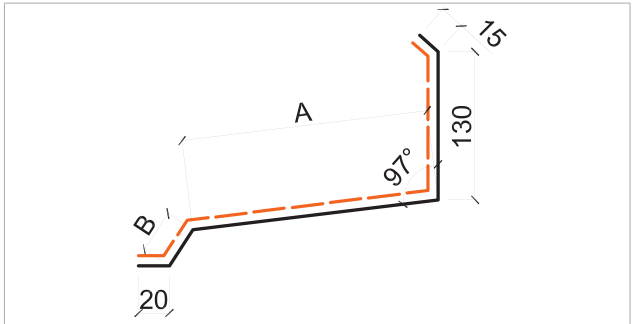
Internal Ridge Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



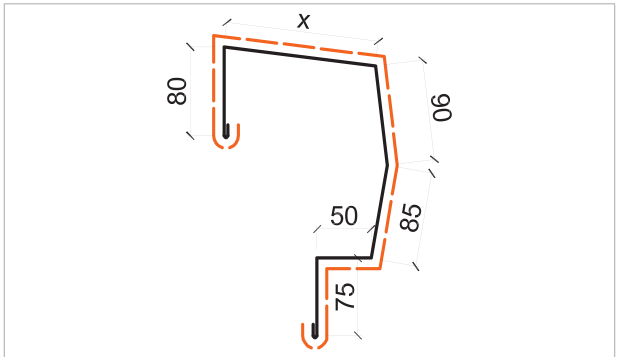
Carved - Uncarved Ridge Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



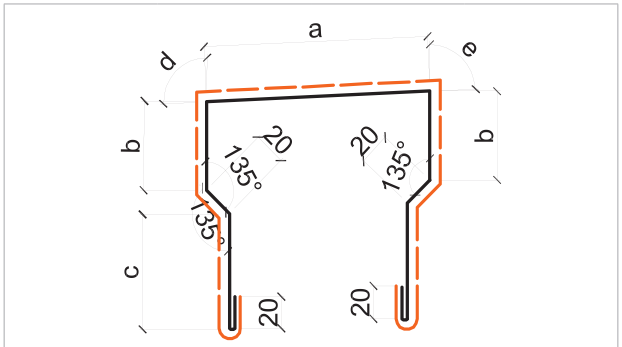
Roof to Wall Junction Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



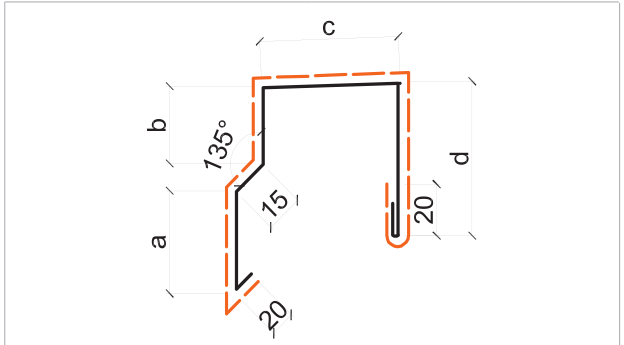
Eaves Gutter Parapet Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



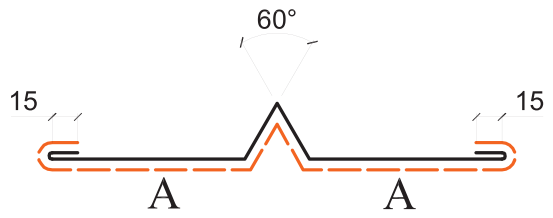
Eaves Gutter Parapet Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



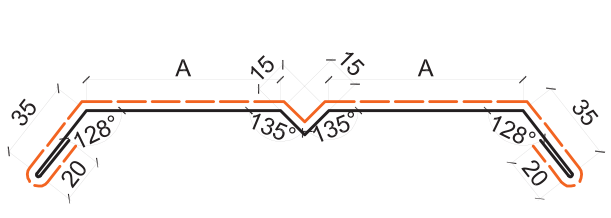
Eaves Gutter Parapet Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



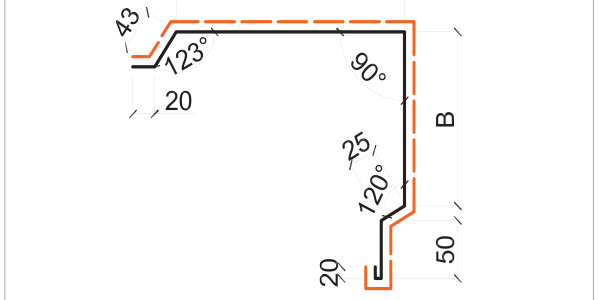
Dilatation Expansion Joint

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



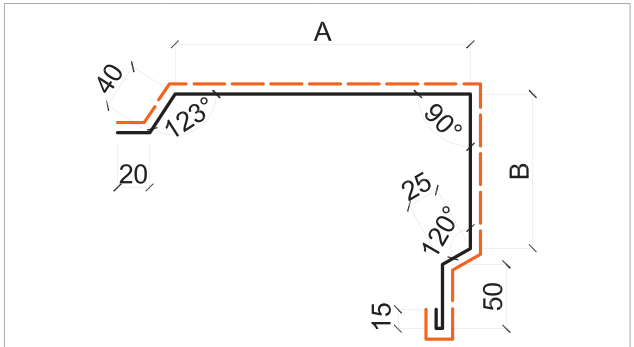
Expansion Joint

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



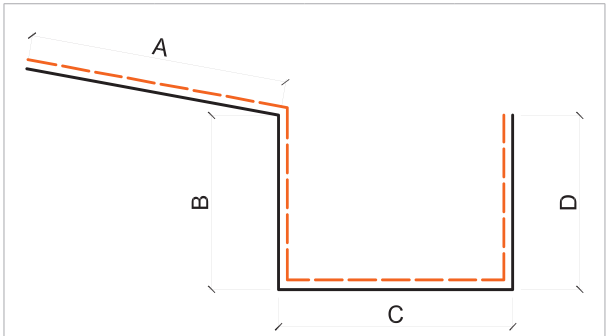
Verge Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



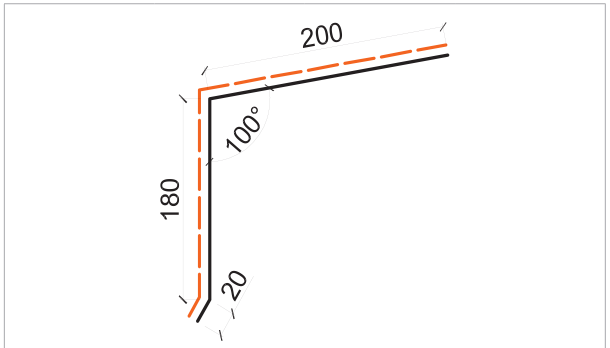
Verge Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



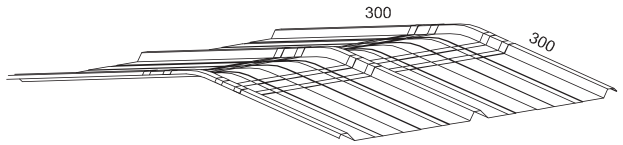
Gutter Profile

Material	Thickness	Expansion	Length
Galvanize	1,00~3,00 mm	Various	3,000 mm
Aluminium			



Gutter Eave Profile

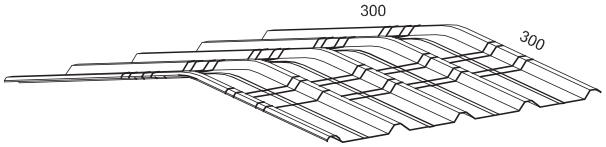
Material	Thickness	Expansion	Length
Galvanize	0,40~1,50 mm	Various	3,000 mm
Aluminium			



PUR - PIR

3 Ribbed Radiused Ridge Profile

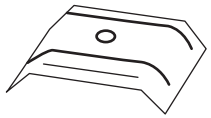
Material	Thickness	Expansion	Length
Galvanize	0,40~0,70 mm	600 mm-1000 mm	1,000 mm
Aluminium			



PUR - PIR

5 Ribbed Radiused Ridge Profile

Material	Thickness	Expansion	Length
Galvanize	0,40~0,70 mm	600 mm - 1000 mm	1,000 mm
Aluminium			

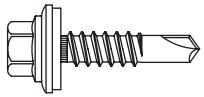


Saddle

Painted Galvanize Steel

Painted Aluminium

Aluminium



Single & Twin-Skin Screws

Drilling Capasity	Length	Radius
5 mm	25-32-38-50-60 mm	5,5 mm
12 mm	32-50-60 mm	



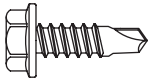
Ridges Sponge

Insulation sponge are used onridge point of roofs.



Eave Sponge

Insulation sponge adequate to panel formare used on eave point of roofs.



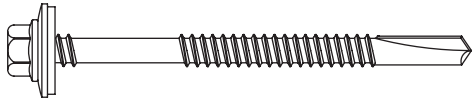
Accessories Screw

Drilling Capasity	Length	Radius
2 mm	20 mm	4,8 mm



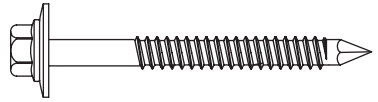
GRP Panels

Thickness	Width	Length
0,90-1,00-1,20-1,50-2,00-2,50-3,00 mm	Panel ve Trapez formlarında ±1	1,000 mm



Self Drilling Sandvich Panel Screws

Drilling Capasity	Length	Radius
5 mm	66-75-90-105-120- 135-140-145-155-165-175-180-190-200 mm	5,5 mm
12 mm		



Corrugated Fibre Cement Screws

Drilling Capasity	Length	Radius
	35-45-60-75-95-105-115-125-135-145-175-200 mm	6,3 mm

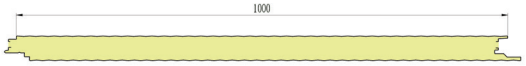
GE PANEL
MANUFACTURING SUSTAINABLE INNOVATIONS

The Load Tables

Load Tables & “U-R” Values



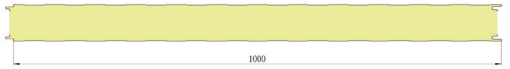
PUR-PIR INSULATED HIDDEN SCREW WALL PANELS



Material Thickness	Insulation Thickness	Span	Span Distance (mm) P=kg/m²						
			1000	1500	2000	2500	3000	U Value	R Value
0,50 / 0,40	40	2	305	194	143	113	94	0,55	1,81
		3	351	223	164	130	108		
	50	2	391	248	181	143	119	0,44	2,27
		3	449	285	209	165	137		
	60	2	477	303	221	174	144	0,37	2,73
		3	549	348	254	200	165		
	80	2	653	415	301	236	194	0,27	3,64
		3	751	477	346	272	224		
	100	2	831	529	384	300	246	0,22	4,54
		3	956	608	441	345	283		
	120	2	1011	645	467	365	299	0,18	5,45
		3	1162	742	538	420	344		

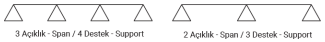
Regarding L/150 deflection limit and 80 kg/ m² wind pressure, Density:40-42 kg/m³

PUR-PIR INSULATED OUTER SCREW WALL PANELS

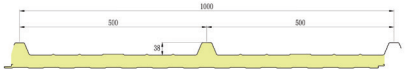


Material Thickness	Insulation Thickness	Span	Span Distance (mm) P=kg/m²						
			1000	1500	2000	2500	3000	U Value	R Value
0,50 / 0,40	40	2	298	190	140	111	92	0,55	1,82
		3	343	218	160	127	106		
	50	2	382	242	177	140	116	0,44	2,27
		3	439	279	204	161	133		
	60	2	466	296	216	170	140	0,37	2,73
		3	536	340	248	195	161		
	80	2	638	405	294	231	190	0,27	3,64
		3	734	466	338	265	218		
	100	2	812	517	375	293	241	0,22	4,54
		3	934	594	431	327	277		
	120	2	987	630	457	356	292	0,18	5,45
		3	1135	724	525	410	336		

Regarding L/150 deflection limit and 80 kg/ m² wind pressure, Density:40-42 kg/m³



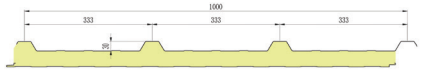
PUR-PIR INSULATED 3 RIBS ROOF PANELS



Material Thickness	Insulation Thickness	Support (mm)	Span Distance (mm) P=kg/m²						
			1000	1500	2000	2500	3000	U Value	R Value
0,50 / 0,40	40	2	208	122	87	69	56	0,55	1,82
		3	239	140	100	79	65		
	50	2	261	156	113	89	73	0,44	2,27
		3	300	180	130	102	84		
	60	2	303	185	135	106	87	0,36	2,73
		3	349	213	156	122	100		
	80	2	370	233	172	135	110	0,28	3,60
		3	425	268	198	156	127		
	100	2	425	273	202	159	128	0,22	4,50
		3	488	314	233	183	148		
	120	2	473	308	229	178	143	0,18	5,45
		3	544	355	263	205	165		

L/150 deflection limit and 80 kg /m2 wind pressure. Density: 40-42 kg/m³

PUR-PIR INSULATED 4 RIBS ROOF PANELS

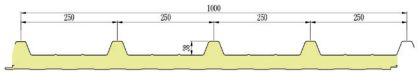


Material Thickness	Insulation Thickness	Span Distance (mm) P=kgs/m²						
		1500	2000	2500	3000	3500	U Value	R Value
0,50/ 0,40	40	395	258	176	124	105	0,55	1,82
	50	547	354	243	171	146	0,44	2,27
	60	558	452	312	217	181	0,36	2,73
	80	759	616	423	298	251	0,28	3,60
	100	939	762	523	372	316	0,22	4,50

L/150 deflection limit and 80 kg /m2 wind pressure. Density: 40-42 kg/m³



PUR-PIR INSULATED 5 RIBS ROOF PANELS



Material Thickness	Insulation Thickness	Support (mm)	Span Distance (mm) P=kg/m²						
			1000	1500	2000	2500	3000	U Value	R Value
0,50 / 0,40	40	2	377	210	145	111	75	0,55	1,82
		3	434	241	167	128	86		
	50	2	459	261	183	132	89	0,44	2,27
		3	527	300	211	152	102		
	60	2	522	303	216	150	103	0,36	2,73
		3	600	349	248	173	119		
	80	2	620	374	271	186	132	0,28	3,64
		3	713	430	311	214	152		
	100	2	700	433	317	222	162	0,22	4,54
		3	805	498	364	256	186		
	120	2	770	486	357	259	192	0,18	5,45
		3	886	558	411	298	220		

L/150 deflection limit and 80 kg /m2 wind pressure. Density: 40-42 kg/m³



Instruction For Packing, Transportation Storage and Mounting

Instruction For packing, Transportaion Storage and Mounting

1. Preparation for Installation

Before you order the panel's size and quantity; The installation area should be checked, the vehicle entrance and the crane layout plan should be made, the crane should be selected suitable for the height of the panel and panel packages and the weight of the panel and the height of the building, and the construction on which the panel will be mounted should be checked in accordance with the technical rules.

Care should be taken to ensure that the purlins are straight in length (lateral deflection) and that there are elevation differences between the purlins and the purlin and rain gutters are in the same plane and that the construction on the facade is horizontally on the rope and square and vertically in the plumb-bob and in the balance. Otherwise, there will be connection flt problem at the joints of the panel. Please check on- site measurements before you give your orders. Please check that the quality of the product you ordered is compatible with the packing list. Please check the products (size/piece) you receive with the packing list. Please check the solidity of the panels in the container or vehicle before unloading. The claims will be evaluated only if they are detected in the container/vehicle before unloading. The claims will be evaluated only if they are detected in the same container/vehicle they are loaded in GEOPANEL. GEOPANEL is not responsible for the physically harmed panels, if they are transferred to another container/vehicle or unloaded or installed.

2. Loading

The roof/facade and entire sandwich panel package length to be shipped shouldno-texceedthelengthofthecontainer/vehicletobeloaded.According to the demand; panels, which are longer than the length of the container/ vehicle used for delivery, are not covered under warranty.
The vehicle that will make the shipment must definitely be suitable for side loading. All side supports of the selected vehicle must be detachable. Please make sure with your sales representative that the correct type of vehicle is sent to the factory.
Side and rear covers must be closed after loading. Particular attention should be at paid to the smoothness and cleanliness of the floor of the vehicle body and the body length of the vehicle should be chosen in accordance with the panel length, and the panels should not overflow from the vehicle body. Each vehicle must have at least 10 safety ropes. Angle iron (plastic, wood, etc.) with 20 - 30 cm in the width should be placed with a maximum of 2 meters intervals, so that the safety ropes do not damage the panel edges and joints. For packages with a panel length of 10 m or more, at least 2 safety ropes(1 meter after the beginning and end) must be thrown in the second row.

A anti-shock and anti-friction protective material (EPS wedge, wooden wedge, etc.) should be placed between the panel packages stacked side by side and on the panel package foreheads. The tension of the safety ropes should be checked after the first 30 km when the vehicle sets out. Then, the safety ropes should be checked once in every 100 km and the package slip check should be done. The vehicle width should not be less than 2400 mm and the vehicle speed should be 70 km/h while driving the vehicle. No additional loads should be loaded on the vehicle to be loaded, except for the knowledge of authorized GEOPANEL personnel. No any other load is allowed on the panels. Otherwise, our products will be considered out of warranty as they may be damaged for container loadings, a hole is drilled on the lower skid. During loading, l holes is towards the door. During the unloading process, the tip of the apparatus is attached to the holes, the rope is connected to the tip of the apparatus, and the unloading process is carried out safely with the pulling operation by taking support from the lower skid.
The lower skid, tow bar and rope equipment to be used in the unloading operations are provided by GEOPANEL to the customers with the products. Container type loaded in general conditions: 40 HC
Please remember the claims will be evaluated only if the panels are not transferred or unloaded. The claims will be evaluated in the containers loaded in GEOPANEL.

The products are not suitable for transshipment and hard handling. Products are not suitable for long-term storage.

Vehicle Loading Table

Panel Type	Insulation Thickness	Insulation Thickness (mm)	Piece / Package according to Facade / Roof Panel Lengths			
			Domestic Transportation (6 package/Vewcle)		Container (4 Package/ Container)	Closed Vehicle (6 package/Vehicle)
3,4 and 5 Ribbed Roof Panel	Polyurethane (PUR) Polyisocyanurate (PIR)		280-900 m	900-1360 m	280 - 119 m	250-1360 m
		30	18	18	22	16
		40	14	14	18	12
		50	12	12	16	10
		60	10	10	14	8
		70	8	8	12	8
		75	8	8	12	6
		80	8	8	10	6
		100	6	6	8	6
		120	6	6	8	4
		150	5	5	6	4
Wall Panels	Polyurethane (PUR) Polyisocyanurate (PIR)	40	20	20	27	16
		50	16	16	22	14
		60	13	13	18	12
		70	11	11	15	10
		75	10	10	14	10
		80	10	10	13	9
		100	8	8	11	7
		120	7	7	9	6
		140	6	6	8	(max. 5)
		150	6	6	7	4
		180	5	5	6	4
		200	4	4	5	4
Wall Panels	Polyurethane (PUR) Polyisocyanurate (PIR)	50	12 (max)	12 (max)	(max. 16)	10
		60	10	10	(max. 14)	8
KRAFT	Polyiso PIR/PUR	30	28	28	36	25
		40	22	22	28	18
		50	17	17	22	15

3. Unloading

The panels on the vehicle should be unloaded in the packages to the roof or the construction site via a crane or forklift with speciflc apparatus. Speciflc crane should be selected as there will be differences in package sizes and weights. Packages with a panel length of 1 to 8 meters should be unloaded with a 4-blade forklift apparatus, and panel packages of 8 meters and above should be unloaded with a 6-blade forklift apparatus. Stacking for packages on the roof should not be placed in a single span and and should not be on top of each other be on top of each other, packages should be placed on the roof at appropriate intervals.
When lifting with a crane; steel cables or chain ropes should not be used. Flat ropes should be used and they should be nylon, silk or hemp. Their width should be at least 20 cm. Wooden wedges or a material that will protect the edges of the panel must be placed where the ropes touching the panels. Wedges should be 3.5 cm in the length from both sides of the width of the pack. In the same way, wedges with same size as the lower wedge should be placed at the points where the rope touches the top of the package.

The ropes must have the required lengths. Otherwise, the panel over laps will be damaged. (Figure 1) Packages longer than 6 meters should be lifted with speciflc apparatus. (Fig. 2). The length of the apparatus to be used should be at least half of the minimum panel length. One pack at a time should be lifted in the upright/upward way. Fractures that are claimed to be on the surface of the panel will be evaluated if they are detected and documented before they are unloaded from the transport container/ vehicle. PANELSAN is not responsible if the cracks on the panel surface are detected after they are unloaded from the transport container/vehicle. Loading must be done in such a way that it does not exceed the container/ vehicle capacity. Responsibility for loadings exceeding the vehicle capacity belongs to the customer.

Figure 1

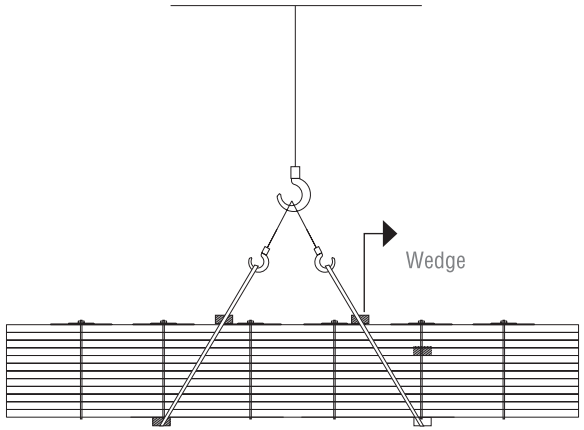
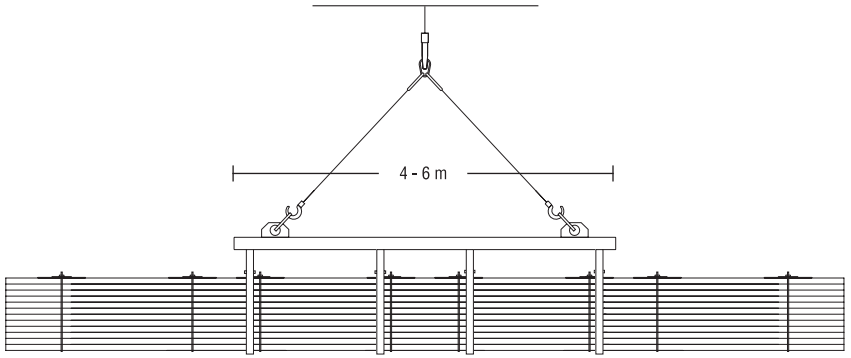


Figure 2



4. Storing

If the panel packages are to be stored unopened, they should be stored in a closed environment protected from water. Panel packages should be stored on a low slope (2-3%) surface to protect them from water vapor. Before and during installation, it should be prevented that the panels come into contact with substances that may cause corrosion such as soil, lime, mortar, fertilizer, acid, salt and alkali. Operations that will create scratches on the material should be avoided.

If it is to be stored in an open environment, in order to protect it from water and the effects of the sun, their upper part should be covered with a UV resistant nylon tarpaulin in a way that will not cut off the air flow and will not form a steam-pool. It should be lifted at least 20 cm above from the ground (Figure 3-4). Care should be taken not to stay in the open environment for more than 1 week and humidity control should be done at the beginning of every day despite the precautions taken for each stocked package.

To avoid crushing the panels, panel packs should not be stacked on top of each other and in a way that there will be a weight on them (Figure 5).

The protective films used on the outer surfaces of the panels are a precaution against scratches that may occur during the transportation and installation of the panels. This film should be removed from each panel immediately after its installation. Because, the film will stick to the painted surface with the effect of heat and sun, it will be difficult to remove it and it will damage the paint (Figure 6). The protective films of GEOPANEL sandwich panels must be removed within 1 month from the production date. Otherwise, complaints about the film will not be taken into account, and the panel will not be covered by the warranty. The opened panel package should be stored at the end of the working day, by renewing its package and taking the necessary occupational safety measures and taking precautions so that it is not affected by external weather conditions.

Figure 3

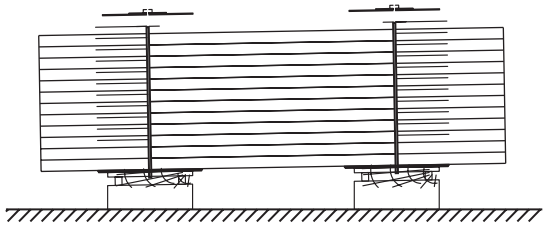


Figure 4

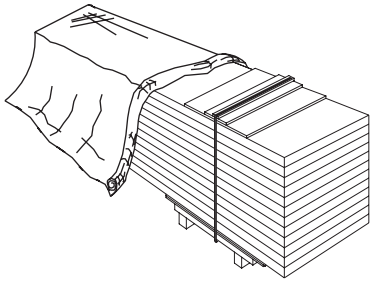


Figure 5

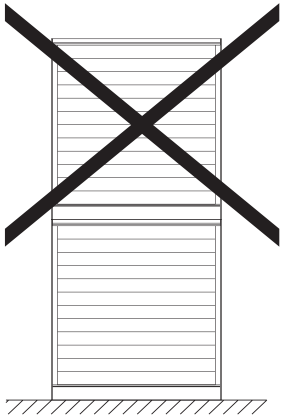
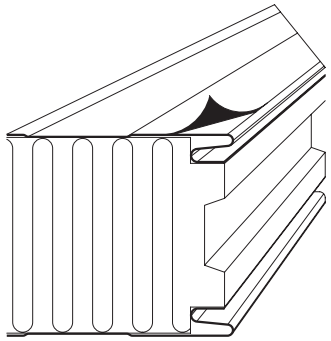


Figure 6



5. Handling

After the panel packages are opened, do not pull the panel. Please lift it. Lift all panels one by one not to scretch the lower panel. Perform the lifting operation with vertical lifts (vacuum- dovetail, special apparatus) or with suficient manpower (Figure 7-8-9). Never lift the panels by holding at the connection ends or at the overlaps. Otherwise the sheets will be seperated from the core which is not under warranty.

Figure 7

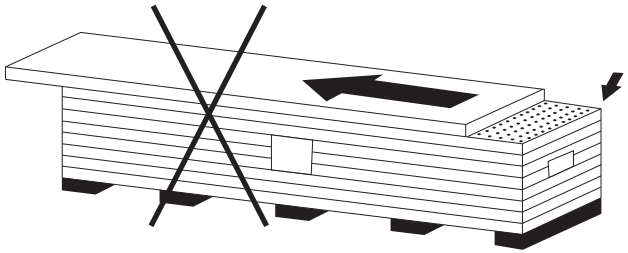


Figure 8

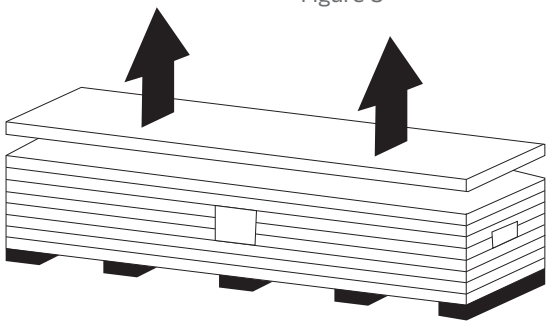
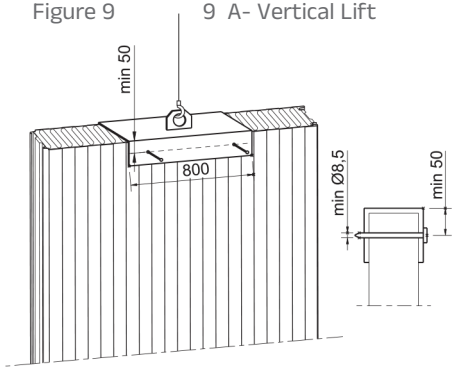
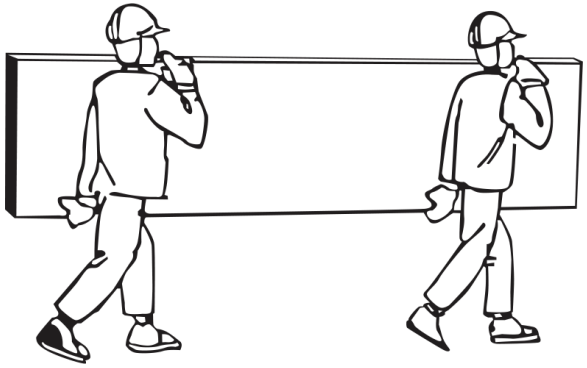


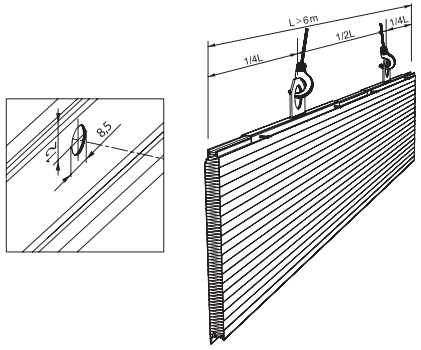
Figure 9 9 A- Vertical Lift



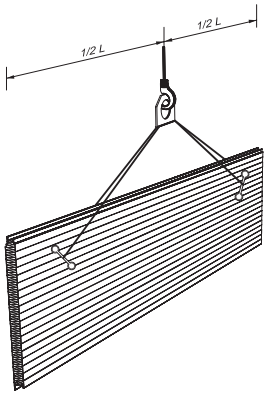
9 B- Manual Transfer



9 C- Lift



9 D- Vacuum Lift

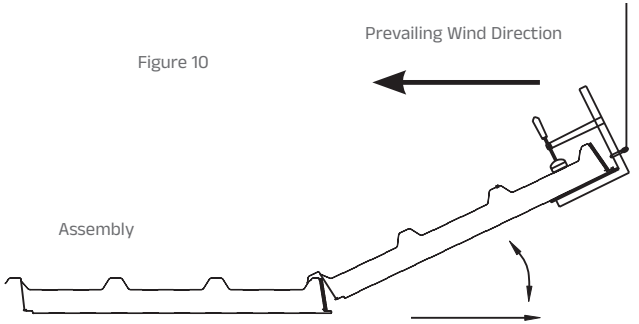


6. General Installation Rules

After the control of the carrier to which the panel will be attached and the unloading of the material, the prevailing wind direction in the field is determined.

According to the connection detail of the roof panel and the vertical or diagonal facade panel, laying starts against the prevailing wind direction (Figure 10).

Figure 10



Adhesive sponge (min. 2 / 10mm) should be applied to the surfaces where the carrier system and the sandwich panel come into contact with each other and to the surfaces where the sandwich panel and accessory materials come into contact with each other. This application will prevent thermal bridges and corrosion caused by metal-to-metal contact.

If possible, the accessories of the assembled panels should be closed immediately. If there is no such opportunity; precautions should take against humidity, and the open parts of the panel should be covered with nylons. In order to avoid problems caused by the highwater absorption capacity of the rockwool panel, the panels should be protected against moisture as long as the installation continues. While mounting the accessories, mastic should be applied 2 cm from the inside of the accessories (transverse and longitudinal) to prevent air and water intrusion. In cold room panels, there is 2 mm mastic gap at the panel joints. It should not be forgotten that these areas should be insulated with mastic from the inside and outside.

While selecting the screws to be used as fasteners;

- Screws with high corrosion resistance, suitable for panel thickness and type, suitable for the thickness and type of the carrier to be connected, should be selected.

It should be checked whether the drilling capacity of the screw is

appropriate not. In addition, the correct screw should be selected by calculating the load that the panel will give to the screw.

- While the panels are being assembled, the screws should not bedriven in absolutely (except concrete screws), they should not be screwed in a tight or loose way more than adequate by using the appropriate torque setting, they should be screwed correctly (Figure 11 A). The metal coating of the panel facing inwards should be connected to the carrier column, but the outer metal screwed should be screwed without losing its form (crushing due to screwing) (Figure 11 B-C). Because mineral wool insulated panels are fibrous and flexible, screwing should be done with metal fastening plates (Figure 12). Plates suitable for the connection detail of the panel should be selected; screwing on roof panels should be done with a saddle profile with EPDM gasket and suitable for dent dimensions. (You can request saddle profiles suitable for your roof from your GEOPANEL customer representative.)

Figure 11 A

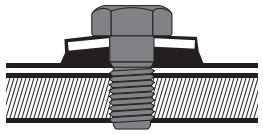


Figure 11 B

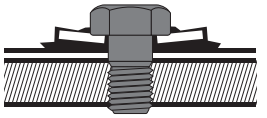


Figure 11 C

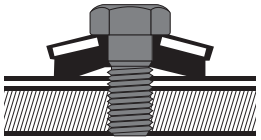
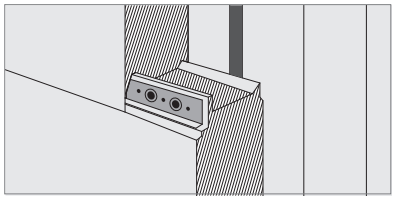


Figure 12



- After removing the protective films, care should be taken to ensure that the installed surface is on the same side.
- In the panels shipped on a lot basis, the same lot production should be installed on the same façade in order to avoid color tone difference – Necessary care should be taken for special warning labels during installation.
- During installation, attention should be paid to actions carried out in the field such as cutting, welding and similar processes that may cause burr formation and affect the surface of the panels.

During the installation of the Membrane Panel;

- Before starting the welding process, it should be ensured that the application surface is clean and dry.
- During installation, it is necessary to cover the screws used in such a way that they cannot be seen while welding.
- Membrane welding should be done with a specific welding machine and at a suitable temperature.
- Welded joints must be flat. Accumulation of water and similar should be prevented.
- When the membrane panel installation is finished, the surface should be cleaned. Scratches, punctures and similar material that may cause deformation should not remain on the surface.
- After the installation is completed, the surface should not be pressed to prevent deformation. If necessary, a walking path should be made. If a dark color is chosen on the outer surface of the panel, the following conditions must be followed in order to minimize the deformation;
- The construction where the panel will be installed must be flawless in both horizontal and vertical directions.
- The team that will do the panel installation must be experienced and act in accordance with the installation, lifting and unloading rules and conditions.
- Screws and equipment specific for the panel and construction should be selected and assembled with the appropriate torque.
- The project should be evaluated well and panel and metal thickness should be selected in accordance with static tables (load bearing tables).
- In the panels shipped on a lot basis, the same batch production should be installed on the same facade, to prevent tone difference on the same surface. – Necessary care should be taken for special warning labels during installation.
- On roof and facade panels, the “Panel Lengths by Color Groups” table should be taken as a basis for panel lengths.
- In order to minimize thermal stress, the air temperature on the day of installation should be minimum +10 °C and above.
- Facade panels should be installed with a single opening system

Sandwich panels are long-lasting products. For this reason, even though it is completely flat when it leaves the factory, it can be exposed to different factors (load carrying, wind, pressure, indoor-outdoor temperature difference, etc.) over time. These factors can cause deformation on the flat surface and loss of surface smoothness. For this reason, even if all these conditions are fulfilled, GEOPANEL does not guarantee and does not take responsibility for homogeneous smoothness on outer surfaces in the dark color group.

7. Maintenance and Repair

In order to prolong the life of sandwich panels, the panels should be checked at least once a year in line with the questions below, and if necessary, assistance should be requested from GEOPANEL in return for a fee.

- Are there any loose, broken or displaced screws?
- Are there any tears or scratches on the panel surface?
- Is there an area that receives water?
- Do sealants need to be renewed?
- Are there any accessories that deteriorate with the effect of weather conditions?

Panel surfaces should be washed once a year with non- pressurized water, if there are stains, they should be cleaned with water-based liquid dishwashing detergent and a soft sponge without pressing. (Consult the company for non-removable stains. Never do any chemical treatment.)

If there are small scratches on the surface of the panel that do not go down to the metal, it should be repaired with an air-drying touch-up paint and a painter's brush, depending on the paint type, by getting information from the company. (You should know that there will be a tonal difference even if you have the same type and color of paint. For this reason, it is recommended to experiment in a small place.).

If there are scratches on the zinc (galvanized) layer on the panels, and if there are panels that have been crushed by an external force, they should be replaced with new ones immediately. If these rules are followed, the usage period of the panels will be extended.

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