



50
YEARS
Pioneering
Progress

Technical Supplies & Services Co.

Advanced Building, Housing & Cold Chain Systems



- Design
- Engineering
- Manufacturing
- Supply



// Innovation is our Culture //



Value Engineered Turnkey Solutions for the Housing, Building Construction and Cold Chain Industries



27 Different
Product Lines



More than
50 years
Manufacturing
Expertise



Exports to
Over **70**
Countries



Manufacturing capacity of over
10 Million Sqm of Insulated Panels
3 Million Sqm of Light Weight
Concrete Panels

Established in 1973, TSSC, a member of Harwal Group, is the largest building materials manufacturer and refrigeration solutions provider in the GCC region with an annual conversion capacity of over 100,000 tons of metal and 200,000 tons of polymers. Headquartered in the UAE, TSSC employs more than 5000 professionals globally across its facilities in UAE, KSA, Russia, China and Mexico.

We provide a complete building package backed by exceptional service from initial concept through detailed 3D design, engineering, manufacturing, installation and project handover. Our one stop solution caters to commercial, industrial, and residential applications.

- Steel Buildings
- Building Envelopes
- Built on Site System Homes
- Prefabricated Houses
- Architectural Roofing
- Specialized Shelters
- PIR and Mineral Wool Panels
- Cold Stores
- Industrial & Commercial Refrigeration
- Refrigerated Vehicles
- Windows & Facades
- Hot Dip Galvanizing
- Powder Coating

Our Certifications





"Our aim has always been to provide innovative and high quality products and services that meet our customers' needs. We are sensitive to our most valued resources, our people, and to the environment while maintaining our fundamental values and achieving long term success."

**HAROUT OHANESIAN
CHAIRMAN & C.E.O**

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Partners & Business Associates



Interplast Co. Ltd.



US Polymers Inc.



هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority



هيئة كهرباء ومياه الشارقة
Sharjah Electricity & Water Authority



DAMAC



|||| MERAAS





Design . Value Engineering . Manufacturing

With years of experience in designing, engineering, production, and installation of buildings, TSSC takes a value engineering approach to every project to ensure quality and cost efficiency. Our team of designers and engineers backed by advanced software, MBS, StaadPro, Tekla, Revit, AutoCad and 3DS Max provides extensive support for building systems.

- **Engineering drawings and detailing**
- **Structural, Thermal, Acoustic and Fire Safety Engineering**
- **Building information modelling (BIM)**





Manufacturing Process with Advanced Technologies

TSSC specializes in using the latest leading-edge technology to produce and distribute a range of building materials

■ Specialized Sheet Metal Processing

CAD/CAM-based manufacturing systems produce prefabricated members, purlins and frames for multi-storey buildings, industrial buildings such as warehouses, and other building construction units such as labor camps, modular containers, residential houses, etc. Our purlin lines are based on the most reliable roll forming and sheet-working technologies providing flexibility and accuracy in purlin production.

TSSC is the only company in the region to manufacture C, U, Z and Sigma profiles with widths of upto 400 mm and 4mm thickness.



■ QuintaCore 5G – Insulated Panel Technology

Known for its technical excellence and manufacturing precision, TSSC offers QuintaCore, a next generation self-blended insulation core. This innovative development in insulation technology, features distinctive advantages such as

- Efficient thermal performance
- Superior fire protection
- Environmental benefits
- 20 years guarantee for thermal and structural performance

QuintaCore Technology is used across our range of insulated panels to deliver fire safe and thermal efficient building envelopes and cold store systems.



■ Metallic Textured Technology

TSSC continues to promote value engineering as an effective approach to building systems and introduces to an innovative Metallic Textured Technology.

Insulated panels with metallic textured finish exhibit aesthetic values sought by many designers and owners. They are an effective method to construct an airtight building envelope and for building renovation. The superior texture steel is extremely strong, impact and abrasion resistant which provides

- Value engineering for project savings
- Superior strength and performance
- Aesthetically appealing textured finish

■ Continuous Sandwich Panel Lines

Our fully automated plants for continuous production of PIR and mineral wool sandwich panels and high- speed roll forming machines can provide efficient and flexible production of corrugated profiles and flat sandwich panels, for roof and wall applications especially for industrial cold rooms and building construction.

State-of-the-art, computer-aided electronic systems ensure maximum operating safety and allow easy change over.





Sandwich Panel Manufacturing



Cold Rolled Steel Profile Manufacturing



ACP Fabrication

Manufacturing Centres Worldwide - UAE | KSA | RUSSIA | USA



GRP & Polycarbonate Skylight Manufacturing



Automated Profile Cutting



Stainless Sheet Processing



CELSIUS Chillers Assembly Line



Hot Dip Galvanizing



Cold Store Panel Manufacturing



Roll Forming



Coil Coating Facilities



EASYWALL (Light Weight Concrete Panel) Panel Production



Polyurethane Blending Plant

Building Systems



Commercial Buildings



Logistics Centers



Distribution Centers



Residential Buildings



Food Processing Facilities



Light Industrial Buildings



Airport Hangars

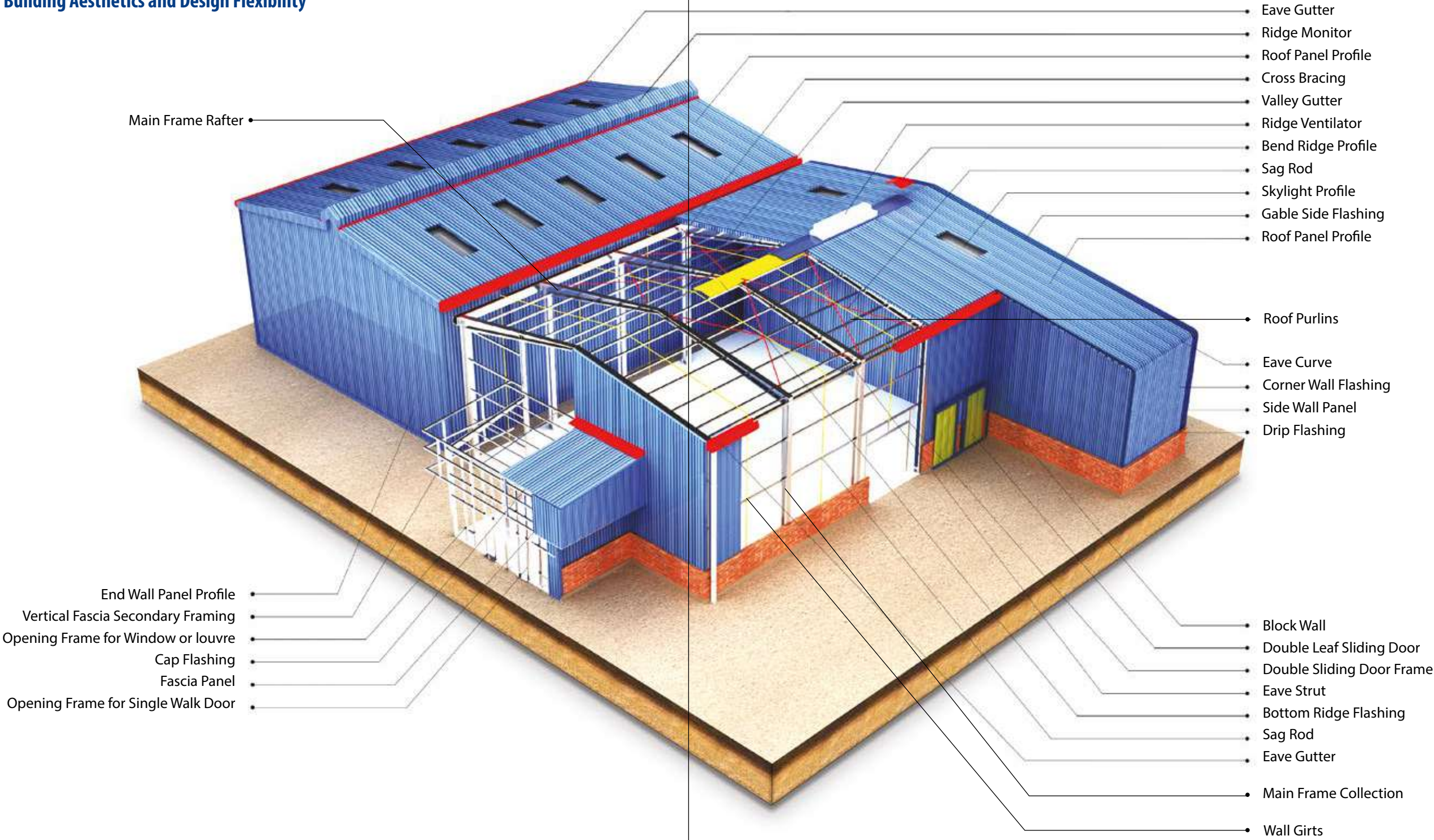


Large Warehouses

Your One-Stop Supply Source for High Performance Integrated Building Systems With Steel Structures and Envelopes

We Design, Manufacture, Supply an unrivalled range of compatible systems for building envelopes which deliver exceptional results in terms of **Fire safety, Thermal Insulation, Operational costs, Acoustic Insulation, Low maintenance, Building Aesthetics and Design Flexibility**

- | **Steel Structures** - Pre-Engineered, Hot Rolled and cold-rolled steel Structures
- | **Roof & Wall Panels** – Wide range of single skin and insulated panels, skylights and accessories
- | **Standing Seam Roofing** – FM approved roofing system
- | **Skylight Systems** - GRP and Polycarbonate roof and wall panels for natural daylight
- | **Façade Systems** – Aluminium Cladding with A2 Fire Rating
- | **EASYWALL** – Fire Rated Lightweight concrete wall panel
- | **Industrial Doors** – Energy efficient doors
- | **Aluminium Louvres, Windows & Doors** – Customized aluminum and uPVC doors and windows



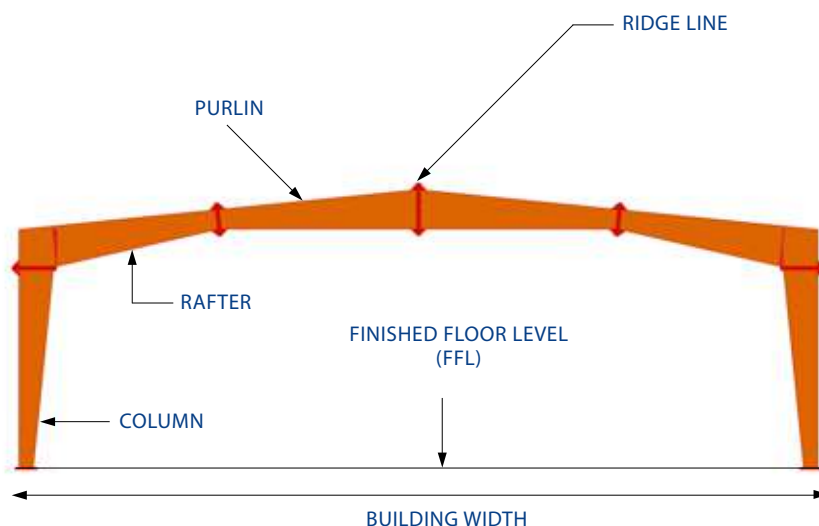
Pre-Engineered Buildings (PEB)



Pre-Engineered Steel Buildings allow large scale and design specific constructions in a short time. These types of buildings are the most ideal construction solutions for industrial structures, commercial buildings, hospitals, sports facilities, cultural centers, social facilities, warehouses, hangars etc.

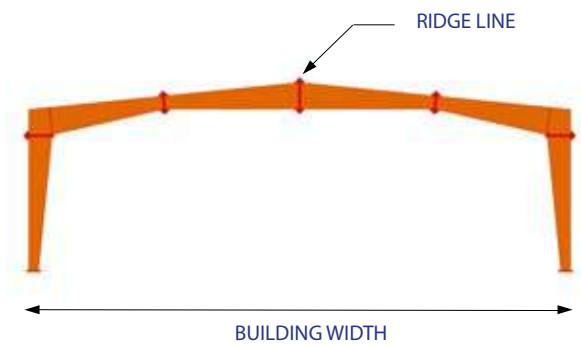
PEB Structures can be integrated with different structural systems: cranes, mezzanine, canopies, fascias, partitions based on client requirements.

Pre-Engineered Steel Buildings can be finished internally with different structural accessories including mezzanine floors, canopies, fascias, interior partitions, etc. to serve multiple functions. The buildings can be externally accessorized to achieve attractive and unique architectural designs. The system is quite versatile and has many advantages over conventional buildings.

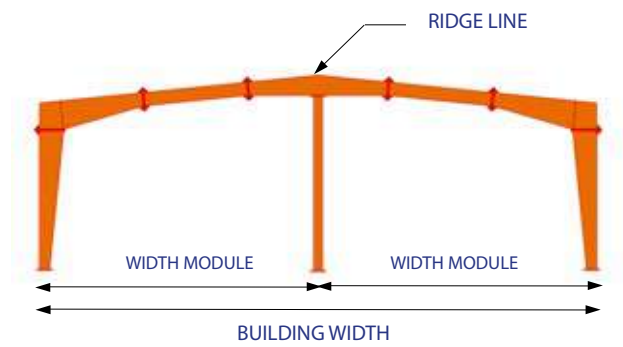


Applications Of Pre Engineered Buildings (PEB)

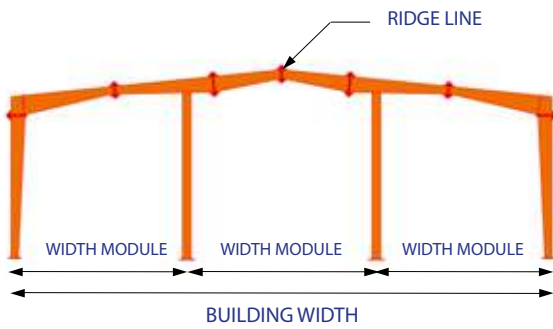
- Warehouses
- Factories
- Workshops
- Offices
- Vehicle Parking Sheds
- Healthcare Facilities
- Showrooms
- Aircraft Hangars
- Recreational Facilities
- Indoor & Outdoor Sports Facilities
- Railway Platform Shelters



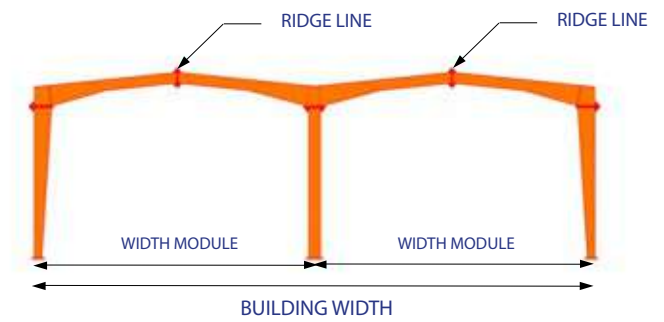
Clear Span



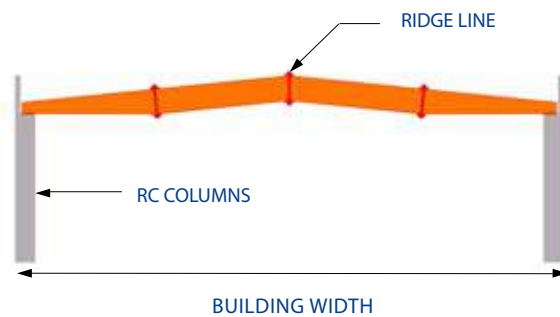
Multi Span "1"



Multi Span "2"

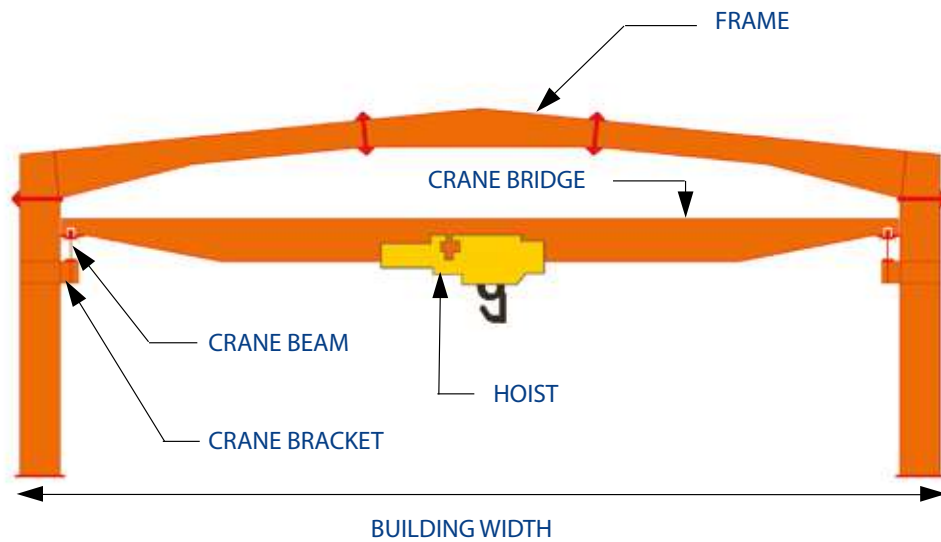


Multi Gable



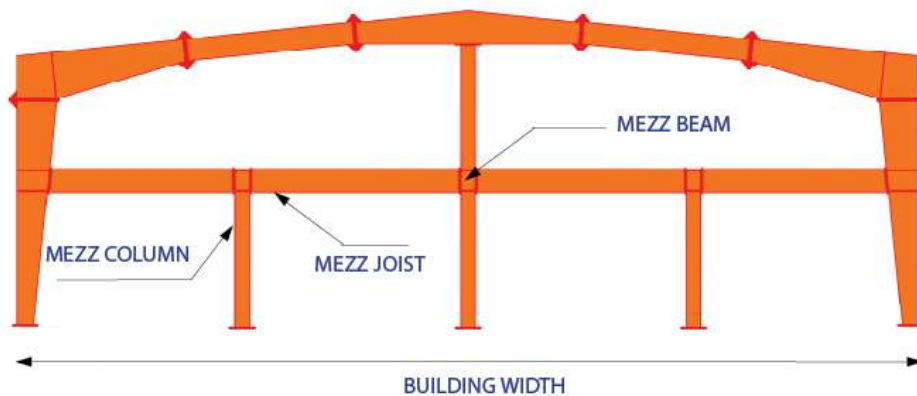
Roof System

Top Running Crane in a Clear Span Building



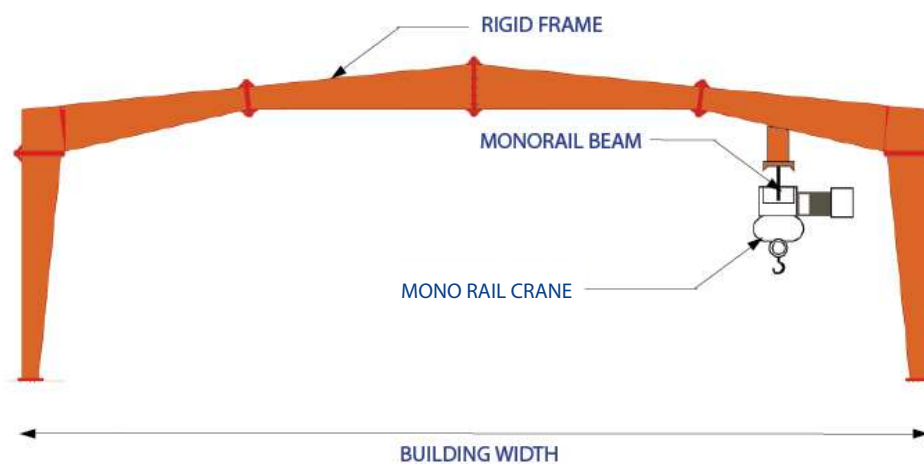
Mezzanine

The mezzanine framing consists of joists, beams and a profiled steel deck for concrete and is an elevated floor for use as office or store area. The mezzanine framing is connected to the main frame and intermediate columns for support.

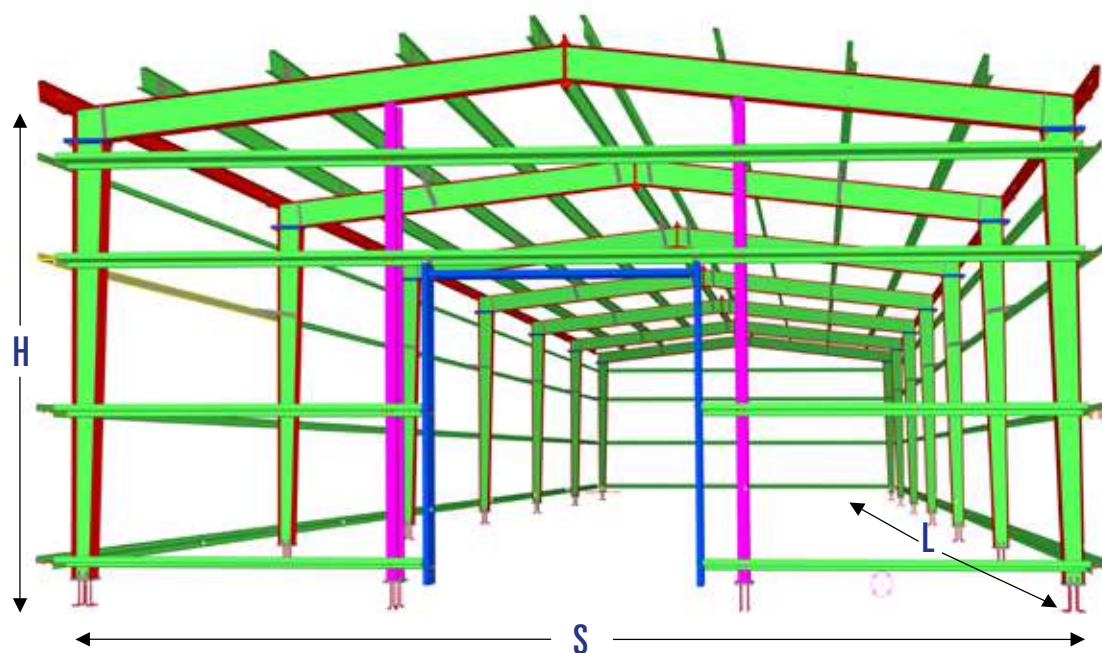


Cranes

TSSC offers various types of crane systems which help to improve material handling efficiency and increase productivity.



■ Pre-Engineered Buildings



■ Standard Sandwich Panels Include

Top Skin: 0.4mm - 0.7mm
GI & Aluminium
Smooth & Embossed Texture
Flat & Corrugated

Density: $36 \pm 4 \text{ kg/m}^3$ PIR

Thickness: 30mm - 250 mm

Liner Sheet: 0.2mm- 0.7mm AL & GI

Note: Any other specifications are upon request.

■ Ready Made Standard Sizes

SPAN S (m)	7	10	12	15	18	20	24
EAVE HEIGHT H (m)	3	3 4	3 4 5	4 5 6	4 5 6 7	4 5 6 7 8	4 5 6 7 8
LENGTH L (m)	Structures with Bay spacing of 5 Meters can have indefinite length. View our structural configurator on tsscbs.com for costing.						

General Notes

- Wall - Full height sheeted single skin/sandwich panels and/or light weight easy wall
- Roof – Single skin or sandwich panel
- Customized sizes are available on demand

■ Structural Design Criteria - Pre-Engineered Buildings

DESIGN CODES	
Hot Rolled Sections and Built up Sections	In Accordance with Manual of Steel Construction – Allowable Stress Design American Institute of Steel Construction, Inc. (AISC)
Cold Formed Members	In Accordance with North American Specification for the Design of Cold-Formed Steel Structural Members American Iron and Steel Institute (AISI)
Structural Welding	In accordance with Structural Welding Code Steel Manual (AWS D.1.1/D.1M:2008) American Welding Society (AWS)
DESIGN LOADS	
Minimum Design loads in accordance with MBMA (Metal Buildings Manufacturers Association) ASCE 7 (American Society of Civil Engineers)	
	
STANDARD LOADS	
Dead Load	
Collateral Load	
Live Load	
Wind Speed	
Wind Exposure	





Cold Rolled Steel Structures

Fast and RE-Deployable

TSSC designs and value engineers Cold Rolled Steel Structures and accessories using advanced design softwares and fully automated manufacturing process.

Benefits of Cold Rolled Steel :

Cost

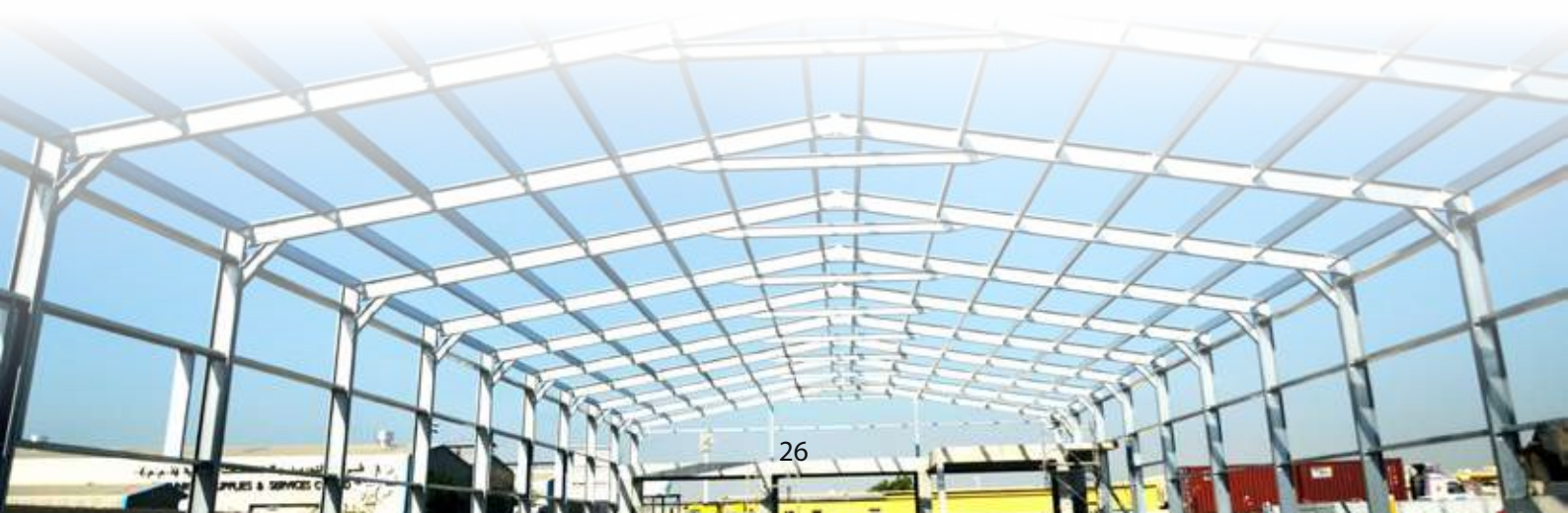
- 100% Pre-fabricated at the factory, ready for installation
- Eliminate on-site welding or fabrication
- The design, fabrication and erection of COLD ROLLED STEEL frame construction is economical efficient.

Speed

- Faster manufacturing time compared to other building systems.
- Assembled using nuts and bolts allowing shorter construction and erection time
- Dry wrapped/covered structure can be delivered quicker

Quality

- Advance design software produces and ensures accurate and consistent quality U,C,Z and Sigma sections.
- Controlled environment for galvanizing steel with certified mill certification.
- Frame system allows easy integration of cladding such as single skin panels, insulated composite panels , aluminum composite panels, rockwool panels, and light weight concrete panels (EASYPANEL).
- Steel is 100% recyclable and is considered a green building material

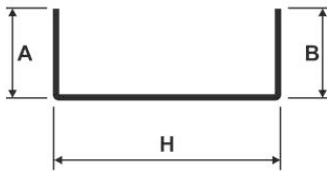
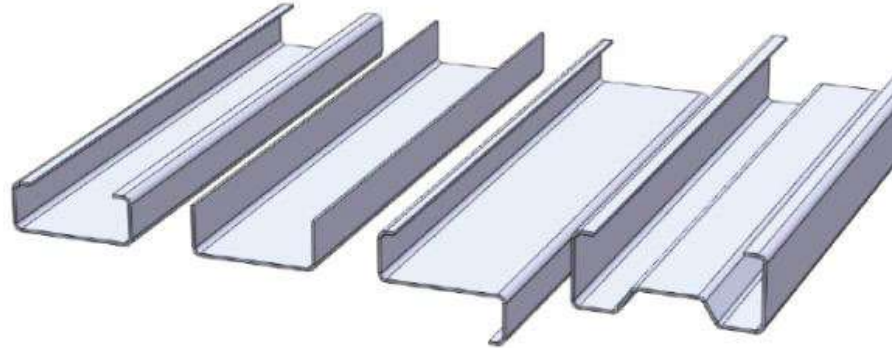


Applications

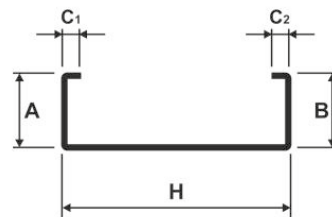


■ Structural Components

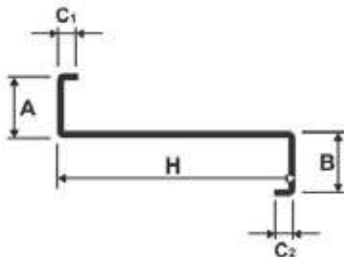
C, Z, U and Sigma Profiles which act as primary or secondary structural elements, are accurately roll formed from high-strength zinc-coated steel. These profiles are used in a wide range of industrial and commercial applications and provide an efficient, lightweight and economical solution.



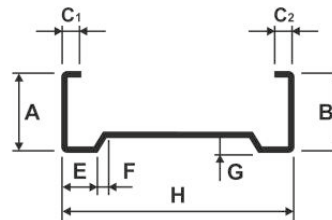
$H = 100 - 400 \text{ mm}$ $B = 50 - 100 \text{ mm}$
 $A = 50 - 100 \text{ mm}$ $T = 1.0 - 4.0 \text{ mm}$



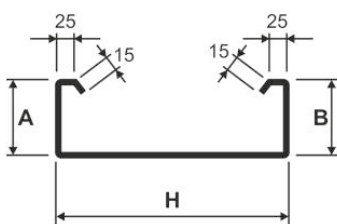
$H = 100 - 400 \text{ mm}$ $C^1 / C^2 = 15 - 30 \text{ mm}$
 $A = 50 - 100 \text{ mm}$ $T = 1.0 - 4.0 \text{ mm}$
 $B = 50 - 100 \text{ mm}$



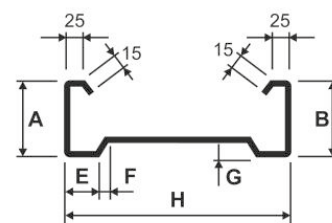
$H = 100 - 400 \text{ mm}$ $C^1 / C^2 = 15 - 30 \text{ mm}$
 $A = 50 - 100 \text{ mm}$ $T = 1.0 - 4.0 \text{ mm}$
 $B = 50 - 100 \text{ mm}$



$H = 180 - 400 \text{ mm}$ $G = 25 \text{ mm}$
 $A = 50 - 100 \text{ mm}$ $F = 15 \text{ mm}$
 $B = 50 - 100 \text{ mm}$ $T = 1.0 - 4.0 \text{ mm}$
 $C^1 / C^2 = 15 - 30 \text{ mm}$



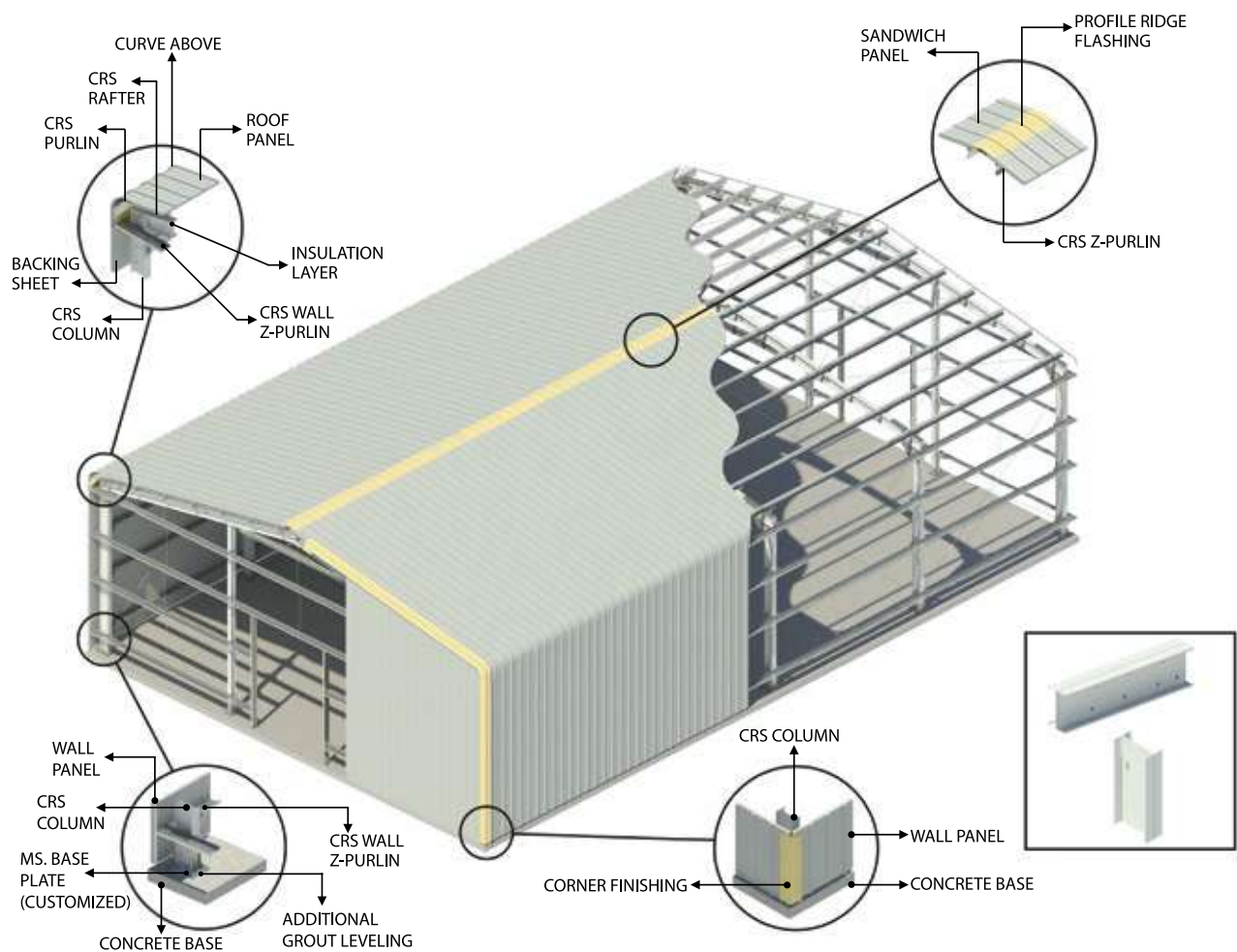
$H = 100 - 400 \text{ mm}$ $A=B = 85 - 100 \text{ mm}$
 $\text{Lip} = 15+25 \text{ mm}$ $T = 1.0 - 4.0 \text{ mm}$



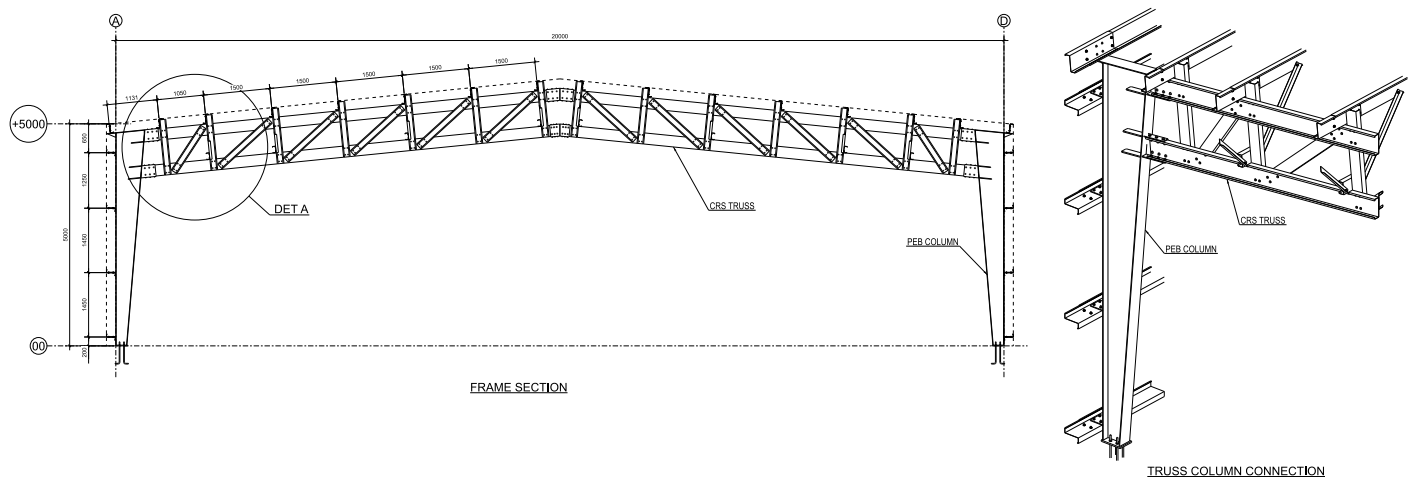
$H = 180 - 400 \text{ mm}$ $G = 25 \text{ mm}$
 $A=B = 85 - 100 \text{ mm}$ $F = 15 \text{ mm}$

CRS Warehouse System Components

Rafter Design



Truss Design



Insulated Roof & Wall Composite Panels

Our composite panel range represents a complete system of pre-insulated monolithic metallic panels, which increases speed of build for building roofs, walls and inner partitions for industrial and civil structures.

These composite panels feature a unique sandwich construction that is the result of injecting polyurethane, rockwool or polyisocyanurate as the core material between two rigid facings.

I TSSC Sandwich Panels



TSSC insulated composite panels are available in different profiles, finishes and colors and offer the following advantages:

- Excellent thermal insulation
- Good noise reduction factor
- Light weight
- Structurally sound building elements
- Resistance to Fire



In addition, with TSSC's insulated composite panels you get a wide variety of quality facing materials to choose from, including:

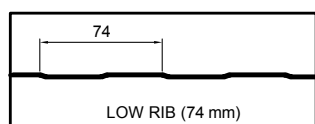
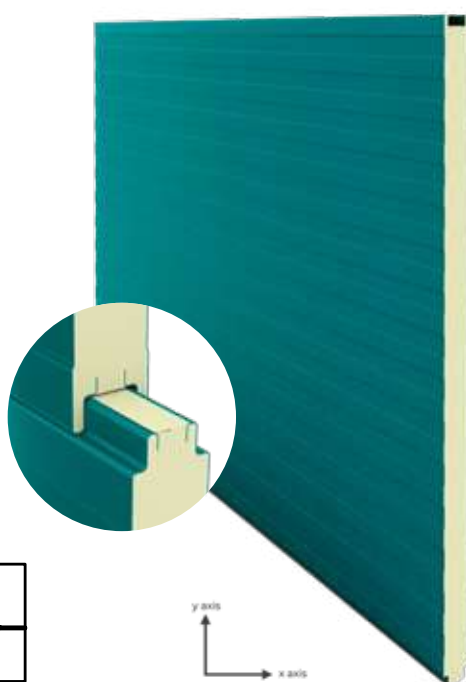
- Plain and corrugated finish
- Pre-painted and mill finished in aluminum, aluzinc or galvanized steel



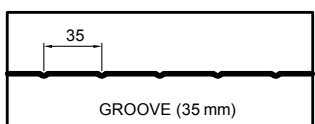
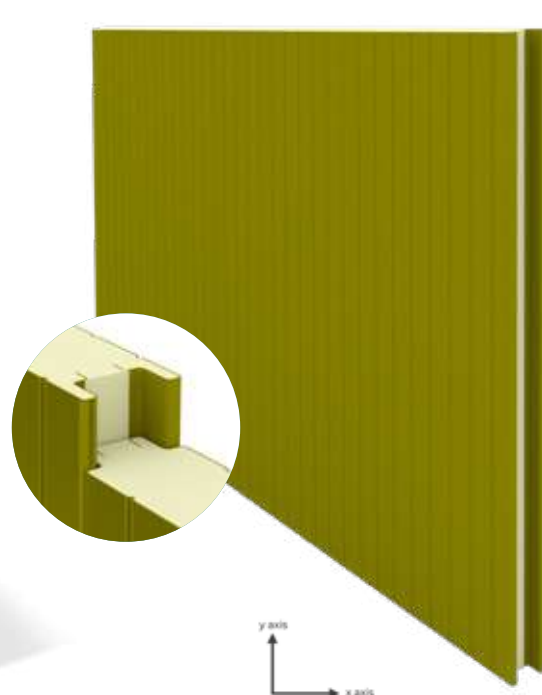
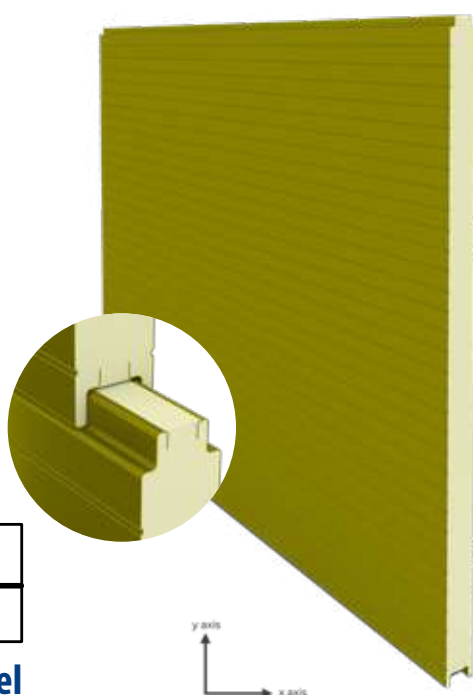
ISO Wall PIR Panels : Non Concealed Exposed Fasteners

TSSC's FM approved insulated flat wall panels help you create stunning wall facades to suit your building design specifications. TSSC ISO Wall Panels can be installed vertically or horizontally and offer excellent thermal efficiency, strength and act as a perfect vapor barrier.

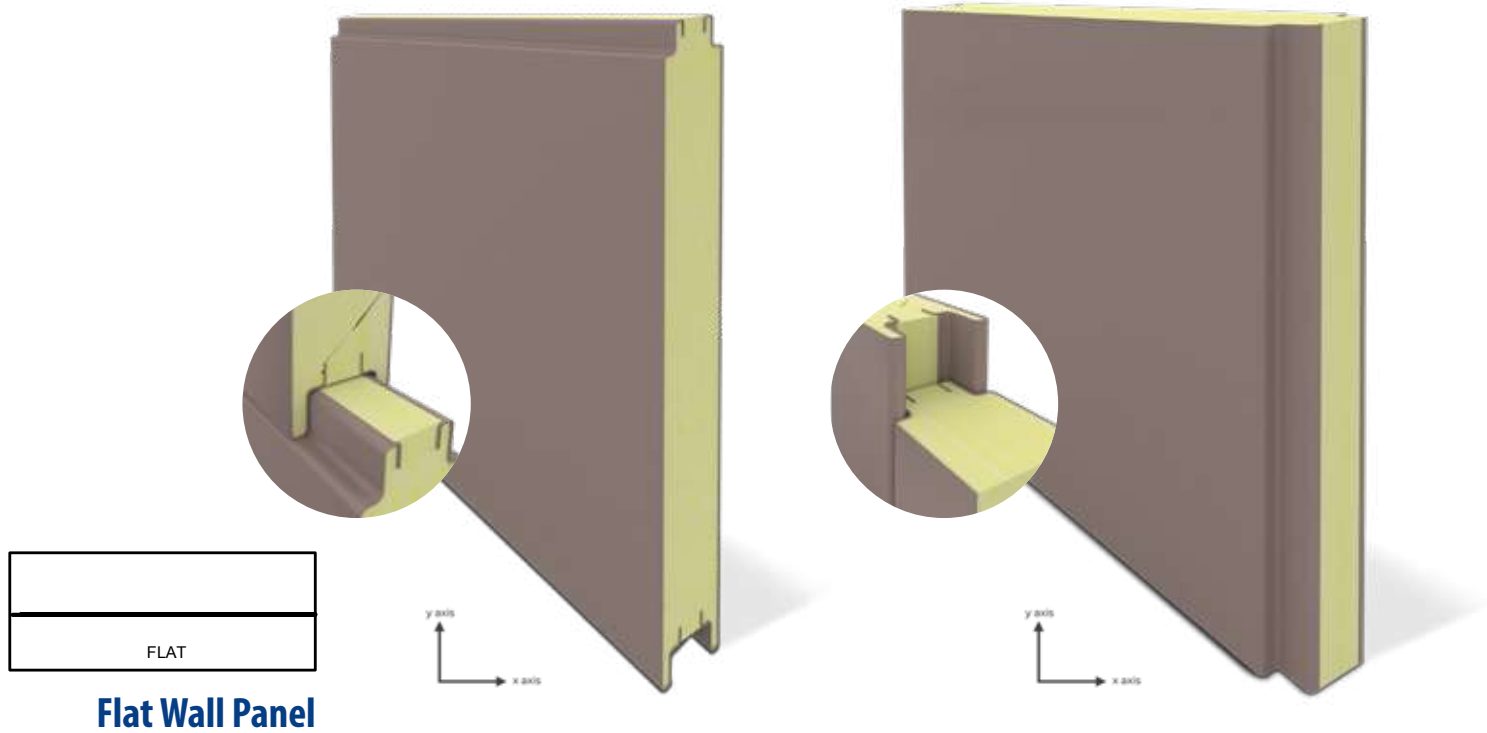
T = 24, 40, 50, 55, 75



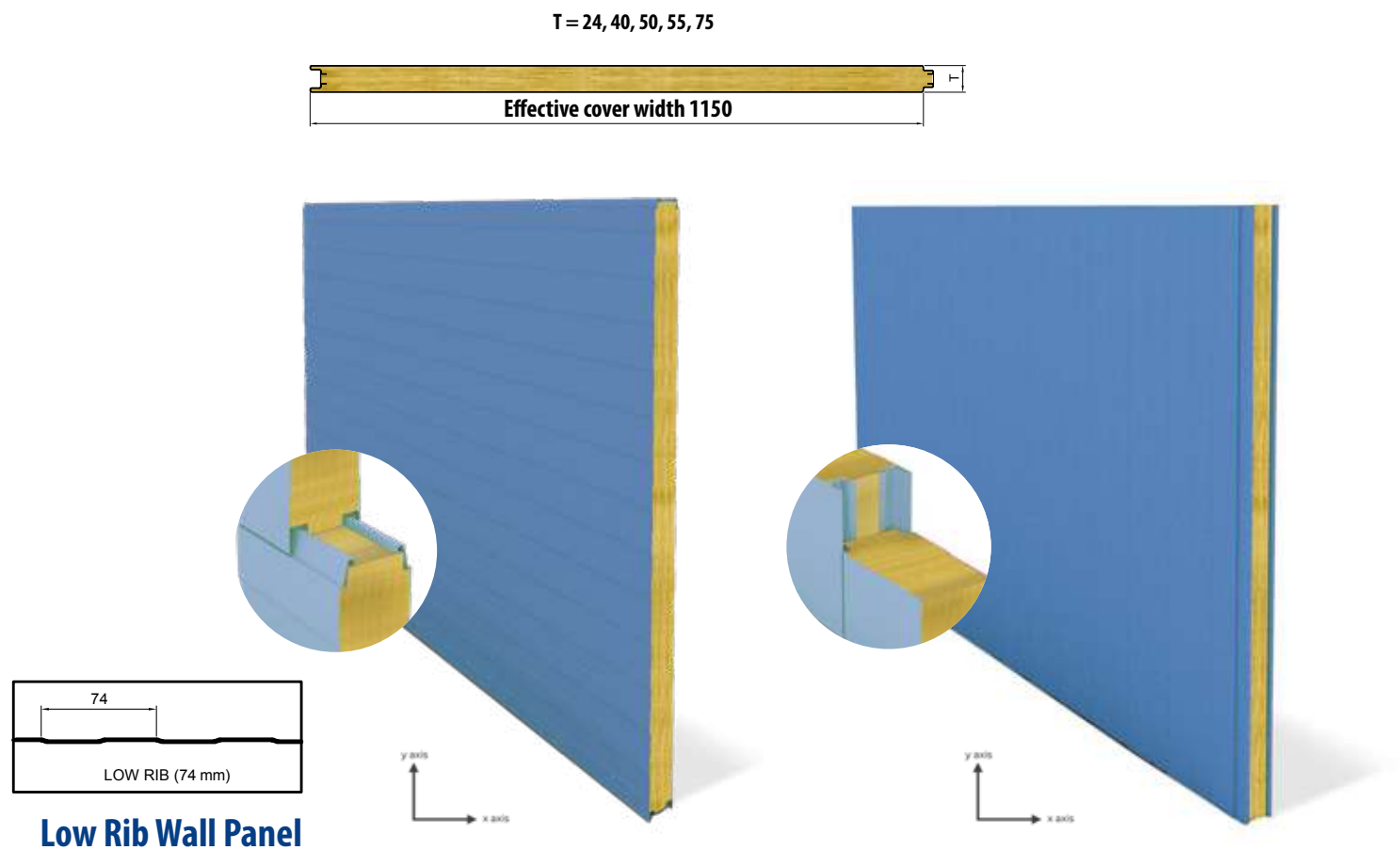
Low Rib Wall Panel

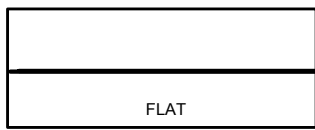


Groove Wall Panel

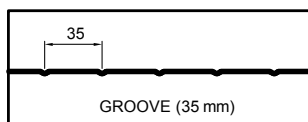
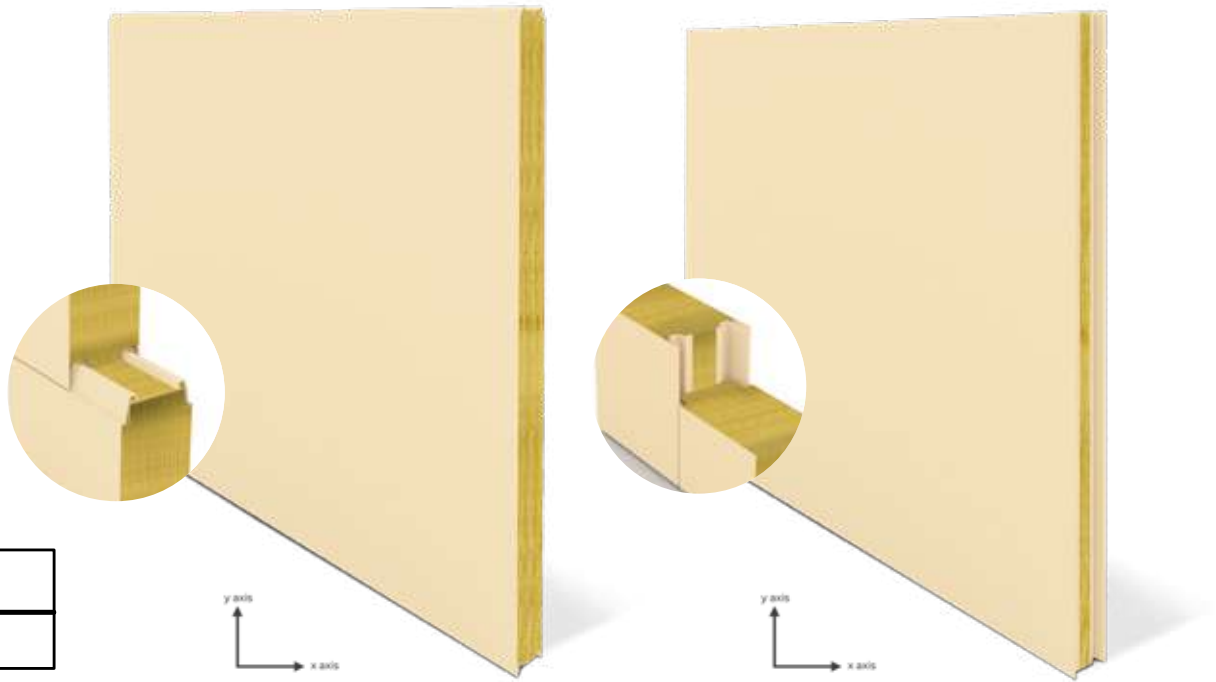


■ ISO Wall Mineral Wool Panels: Non-Concealed Exposed Fasteners

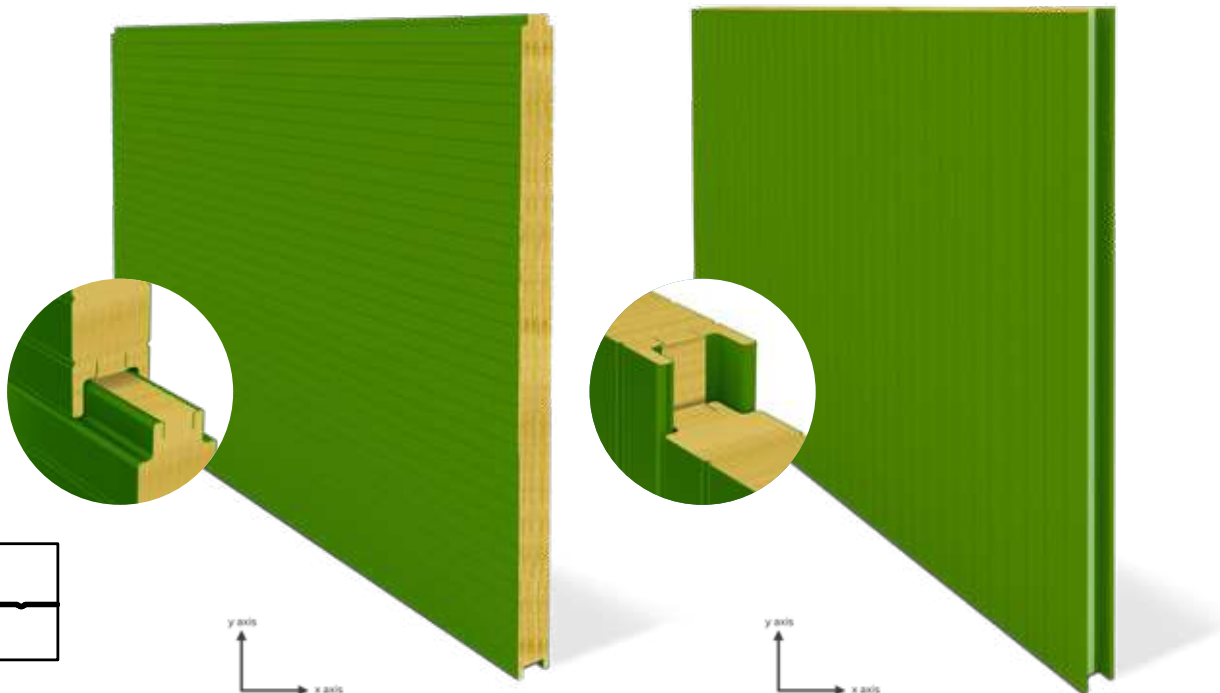




Flat Wall Panel

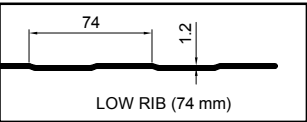
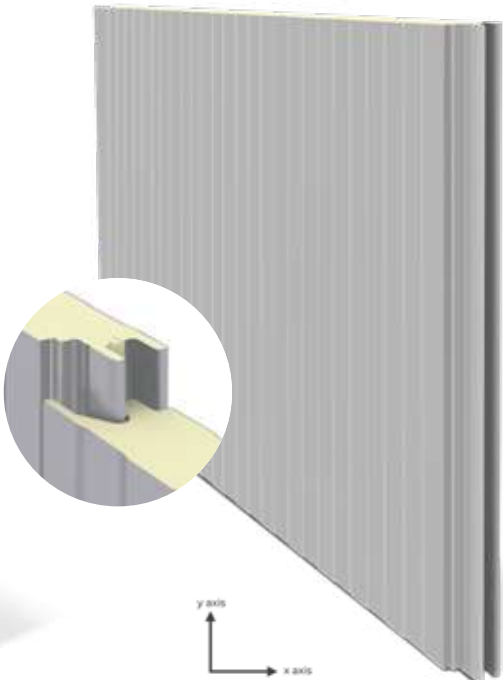
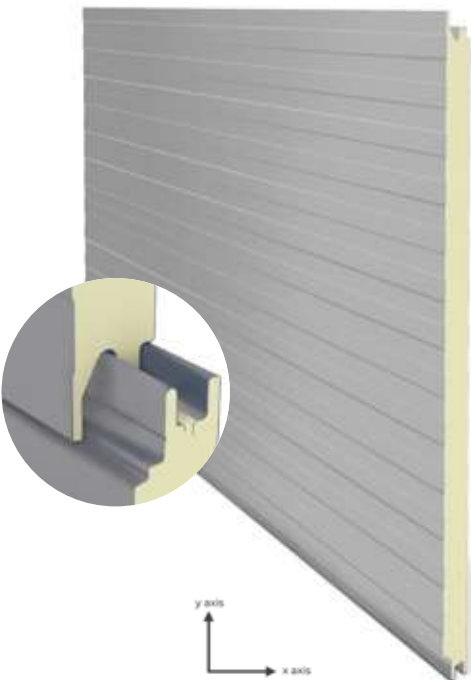


V Groove Wall Panel

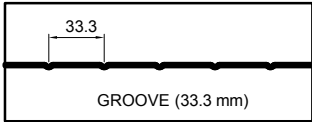


ISO Wall PIR Panel: Concealed Fastener Wall Panel

T = 60, 70, 75, 80, 100



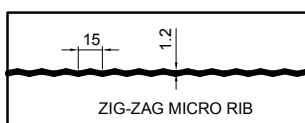
Low Rib



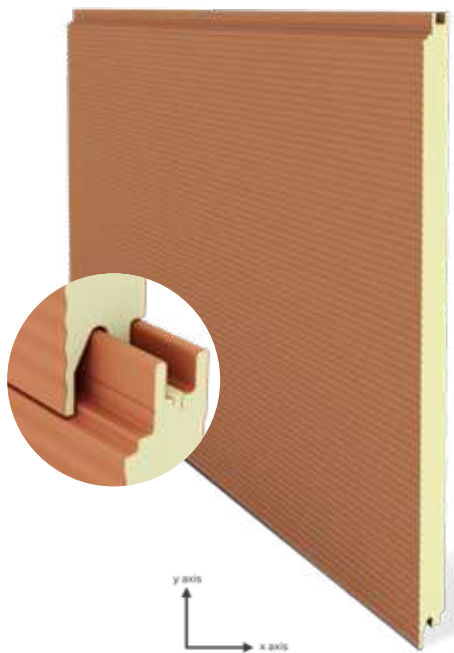
Groove



Flat

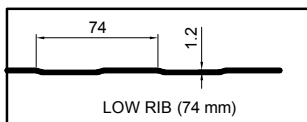
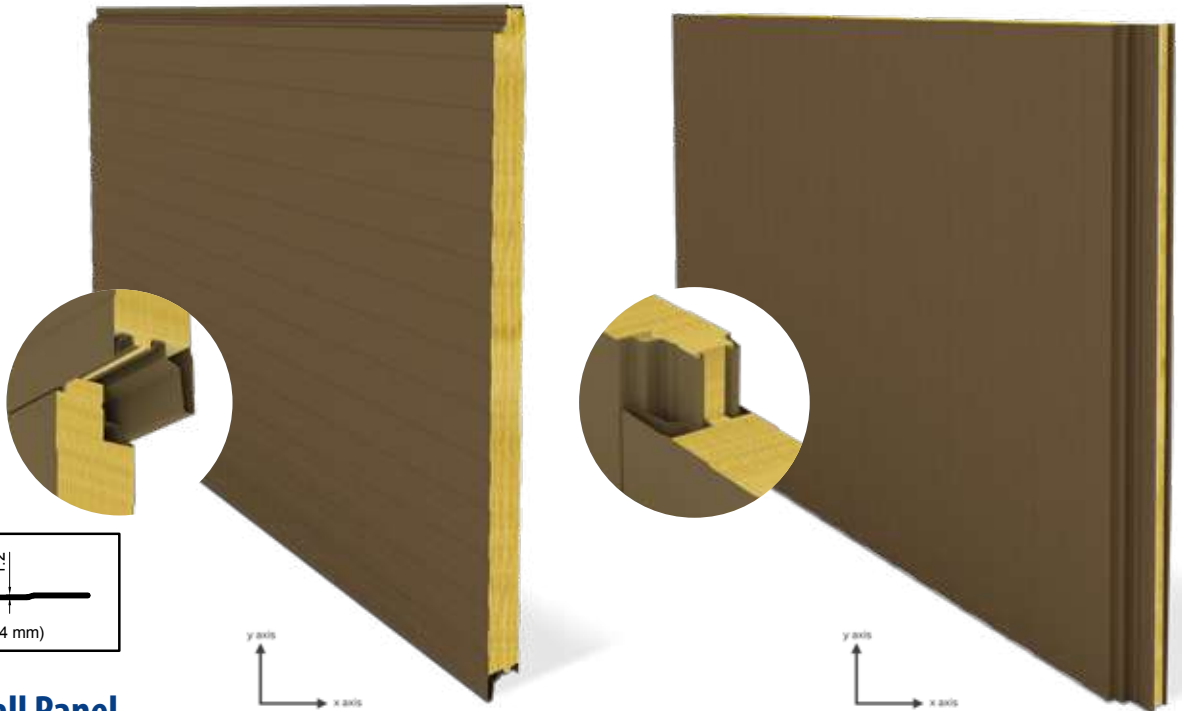


Zig Zag MicroRib

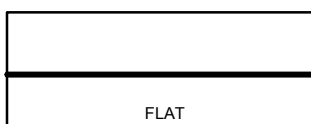
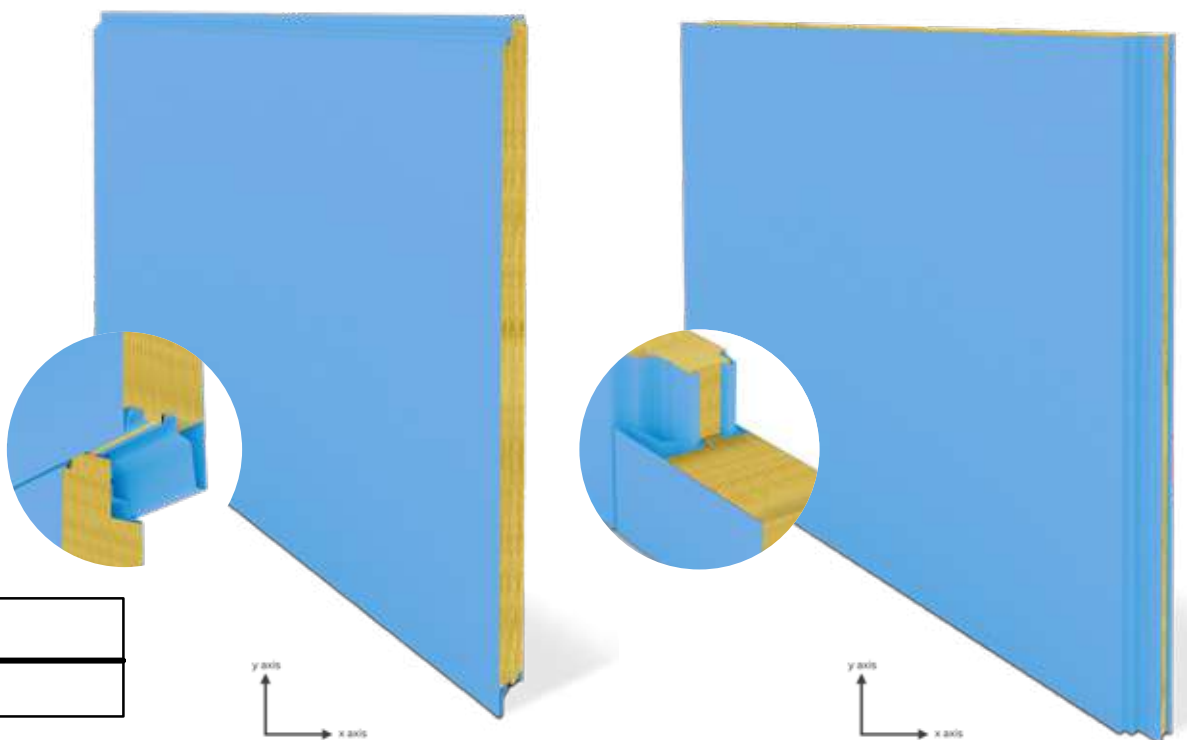


ISO Wall Mineral Panel: Concealed Fastener Wall Panel

T = 60, 70, 75, 80, 100



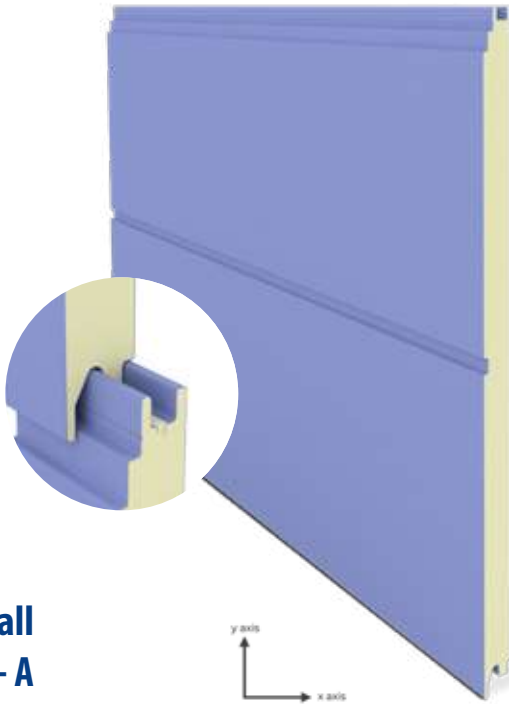
Low Rib Wall Panel



Flat Wall Panel

Decorative Wall Panels

T = 60, 70, 75, 80, 100



Decorative CF Wall
Panel Type - A

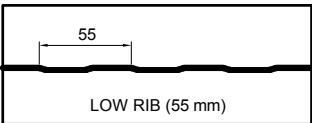
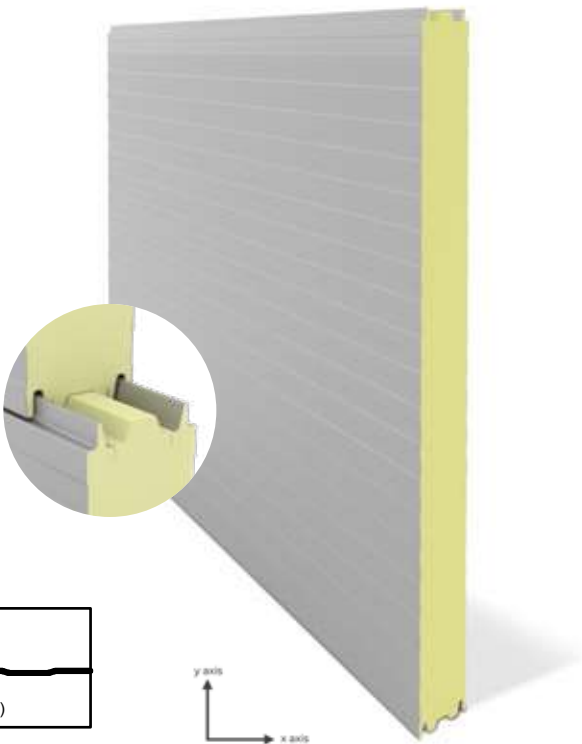
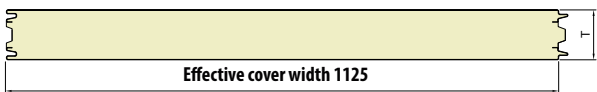
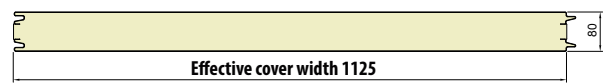
T = 60, 70, 75, 80, 100



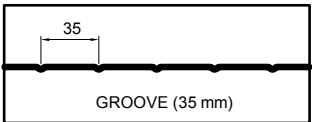
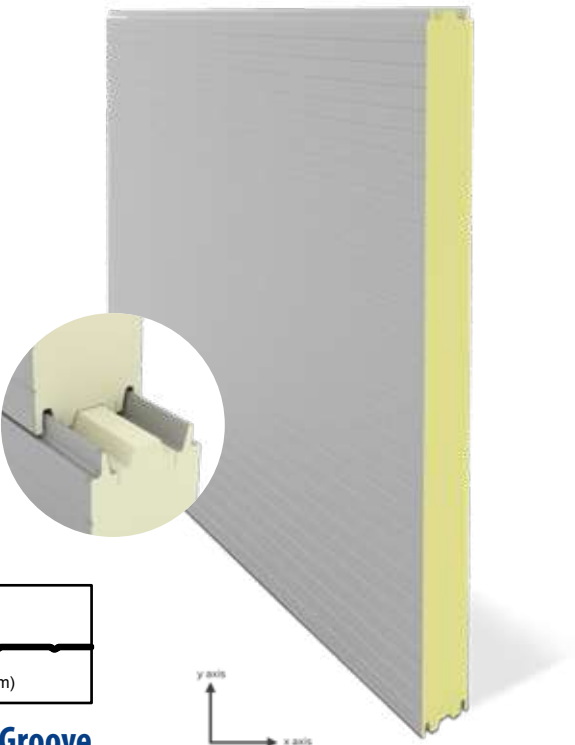
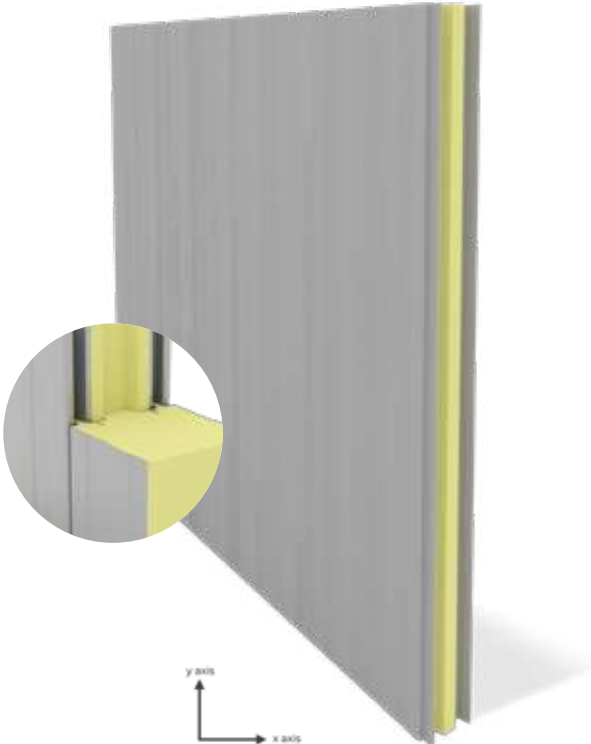
Decorative CF Wall
Panel Type - B

Slip Joint Panel

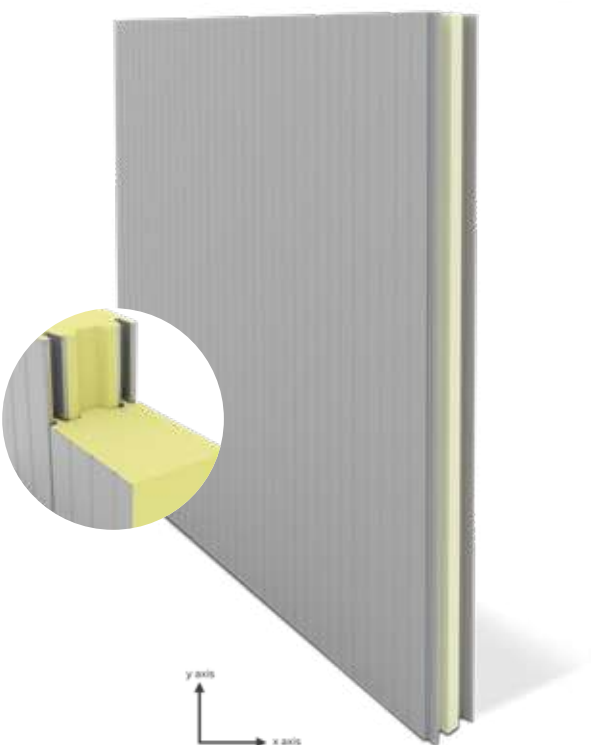
T = 100, 120, 150, 170, 200

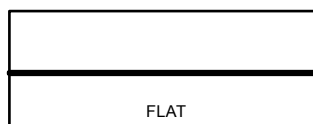
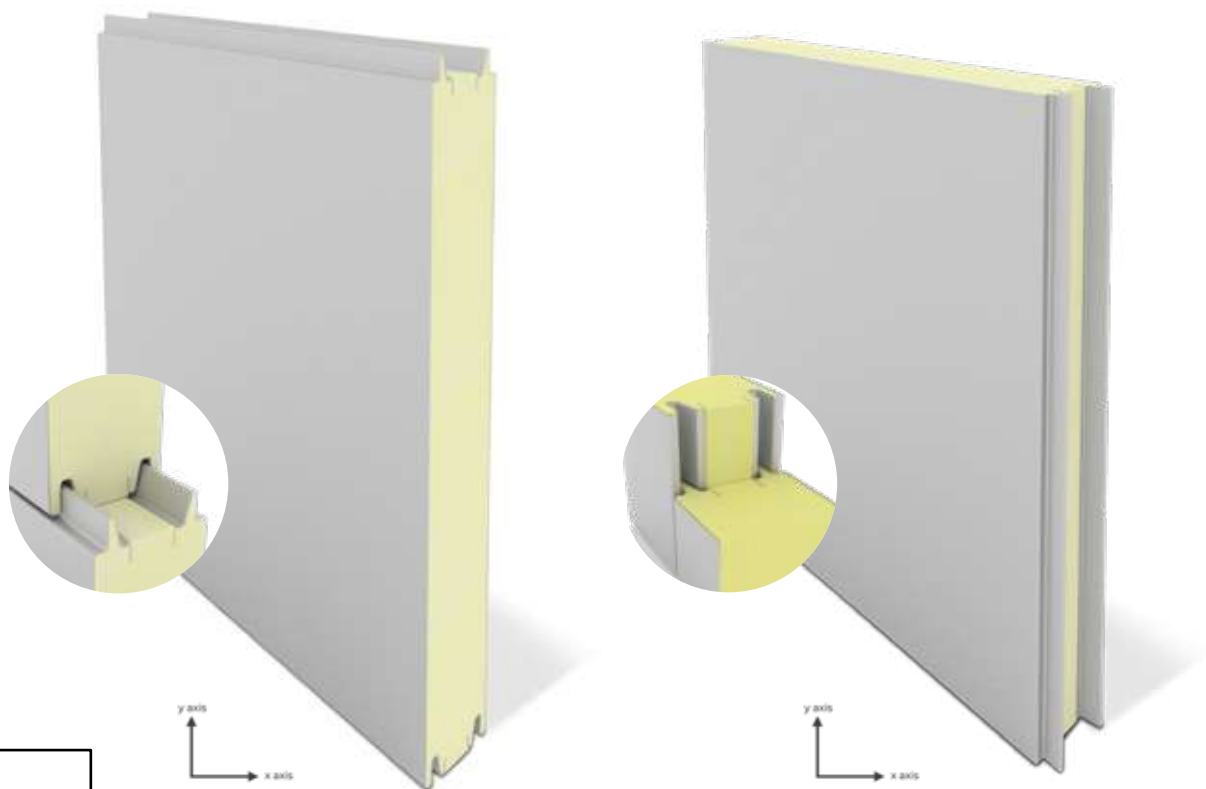


Low Rib



Groove

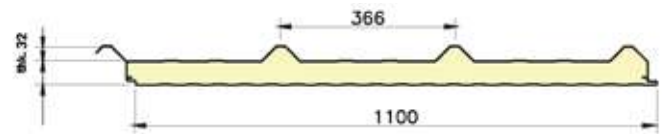




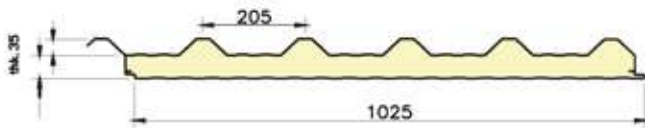
Flat



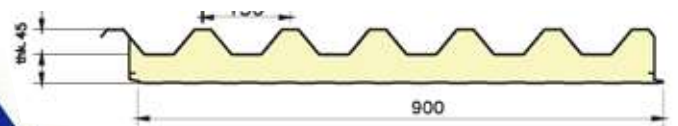
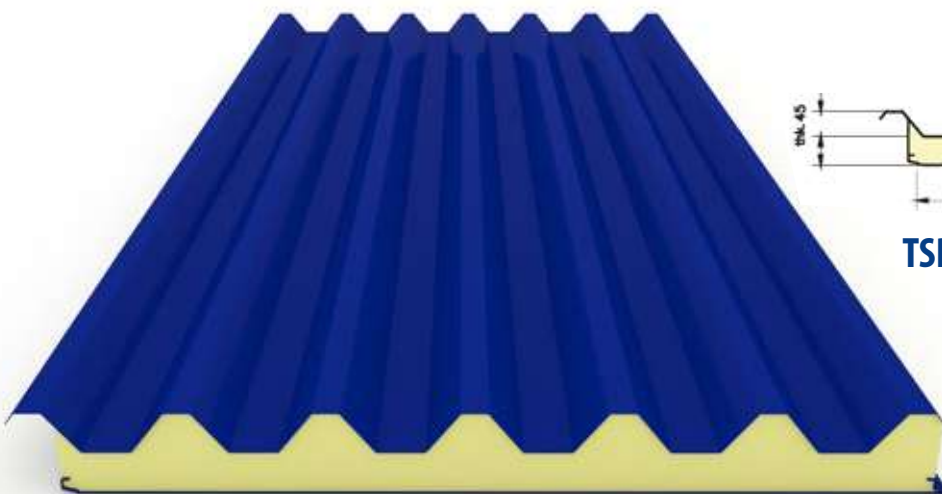
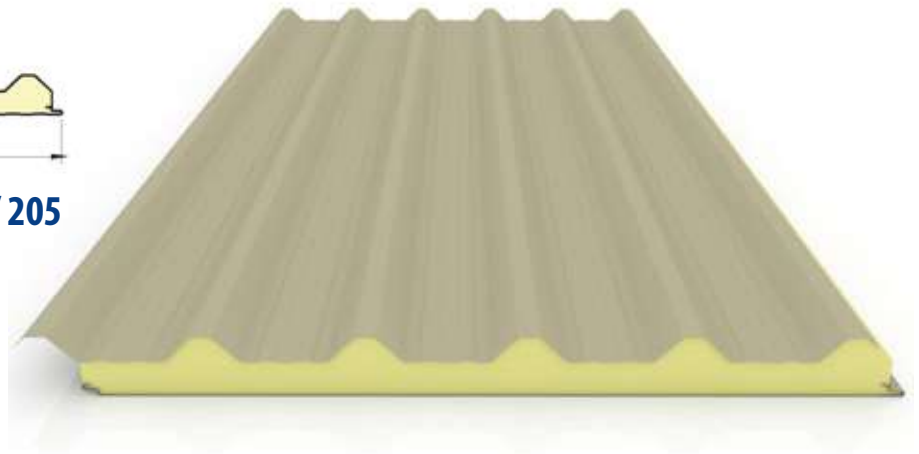
■ PIR Corrugated Insulated Panels



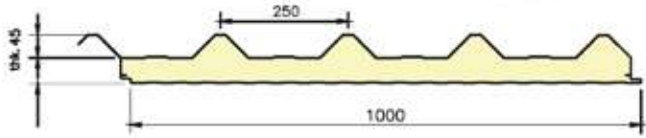
TSP 32 / 366



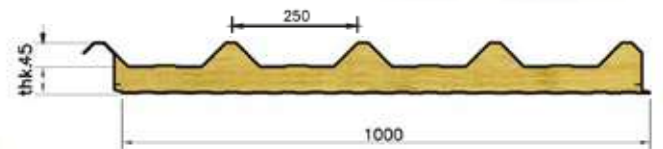
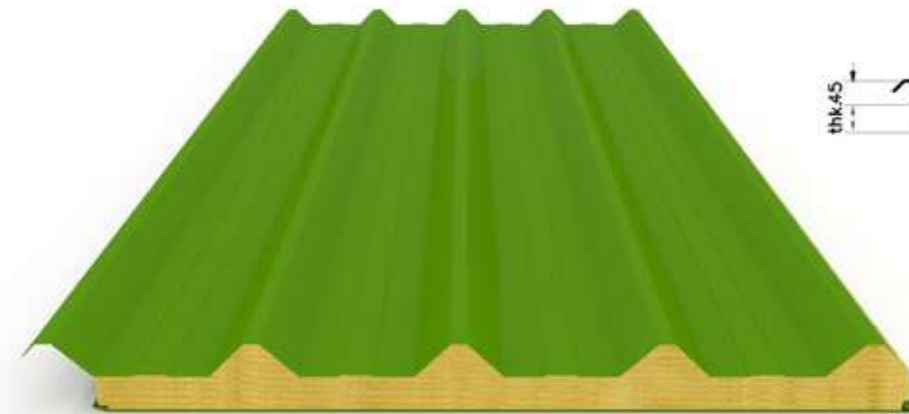
TSP 35 / 205



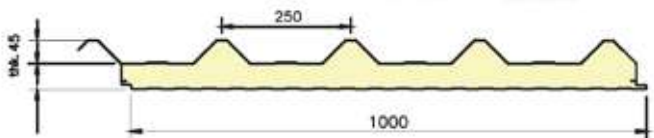
TSP 45 / 150



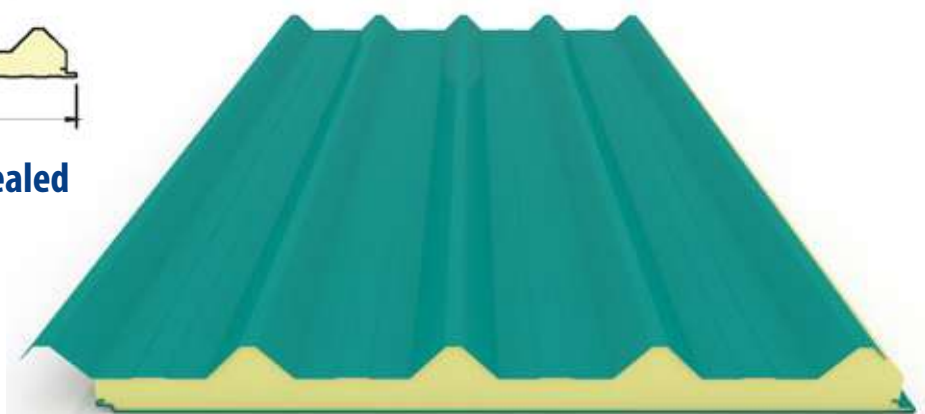
TSP 45 / 250 – PIR Non Concealed

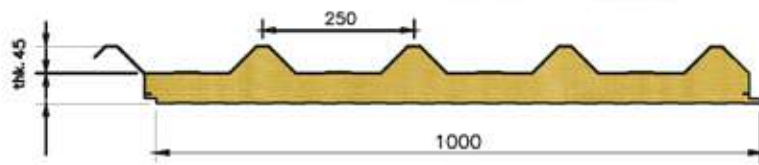
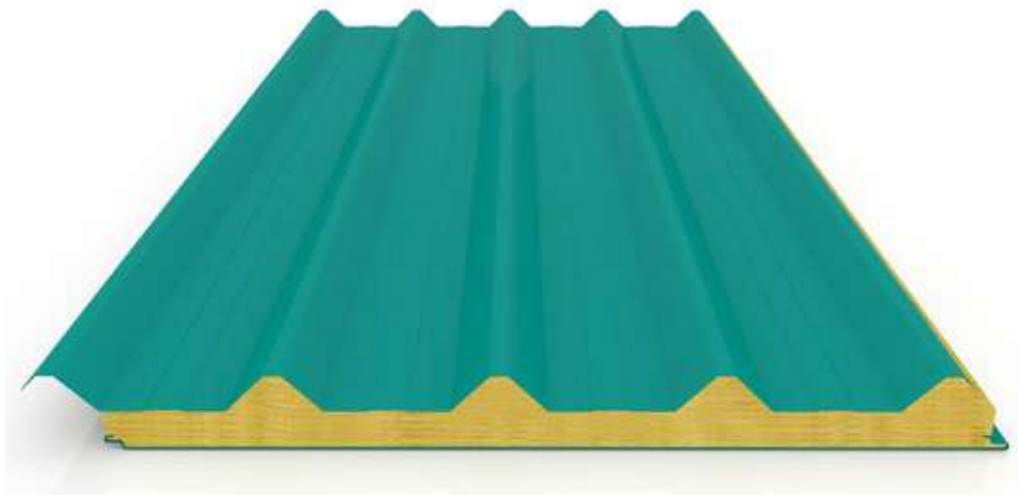


TSP 45 / 250 Mineral Wool

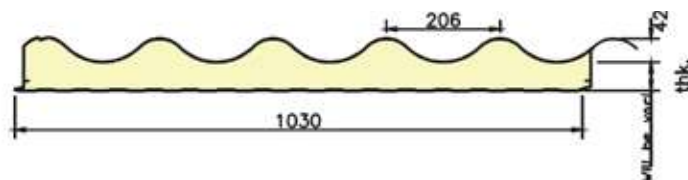


TSP 45 / 250 Concealed





TSP 45/250 Mineral Wool Concealed Panel



Roof Tile PIR Panel

QuintaCore

QuintaCore is our vision for the future for Insulation technology. It is an important development in insulated panel technology that brings immediate benefits to the lifetime of any building project.

Compared to traditional panel core, QuintaCore is TSSC's next generation Proprietary-blended Insulation core that delivers FIVE Key Performance Benefits when used in an insulated panel system.

Powered by
QuintaCore
5G Technology



Efficient Thermal Performance

- 20% Thermal Enhancement Compared to PIR
- Superior U Value

Guaranteed Structural Performance

- Thermal and Structural performance guarantee for up to 20 years.
- Cost effective energy savings over the lifetime of the building.
- Provides thermal comfort to the occupants of the building.

Environmental Benefits

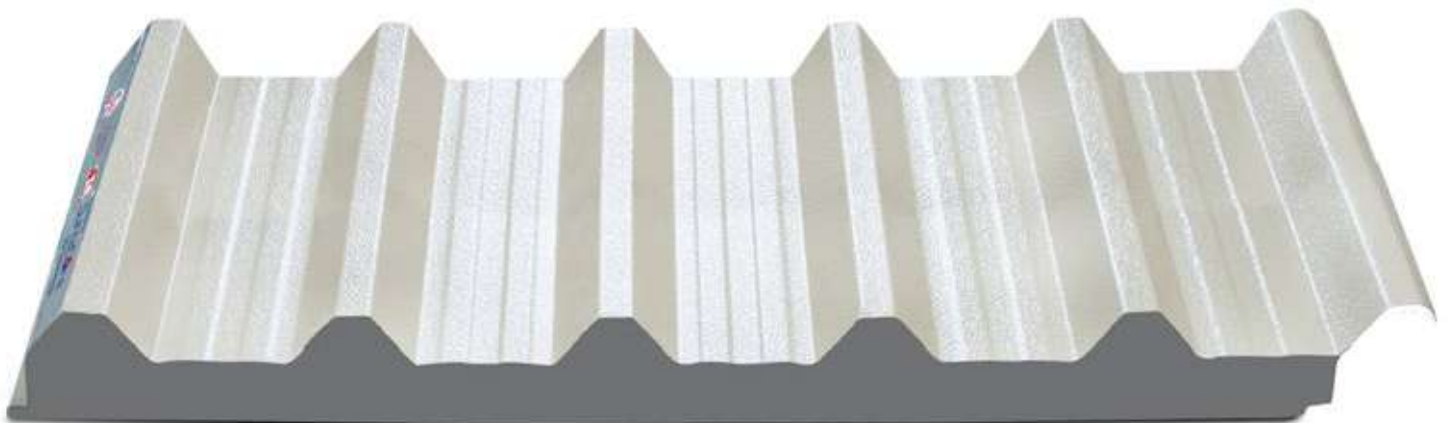
- CFC and HCFC Free Insulation
- Low Global Warming Potential (GWP) and Zero ozone depletion potential (zero ODP).
- Meets ESTIDAMA requirements and AL SAFAT GREEN regulations.

Superior Fire Protection

- Improved Reaction to Fire with Low Smoke Emissions in the event of a Fire.
- Complies to various Fires Test Certifications – FM 4880, FM 4481, FM 4471, BRoof (T4)
- European Classification Bs1d0 as per EN-13501-1 Dubai Civil Defense Approved

Recyclable Material

TSSC is committed to protecting the planet by recycling PET bottles and PU waste. To produce energy-saving products in a low carbon and environmentally responsible way TSSC uses recycled plastic bottles to produce Polyol which is the raw material used in the manufacture of insulation. This results in panels which contribute to higher energy efficiency, improved fire performance and have better sustainability.



TUFF Panel



TUFF PANEL is a Value-Engineered, structurally superior, low maintenance panel compared to conventional sandwich panels. It is designed for roof and wall* applications in Education Buildings, Warehouses, Commercial Buildings and others. TUFF PANEL is also a great option for retrofit renovations for upgrading appearances or adding insulation values to existing structures.

Due to a unique metallic textured Top sheet and internal liner, TUFF panels have a higher Overall Textured Thickness compared to conventional insulated panel which makes it a stronger panel.

Benefits of TUFF Panel include

- Superior Strength and Performance
- Value Engineered for Project Savings
- Aesthetically Appealing Textured Finish
- High Resistance to Buckling
- Impact and Abrasion Resistant
- Durable Metallic Textured Technology
- Excellent U Value with PIR Insulation



TUFF Panel exceeds the deflection strength of standard panels in most choices of Top | Liner sheets.



*Disclaimer – TUFF PANELS are Civil Defence approved for Roof & Internal Wall applications only within Dubai. Not applicable in Dubai. For other Emirates check local civil defence regulations for External Wall applications.

ECO Panel



ECO PANEL is a cost effective, durable and an eco-friendly range of high-performance roof panel that creates weather-tight and energy efficient roofs. It is ideal for new and retrofit industrial & commercial buildings. ECO Retro panels are an excellent choice for poultry houses where changes in hot or cold temperatures significantly reduce chicken productivity in laying eggs.



ECOPANEL is certified by the Dubai Civil Defence Authority

■ Profile:

TSP 45/250 , TSP 32/366, TSP 35/205

■ Metal Type:

Steel / Aluminium

■ Liner:

GI / Aluminium *

* (AL & GI panels are DCL & DCD approved for external roof application only).

Aluminium Foil **

** (Not approved as per UAE Civil Defence).



Benefits of ECOPANEL include:

- Light Weight Panels due to Aluminium Profiles
- Energy Efficient Buildings
- Dubai Civil Defence Approved
- High Strength
- Better Aesthetic Finish
- Panels will Never Delaminate
- Quick and Easy Installation
- Resistance to the Passage of Water Vapor
- Enhances Insulation Performance
- Additional Roof Reinforcement is not required



To increase the fire performance of our panels, we continuously develop our products to ensure products meets the Civil Defence latest legislative requirements, building control regulations and DCL Requirements.

Newly developed products undergo thorough in-house testing and we also carry out fire tests in established testing centres, such as FM Approvals USA ,FIRES Slovakia , Warrington Fire , M/S Intertek, Thomas Bell Wright Laboratories.

FIRESpan from TSSC is the best lightweight thermally insulated panel in the market. Its physical properties make it well suitable as an economic solution for roof and wall systems in commercial or industrial sector to satisfy Thermal, Fire and Acoustic requirements. Mineral Wool / Rock Wool possesses excellent fire resistance and does not contribute to fire spread and is a viable solution for interior and exterior walls in pre-engineered metal building construction. TSSC FIRESpan Insulated panels incorporating mineral wool as insulation have been fire tested to comply with fire classification A1 noncombustible as per ASTM standards.



Fire Ratings

Vertical – Wall Panel System Application

Panel	Test Standard	Thickness (mm)	Fire Resistance (mins)	
			Integrity	Insulation
ISO Wall Panel System (Stitched)	BS 476:22	50 mm	240	30
ISO Wall Panel System (Stitched)	BS 476:22	100 mm	240	93
TSP 45/250 Composite Rockwool Wall Panel System (Stitched)	BS EN 1364-1	50 mm	150	92

Horizontal – Roof Panel System Application

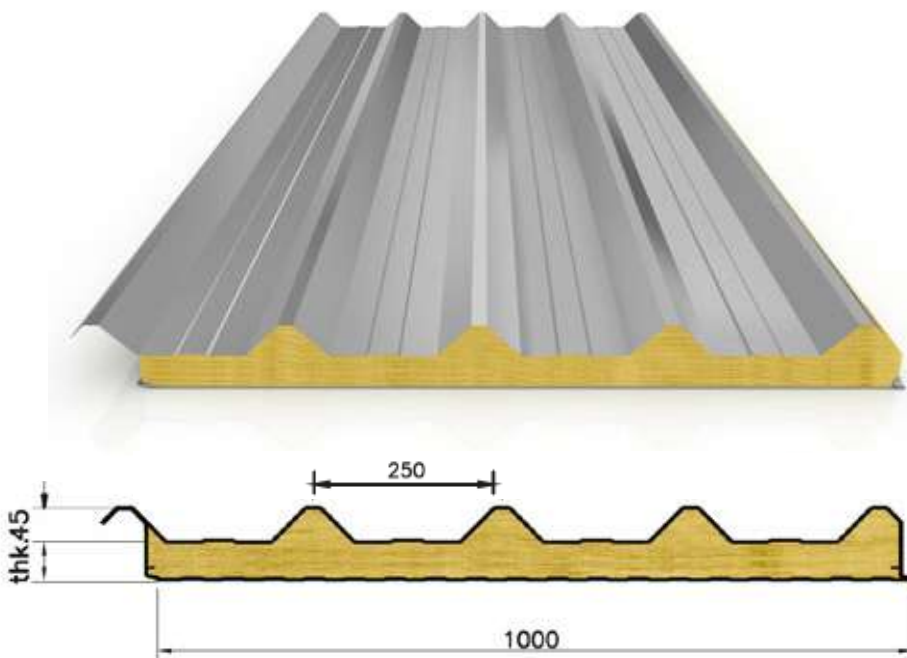
Panel	Test Standard	Thickness (mm)	Fire Resistance (mins)	
			Integrity	Insulation
TSP 45/250 Composite Rockwool Roof Panel System (Stitched)	EN 1365-2 & BS 476:21	50 mm	180	26
TSP 45/250 Composite Rockwool Roof Panel System (Stitched)	ASTM E 119 & UL 263	100 mm	180	38

For more information on specifications related to any of the above items, please contact TSSC Sales/ Technical Dept.

FIRESPAN FOR SUPERIOR FIRE RESISTANCE!

Advantages

- FM Approved - Class 1
- Fire Classification A1 (As per BS EN 13501-1)
- Water Absorption Less than 3 %
- Excellent Thermal Insulation
- Chemically Inert
- Non-combustible Core
- Foam, CFC, HCFC, Free
- NRC can be achieved 0.7 as per ASTM C 423
- Good Acoustic Insulation



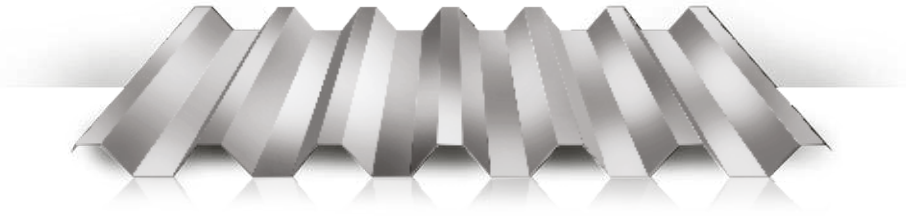
TSP 45 / 250

Specification

- Cover width : 1000 mm + 2mm
- Panel facings : Steel, GI, Aluminium or Aluzinc
- External weather sheet : Polyester, PVDF, Plastisol
- Internal liner sheet : Polyester
- Mineral wool core density : 80 kg/m³ - 120kg/m³
- Insulation core : Mineral Wool
- Fire performance : According to fire classification A1
- External weather sheet thickness : From 0.5 mm to 1 mm
- Internal liner sheet thickness : 0.4 mm to 0.7 mm or 0.5 mm / 0.7 mm

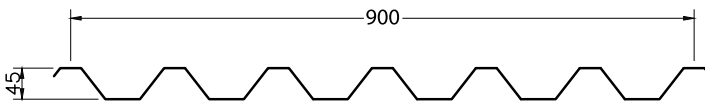
No fire certification for aluminium* faced products.

■ Metal Decking Profiles



**TSD 45 - 150
METAL DECKING**

45-150
G.I. 0.5-1 mm
Al. 0.5-1 mm

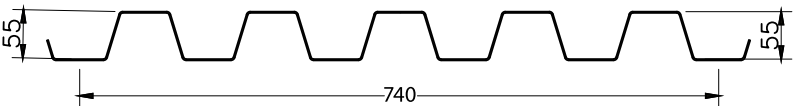


ALL DIMENSIONS ARE IN MM

**TSD 55 - 148
METAL DECKING**



55-148
G.I. 0.7-1.5 mm



ALL DIMENSIONS ARE IN MM



**TSD 75 - 254
METAL DECKING**

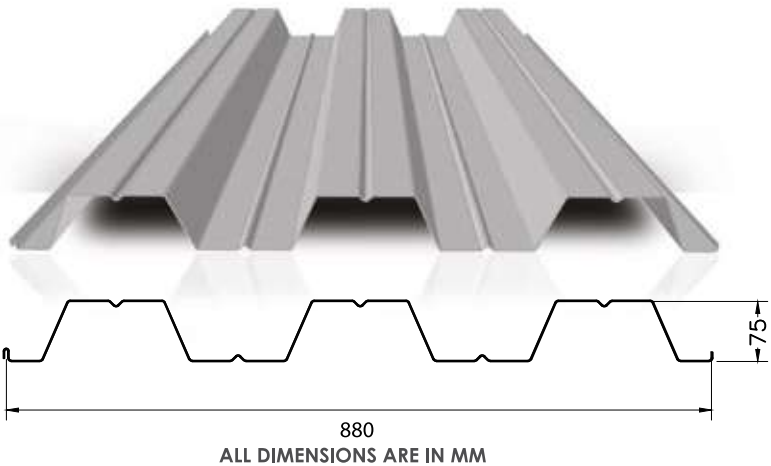
75-254
G.I. 0.7-1.5 mm



ALL DIMENSIONS ARE IN MM

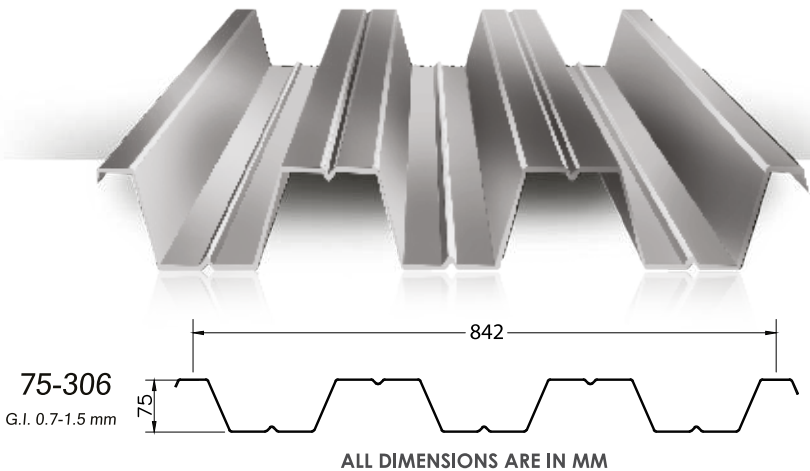
TSD 75 - 305 METAL DECKING

75-305
G.I. 0.7-1.5 mm



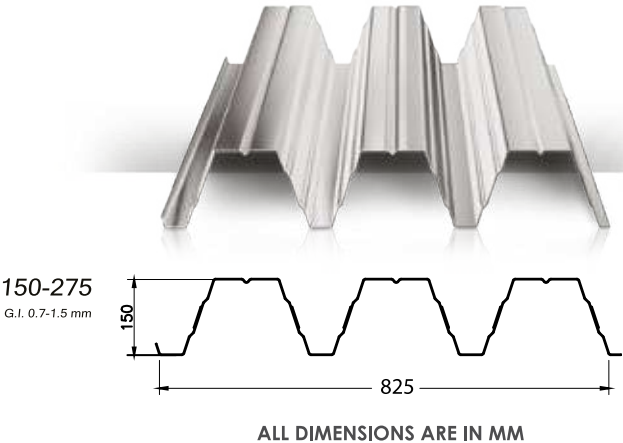
TSD 75 - 306 METAL DECKING

75-306
G.I. 0.7-1.5 mm



TSD 150 - 275 METAL DECKING

150-275
G.I. 0.7-1.5 mm



BASECO Architectural Roofing System

unique, light weight roofing system for discerning architectural design



- Concealed fix system, thus providing a continuous weather tight roof.
- Tapered and curved sheets with a minimum radius of 1.5m. Provides limitless design potential.
- Extremely strong and lightweight building system.
- Integration of shapes, colors and surfaces.
- In Built Internal thermal bridge allows movement resulting from thermal expansion.
- Highly efficient thermal performance and acoustic insulation.
- Roll-formed on site to achieve extreme lengths according to the project requirements.
- Higher level of building safety throughout the entire service life.
- Demountable; roof panels can be unzipped and reused at the end of the building lifecycle.
- Integration of sustainable concepts such as photovoltaic panels.

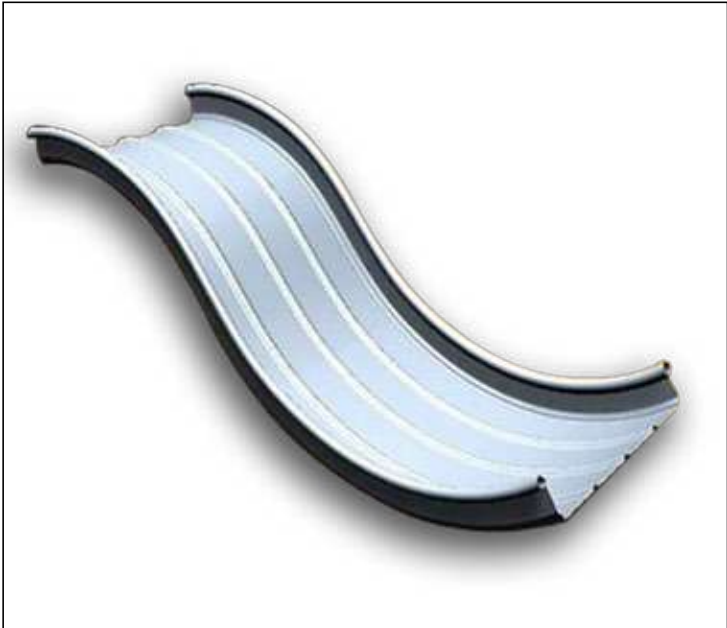
BASECO Standing Seam Roofing System VS Conventional Metal Roof

	BASECO System	Conventional Metal Roofs
Maintenance	Routine maintenance is not required due to the seaming system.	Corrugated metal roof fasteners when exposed to natural elements will eventually back out and holes in the panels enlarge causing leakage. Fasteners need to be inspected and tightened periodically.
Wind Resistance	The panels side joints are locked and zipped tightly together to stand wind resistance. Designed to stand extreme severe weather conditions approved by FM Global	Exposed fasteners of corrugated panels may loosen in areas with high winds. The fasteners need to be tightened regularly.
Air and Water Tightness	Suitable for warm and cold roof constructions in all shapes and pitches. Weather tight seam permits any residual moisture in the insulating layer to evaporate through the seam allowing the roof to breathe naturally.	Small lengths of the panels, end laps connections, exposed fasteners and the reaction to the floating action of the metal sheet reduces the Air and water tightness integrity.
Design Potential	BASECO aluminium standing seam profiles combine outstanding functionality with stunning aesthetics.	Design construction is limited compared to the standing seam system
Production	Continuous lengths of hundreds of panels can be produced using the very latest equipment both in the factory and also on mobile roll formers	Panels of upto maximum 16m length are produced in the factory and then shipped to site.

I BS65 Taper & Curving Profile



BS65 Series Tapered Profile



BS65 Series Curving Panel



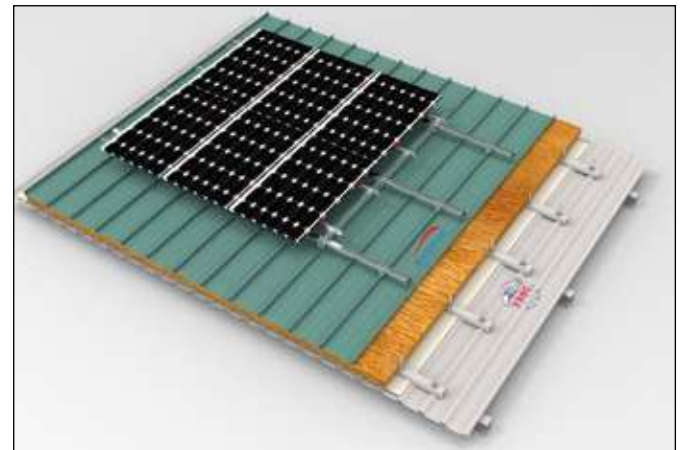
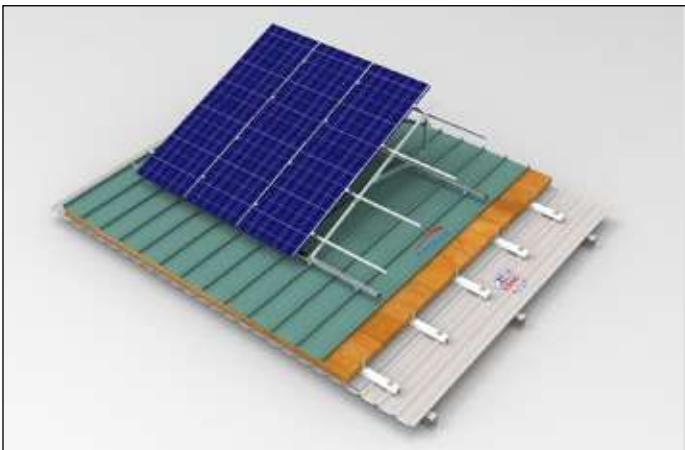
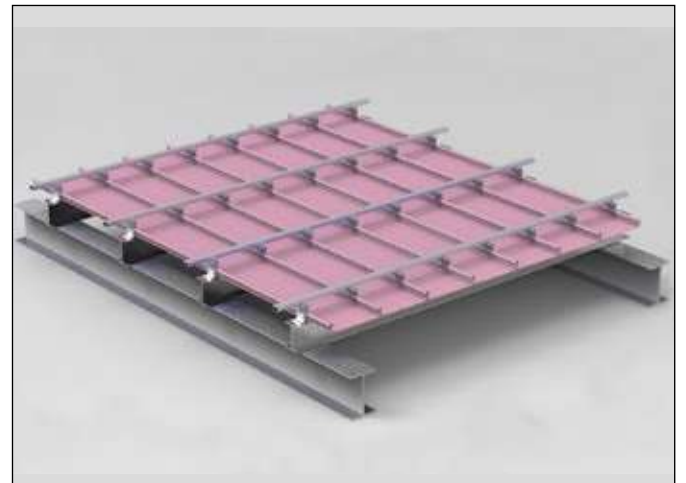
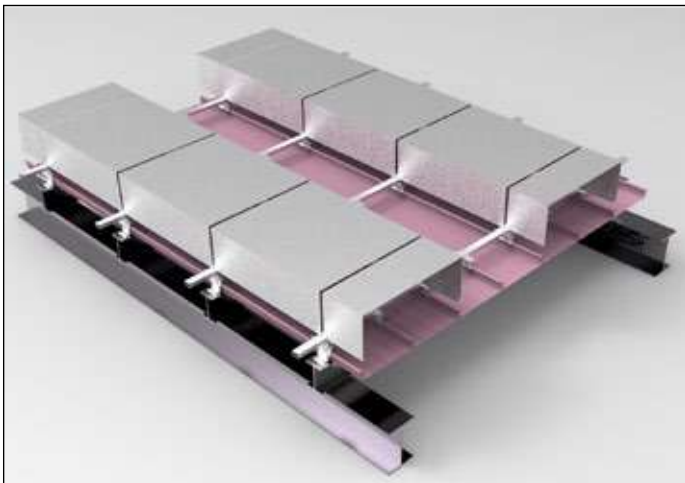
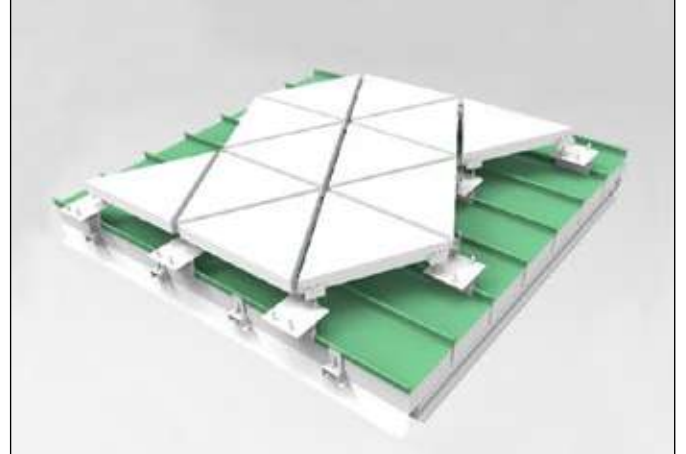
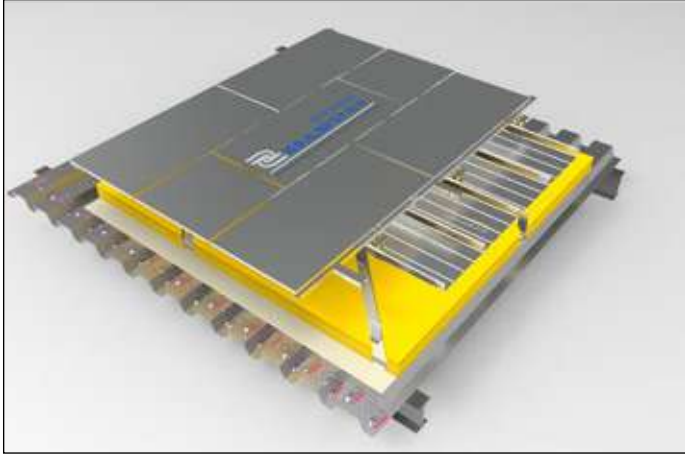
BS65 Series Taper Curving Panel

■ Containerized Roll Forming Machine





■ Top Decoration Cladding System (By ACP, GRC, GRP & Solar Energy System)



Project Reference

ROOF ENVELOPE SYSTEM BUILDUP OF STANDING SEAM & GRC TILES



AL SHAQAB EQUESTRIAN FACILITY



Skylights

Unlike many other plastic skylight manufacturers, TSSC designs value engineered solutions to provide long lasting light transmission.

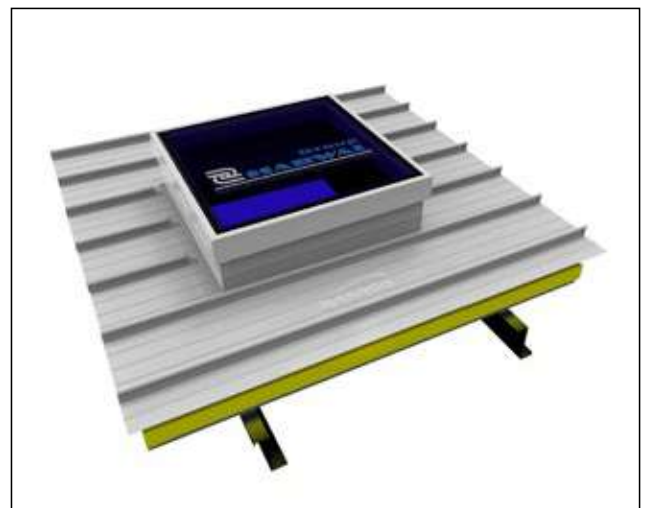
NaturaLite is a unique skylight system which offers an economical and practical means of distributing defused natural daylight and adds spaciousness to a lobby, atrium or the interior of a building.

Designed to cover a wide range of applications for different building envelopes NaturaLite skylights are designed to perfection and manufactured on an automated continuous fiber glass laminator .



Advantages

- Resists environmental damage caused by corrosive salt, air or high temperature
- Good heat insulation
- Low thermal expansion compared to polycarbonate or other plastics
- Suitable for chemical plants as it can resist wide range of harmful fumes
- Non-conductive high dielectric capability
- Low thermal conductivity
- Designed to suit any profile or shape
- High impact resistance
- Extremely low maintenance





EASYWALL System

EASYWALL System is a sandwich wall panel made of cement board on the exterior. The interior composite core material is a system of specialized lightweight concrete mix with expanded polystyrene. This combination of material delivers rigidity, strength and provides flexibility for the customer in the use of the wall to meet many requirements. The presence of lightweight aggregates, air entertainers and EPS acts as an insulator and provides EASYWALL with green building material characteristics.



The panels are available in thicknesses of 75,50, 100,150 and 200mm and are 3,000 mm high. One edge of the panel has a male tongue profile and the other a female groove profile. When the panels are erected the tongue and groove fit together to form a precise joint. The result is a high-quality wall ready for finishing in a fraction of the time taken by conventional methods.

Reduction of manpower and faster assembly are value propositions of the EASYWALL System. To enable easy handling and speed up the assembly process the panels are manufactured in 610mm wide sections to enable easy handling.

EASYWALL Panels are non-load bearing and electrical conduits can be embedded inside the walls. The system also offers a practical solution for plumbing and other facility management requirements. Doors and windows can be easily installed along the panels.

EASYWALL system is a value engineered solution for exterior infill walls and interior partitions and is the approved by the local Civil Defense and complies with Local & International Standards.

EASYWALL offers clear advantages to the client, developer and contractor:

- Fast Assembly (Time Saving)
- Competitive Pricing
- Simple Finishing by Eliminating Plastering (Cost Saving in Finishing Expenses)

The combined savings in the material cost along with the savings in time and labor expenses delivers a clear advantage to the client.

An added benefit is EASYWALL is light in weight, which results in less structural re-enforcement required for the buildings

■ Applications

The advanced technology and engineering that has been applied to develop the EASYWALL makes it suitable for most building applications. It is the ideal solution for the assembly of non-load bearing walls in single and multi-story buildings.

EASYWALL is ideal for a wide range of building and construction applications

- Large-scale residential development projects
- Apartment Buildings
- Homes
- Schools
- Offices
- Hotels
- Clinics
- Commercial Buildings
- Retail Facilities



EASYWALL Hospitality & High - Rise Buildings





The EASYWALL systems is ideal for the external walls and interior partitions within hospitality buildings and high-rise buildings. It is applicable for a wide range of building construction. EASYWALL accelerates the building assembly schedule and reduces installation expenses compared to conventional concrete block.



EASYWALL Warehouses & Industrial Buildings





The EASYWAL system can be used as a cladding in certain applications, such as warehouse and industrial buildings. Compared with conventional concrete block or pre-cast wall systems, the EASYWALL offers much quicker assembly of a rigid wall system at a competitive price.



EASYWALL Interior Walls & Partitions





EASYWALL is the ideal solution for the assembly of interior and partition walls in single or multistory buildings. Easy to install, EASYWALL sections can be quickly erected and finished to ensure speedy turnaround.



EASYWALL Low Rise Buildings





EASYWALL is versatile for multiple applications such as walls for ground level and low-rise buildings. It is a single panel wall system that serves as both internal and external wall and the eliminates the need for bricks, blocks, and plasterboard linings.



Comparison Chart

Comparison Chart b/w 200mm Block and 150mm EASYWALL

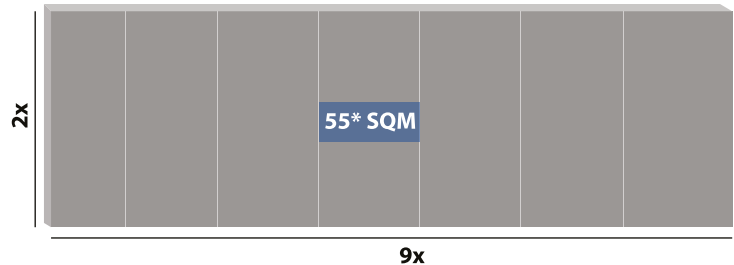
Description	EWP	Hollow Block	AAC Block
Compressive Strength (N/mm ²)	3.33 - 5.17	1.3 - 3.5	3.0 - 4.0
Direct Pullout (kgs)	151.95 - 331.5	Up to 75	Up to 35
Density (kg/m ³)	500 - 650	1400 - 1900	400 - 1000
U-value	0.31 - 1.51	2.3 - 2.8	0.3 - 0.4
Fire Rating	2 - 4 hours	Varies	0 - 4 hours
STC Rating	40.5 - 63.5	Up to 46	Up to 39
Water Penetration	Low	Low	Low
Carbon Footprint	Low	High	High
Energy Efficiency	High	Low	Low
Axial Load Capacity (KN)	30 - 80	N/A	N/A
Flexural Strength (N/mm ²)	1.37 - 1.50	N/A	N/A
Plaster Requirement	Not Required	Required	Required
Wet Area	Acceptable	Acceptable	Acceptable

Average Panel Weights

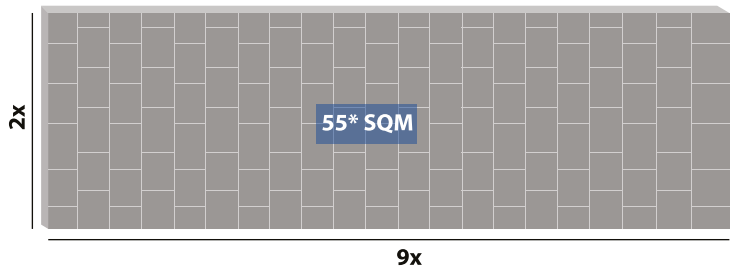
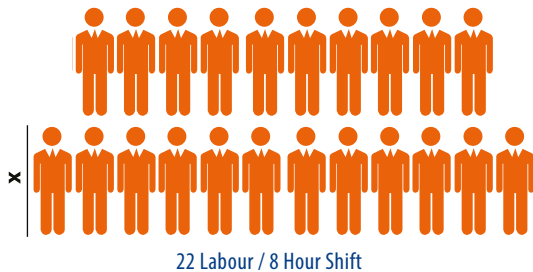
EWP Thickness	75mm	100mm	150mm	200mm
Panel Weight +/- 10 kg	87	115	172	229

Time Comparison Chart

EASYWALL™ Panels



Standard Block (CMU)



EASYWALL Panels 3000 x 610 x 150 (h x l x w) Team of 6 skilled labourers	
Step	Time
Location marking	0.5 hr
Bottom and top track cutting and setting	1.0 hr
Install first panel with dowel bars	0.5 hr
Installation of vertical panels	1.0 hr
Measuring and cutting of horizontal panels	1.0 hr
Installation of horizontal panels	1.0 hr
Closing of head track	0.25 hr
Wind post measurement and fixing	0.5 hr
Closing of joints	1.0 hr
Curing time	24 hrs
Finishing of joints	1.0 hr
Note: Panels only require mobile scaffolding and not restricted by height	
Total Time	31.75 hrs

Blocks 200 x 400 x 150 (h x l x w) Team of 5 bricklayers and 2 plasterers	
Step	Time
Mortar mixing and setting out	0.5 hr
Block laying	48 hrs
Steel fixing for column support	2 hrs
Mixing and casting of column	1.5 hrs
Curing time	24 hrs
Manual plastering	5 hrs
Curing time	24 hrs
Wind post measurement and fixing	0.5 hr
Note: Block work walls cannot be built higher than 6 courses without the mortar setting i.e. 24hours Rigid scaffolding is required to be fixed blockwork at 1.5m height.	
EASYWALL panel assumes the scaffolding and the first 6 courses can be done in 24 hours..	
Total Time	106 hrs

ACP Cladding



Non – Combustible Aluminium Composite Panel Catering to architectural and construction industry

Features of Alupex A2

■ Ultimate Fire Performance

Manufactured using non-combustible mineral core conforming to EN 13501-1 Class A2 fire rating ensure superior fire performance of the cladding system

■ Performance with Lightness and Flatness

A proven strength-to-weight ratio surpassing the solid aluminium, steel, concrete material. Excellent flatness developed by continuous lamination process.

■ Performance by workability.

Easy to process with standard fabrication machinery and tools.

■ Saving energy for a healthier environment

Helps in generating a pseudo-insulation and barrier to reduce the heat and sound transmission losses. Recyclable and environment friendly.

■ Surface finish with choice and longevity

Coated with specially formulated fluoropolymer (PFDF) based paints in variety of colours & decorative finishes and a life expectancy of up to 20 years.





Conforming to

- ✓ BSEN 13501-1 : A2
- ✓ BSEN ISO 1716
- ✓ BSEN 13823
- ✓ NFPA 285
- ✓ ASTM E84- CLASS A
- ✓ ASTM D1929 >343°C
- ✓ ASTM E119- 3 Hours
- ✓ BS 8414



In technical collaboration with



Tested & Certified by



Fully Integrated Aluminium Composite Panels
Manufactured in the Middle East

Unlimited Applications

- External Wall Cladding Building Fascia and Façade Finishes
- Curtain Walls and Internal Wall Finishes
- Balconies Rooftop Edges, Parapet Walls and Wall Canopies
- Spandrel, Column Covers and Beam Wraps
- Partition and Ceiling Panels
- Stairways, Elevators and Kiosk Panels
- Advertising Display Sign Boards

General Specifications

Panel Thickness	3mm, 4mm, & 6mm
External Aluminium Skin Thickness	0.5mm
Internal Aluminium Skin Thickness	0.5 mm
Available Panel Widths	1000, 1250, 1500 & 2000mm



ALUPEX Comparison with other Cladding Material

Properties	ALUPEX 4mm Thick	Aluminium 3mm Thick	Steel 1.5mm Thick	Granite 30mm Thick
Weight (kg/m ²)	5.40	7.93	11.44	81
Sound Insulation (dB)	25	15	5	Structure Based
Heat Transmission Coefficient (kcal/m ² h C)	5.14	6.4	7.3	Structure Based
Flatness	Excellent	Average	Average	Good
Weathering	Excellent	Average	Average	Good
Fabrication	Easy	Difficult	Difficult	Not Possible
Maintenance	Low	High	High	Average
Installation	Easy	Extra Care	Difficult	Difficult
Fire Properties	Good	Average	Good	Excellent
Panel Size	Large (1.22m X 2.4m or Longer)	Medium	Medium	Not So Large
Handling	Easy	Not So Easy	Not So Easy	Difficult
Overall Cost	Low	High	High	Very High



ALUPEX Completed Projects



Facades, Doors & Windows



TSSC Glass and Aluminium LLC, a subsidiary of TSSC, is a leading aluminium and glazing fabricator / subcontractor for construction projects such as high rise buildings and towers, residential and commercial buildings, villas, etc.

Fully capable of designing, manufacturing, supplying and installing façades, curtain wall systems, ACP claddings, windows, doors, interior metal and glass works, TSSC Glass and Aluminium provides complete turnkey solutions.

- Aluminum Doors & Windows
- uPVC Doors & Windows
- Conventional Curtain Wall Systems
- Two Way Structural Glazing
- Four Way Structural Glazing
- Unitized Curtain Wall System
- Sky Lights, Louvers & Canopies
- Frameless Glazing Works
- Aluminum Composite Panel Cladding
- Stainless Steel Cladding & Aluminum Railing

Our doors and windows are available in a wide array of finishes and designs that offer sound insulation, heat preservation and dustproof protection and our state-of-the-art QC laboratories ensure that products supplied meet international standards.

We have developed strategic partnerships with renowned suppliers and manufacturers of glass technologies and supply aluminium systems Technal, ALUK, Gutmann, Gulf Extrusions , Hueck and others.

I Aluminium Doors

Designed for commercial and residential use our aluminium door systems are versatile and functional and can be provided as hinged, swivel, revolving or sliding doors based on customer requirements.



Hinged Doors

- Weather sealed frames
- Various glazing bar designs
- Inward and Outward swing door
- Available in variety of door style configurations and colors
- Improved energy saving with thermally broken profiles



Swivel Door

- 360 degrees swivel. Can be stopped at any degree.
- Tempered, laminated, or double-glazed glass
- Suitable for creating partitions in meeting rooms



Revolving Doors

- Robust construction
- Project-specific diameters
- Fully automatic, power assisted or manual drive system
- High degree of insulation
- Quiet Operation
- Designed for use in buildings with a high volume of visitors.



Manual Horizontal Sliding Doors

- Easily Parted to allow personnel pass-through
- Wide range with different opening options
- Easy Installation



Automatic Horizontal Sliding Doors

- High-speed parting action
- Easy to Set-Up - all adjustments are made with external controls
- Quiet Operation
- Digital Text Display - provides easy to read interface
- Soft Start and Stop - avoids destructive acceleration and deceleration
- Doors Stay Shut - uses motor torque to ensure an airtight seal in the closed position

■ Interior Doors

The joinery division of the Group uses the latest technology to manufacture an extensive range of interior doors. We partner with each customer to provide solutions to meet exact specifications and the doors are the recommended and specified choice amongst consultants, architects and designers due to their performance and durability. Suitable for commercial and residential properties, the doors are manufactured in standard as well as custom sizes and available in a range of colors and finishes.

Our product line includes:

- Fire Rated Doors
- Solid Wood Doors
- Flat Doors
- Grooved Doors
- Veneer Skin Doors
- Doors with Mouldings
- PVC Skin Doors



■ Aluminium Windows

Horizontal Sliding Windows



- Meeting rail and interlock are aluminum extruded for added structural strength and rigidity.
- Provides a contemporary look.
- Strength and stability due to the aluminum.
- Choice of different colors for the frames.
- Easy –opening window over kitchen counters and sinks, also suitable for bedroom egress requirements.
- Opens without using any exterior or interior space.
- The high integral sash track and rollers provide smooth and easy sliding action over the life of the window.
- Windows can be single or double glazed
- Custom features such as extruded heavy duty fly screening systems can be installed.

Hinged Windows



- Increased insulation.
- Provide considerable ventilation
- Efficient weather and waterproofing when closed.
- Provides a large area open to air flow .
- Hinged Windows are simple and cost-efficient.
- Provides excellent ventilation.
- Frame installs easily in a variety of wall conditions.
- Available in standard or custom sizes

Awning / Top Hung Windows



- Functional design
- Continuous hinge for added strength and smooth operation
- Can be left partly open to allow continuous ventilation

■ UPVC Windows & Doors



DURAMAX® is a unique brand for high quality UPVC window and door profiles especially suited to the harsh weather condition of the Gulf.

Benefits of DURAMAX UPVC Windows & Doors

- **UV Protection Layer**

The Coextruded UV layer gives additional thermal protection and keeps out the heat & dust.

- **Welded Joints**

Unlike conventional systems, DURAMAX UPVC windows and doors are welded ensuring that there is no air gap. This keeps the house free from dust and noise.

- **Thermal Break**

DURAMAX windows reduces heat transfer, thus keeping the house cool and reducing electricity consumption.

- **Islamic Arches**

DURAMAX UPVC Windows are more flexible and can be easily shaped into arches and other Islamic architecture designs.

- **Fire Retardant**

UPVC profiles eliminates the hazards of fire and ensure safety

- **Antistatic Property**

UPVC windows repel dust and other harmful particles from the panel

- **Wooden Finish Laminates**

Laminated profiles are designed to match the look and feel of real wood.

- **Maximum Water Tightness**

Broader corner profiles ensure added protection from strong winds, heavy rain and salty air.

- **Recyclable**

UPVC is easier to recycle and does not leave any hazardous waste into the environment.

- **Easy to Clean**

UPVC is nonporous and does not allow dust particles to settle on the surface making it easier to clean doors and windows.



Turn & Tilt Window

- Three-chamber system enhances thermal and sound insulation
- State of the art UPVC Compound ensures high strength corner welding and high impact resistance as per international standards.
- Glass beads with co-extruded gasket provide single, double and triple glaze options.
- Detachable architrave is equipped with frame profiles for internal and external applications.



Hinged Door

- DURAMAX high impact strength profile can be used for windows as well as doors which makes assembly easier.
- Sash and frame profiles are designed to accept all kinds of accessories
- Designed to withstand high wind loads
- Elegant 15" edges on profiles are visually appealing

Sliding Door & Window

- Slope on the inner sliding area (below the tracks) ensures smooth and isolated water drainage
- Large metal reinforcement chambers are designed to withstand maximum wind resistance.
- Glass beads with co-extruded gaskets are provided for single and double-glazing.
- Specially designed fix frame [SW 05] makes the construction of sliding and fixed windows easier.



Comply to:



MEMBER OF U.S. GREEN BUILDING COUNCIL

HOUSING



To meet the rapidly growing demand for housing, the construction industry requires better performance, durability, resource efficiency, quality and affordability. Meeting this demand requires new building methods and materials.

Traditionally housing has been constructed on location with contractors using building materials and putting together individual components to build homes. This is a slow and expensive building process with many inconsistencies in quality of the finished home.

TSSC Building Systems provide design, engineering and factory built high quality panels that eliminate all the challenges of traditional construction methods.

Now builders and developers have a one stop supply source offering comprehensive solutions with an integrated systems-based solution for efficient construction and high-performance housing.

All the components are manufactured at the factory and delivered as a complete system to the job site.

The advantages are:

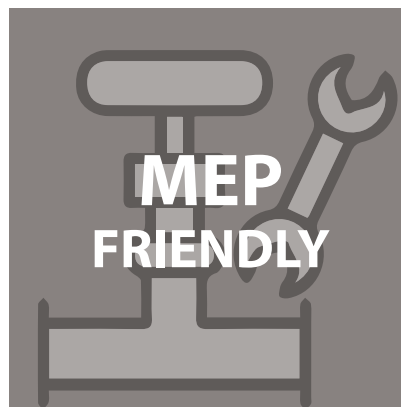
- **Factory Manufactured System**
- **Cost Savings**
- **Consistent Construction Quality**
- **Robust Structure**
- **High Quality Finishing**
- **Superior Thermal & Sound Insulated**
- **Fast Construction**
- **Reduction of Manpower**
- **Takes a Fraction of Traditional Construction Time**
- **High Fire Rating with Easy Core**



TSSC offers the easiest way to build a next-generation, healthy and energy-efficient home



■ Key System Advantages



Our BOSSTM Light Weight Panelized (Dry System) is a combination of Pre-Galvanized Cold Rolled Steel Profiles for a Superstructure, Light Weight Concrete Panels for Flooring and Insulated Light Weight Concrete Panels for Walls.

TSSC offers a panelized wall, roof and structure that gives contractors a Built on Site System (BOSSTM) to erect a home on site with factory manufactured components.

Contractors can build high quality custom homes in a fraction of time of traditional construction method.

Our US and International Patent Pending Panelized System features Walls, Roofs & Floors offering an insulated building that has high energy saving with maximum insulation for thermal and acoustic performance.

To solve the challenges related to slow and expensive building processes and inconsistencies in quality TSSC created a factory manufactured panelized system

Construction

■ Cold Rolled and Galvanized Structure:

Factory manufactured structural galvanized modules can be placed on the concrete or steel beams

- Manufactured and assembled at the factory as per the given design
- Easy installation
- Light weight
- Flexible to form any shape

■ External Walls:

Factory manufactured 200 mm Light weight concrete, insulated and fire-resistant walls.

- Can be delivered to different heights
- Easy to create modules for doors and windows
- Easy to form corner and intermediate panels
- Can be used as a formwork / shutter in case of concrete structure
- In built conduits as per Building design
- Easy finishing

■ Internal Partition Walls:

Factory manufactured light weight concrete wall panels, high acoustic resistance values and fire rating

- Easy to handle
- Easy to install
- Easy to form any shape of walls
- Easy to create routes and openings for MEP
- In built conduits as per Building design
- Easy finishing

■ Light Weight Concrete Flooring Panels:

Factory manufactured Light weight concrete panels

- Fixed on the galvanized steel structure as a dry concrete flooring without any wet process
- Fire resistant
- Can sustain higher floor loads
- Flexible to form any shape

■ Doors and Window:

- Fire Rated, FSC Certified, Flat, Veneer Skin, PVC Skin, Grooved and Solid Wood Doors
- uPVC doors and window
- Aluminium hinged doors, service doors, manual horizontal sliding doors & automatic horizontal sliding doors
- Aluminium horizontal sliding window, hinged window & awning / top hung windows

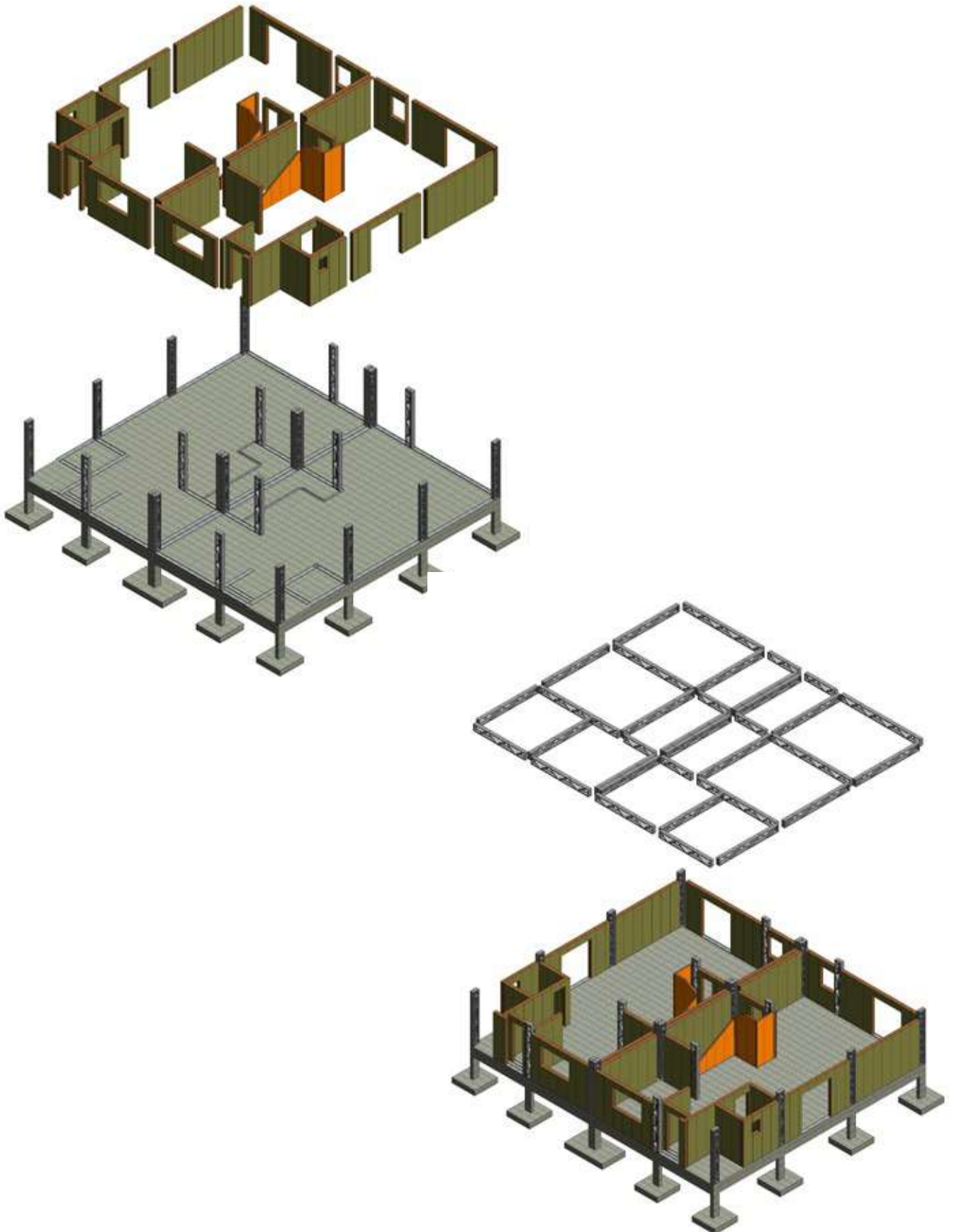
Built on Site System (DRY)

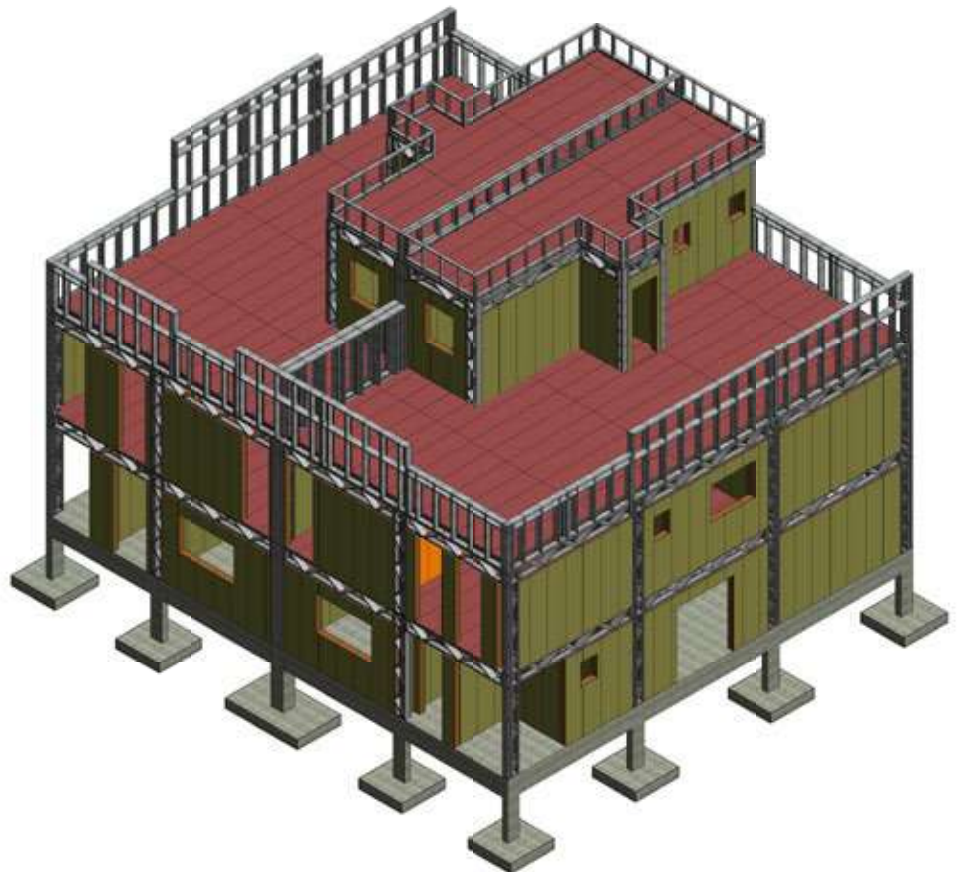
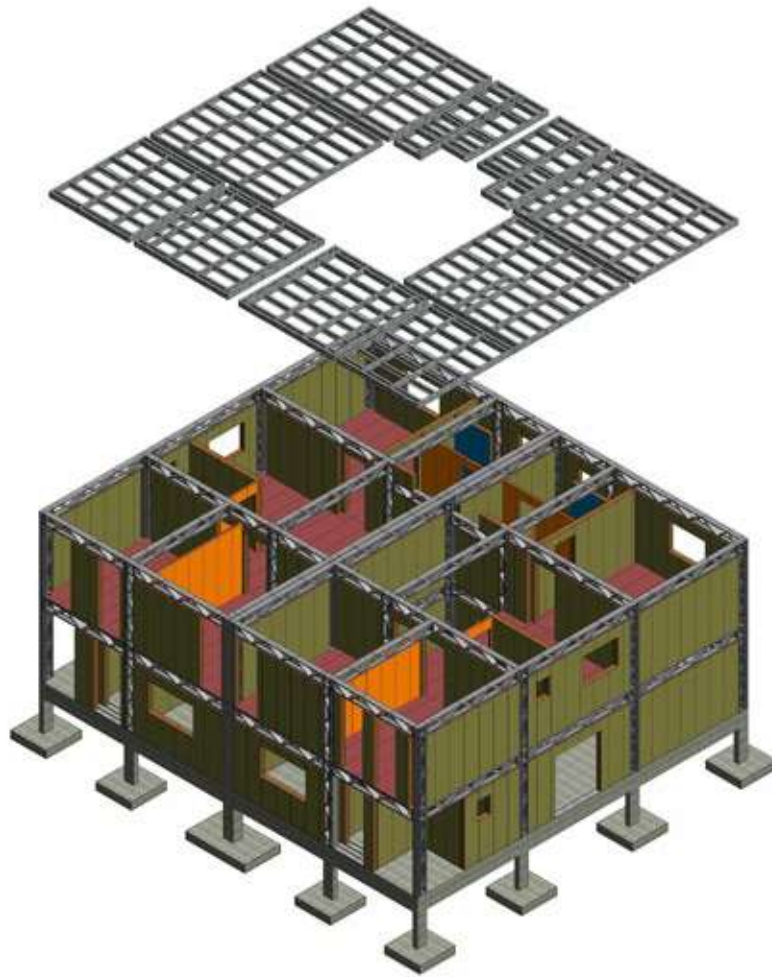
TSSC has created a panelized wall, roof and structure system that allows contractors and builders to build quality custom homes quickly and affordably using a Built On Site System (BOSS). The US and International patent pending structural wall system assembles on site quickly. They are prefinished with exterior and interior surfaces. Electrical, plumbing and HVAC supplies are all predesigned and integrated into the housing system. It takes a fraction of the time to build the home compared to conventional construction. All that's required is the finishing paint work along with interior finishing for kitchen, bath and flooring.

All TSSC Building System components are of high quality and certified to international standards for safety and high performance. Components used in the system are all manufactured by Harwal Group under stringent quality control. These include :

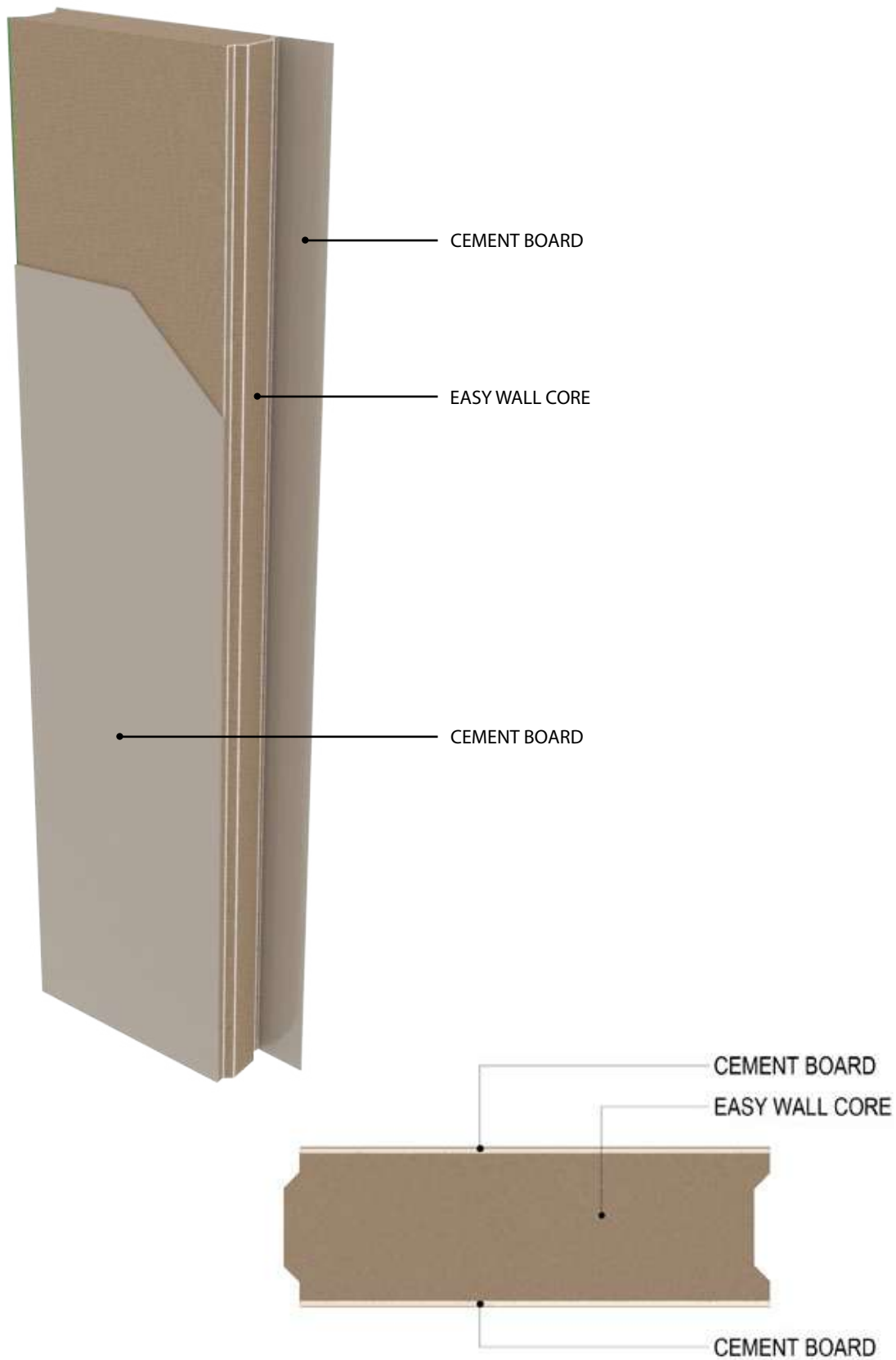
- Light Gauge Steel
- Light Weight Concrete
- Insulated Panel
- Electrical system
- Plumbing System
- Roofing Systems
- Windows
- Doors
- HVAC System



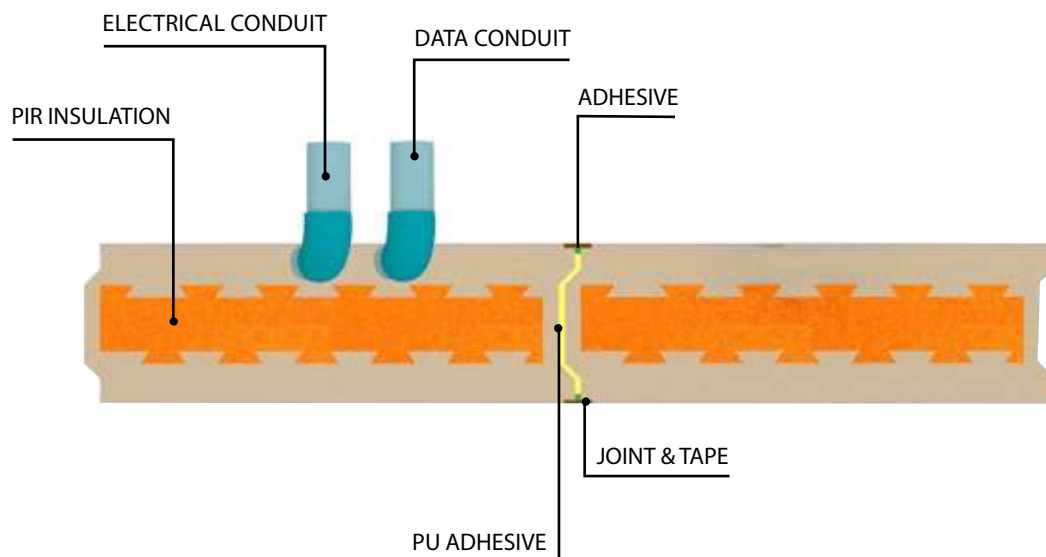




BOSSTM Light Weight Concrete Panel (LWP)



■ BOSSTM Light Weight PIR Insulated Concrete Panel (LWP with PIR Insulation)



House Exterior



■ House Interior



■ Project - Installation





Bathroom Pod



■ Boundary Wall



Affordable Housing

At TSSC, we focus on the growing need for affordable housing. The homes we build are constructed with superior, sustainable products that offer value for money.



Our range of affordable homes are constructed with 2 hour fire-rated EASYWALL panels (Structural Light Weight Concrete Wall Panels) and PIR Insulated Roof Panels. The advanced technology and engineering applied to develop the affordable homes make them suitable for most building applications.

- Affordable housing communities
- Schools
- Community Clinics
- Prayer Areas
- Workers accommodation
- Retail Facilities



The homes are available in a variety of standard sizes as single and double storey buildings and are ideal for all weather conditions. The building design allows for multiple expansions and is easy to assemble.

Simply, our affordable housing units offer Value for Money to the Client, Contractor & Developer!

Key Features

- Good Thermal and Acoustic Insulation
- Termite resistant
- Easy installation; all parts are pre-cut for ease of assembly
- Fire Rated Panels
- Structural walls designed to carry loads
- PIR Insulated Gable Roof design for easy water drainage
- Tall walk-in building (standard panels are 2.4m and 3m high)
- Fitted with Solar Panels (optional)

Typical Layout



2 Bedroom House - 39.5 Sqm
Veranda - 7.5 Sqm

Prefab Buildings & Container Units



Labor Accommodation



Prefab Buildings



I Prefab Buildings

As a pioneer in manufacturing of polyurethane injected / laminated insulated panels, TSSC specializes in designing and manufacturing Prefab Buildings utilizing fully insulated roof, walls and partition along with door panels due to which the building is provided with exceptional thermal insulation, thereby resulting in low electricity and maintenance cost. TSSC Prefab buildings can be used for various applications such as exclusive executive accommodations, general office stations, majlis, dining & kitchen units and labour accommodations facilities.



- LGS Frame Construction for Longer Life Span
- Insulated Roof, Walls and Partitions
- Exceptional Thermal Insulation
- Low Electricity and Maintenance Cost

- Built in a Controlled Environment
- Quick Erection Time Compared to Conventional Buildings
- Reduction in adhoc Engineering on Site
- Flexibility in Design



PortaCabins

TSSC is the industry leader in the design and manufacture of composite sandwich cladding PortaCabins, used extensively for labor accommodation, office units, security cabins, kitchen and dining facilities, clinics, storage rooms and a host of other utility requirements. All units are factory assembled and delivered to site with electrical, sanitary, plumbing, pantry and office furniture already installed. Simply connect the power outlets to a main source and they are ready to use.

TSSC PortaCabin units can be relocated multiple times using cranes or heavy duty forklifts. They are the best solution for rugged and remote sites which are exposed to harsh weather conditions.



FlatPack Container Units



With its expertise in designing shelters, homes and camps, TSSC has developed an innovative and premium range of durable and cost-efficient flat pack Modular House Containers. These sturdy modular buildings offer excellent insulation, are easy to assemble and present the best solution for refugee camps .

In addition to being comfortable our Flat Pack containers are Fire Safe (with Insulated PIR Fire Rated as per ASTM E/84 Class A) and easy to transport. The modular houses come in assorted sizes and internal plans can be adjusted to suit more than one family.

- Highly durable, long lasting and low maintenance
- Delivered factory assembled or in knock-down form (quick and easy assembly nut and bolt connections)
- Insulated Roof & Walls
- Attractive pre-painted metal interior walls
- Units provide superior heat and sound insulation and are waterproof
- Resistant to mold, mildew, algae, rodents and termites
- Surface-mounted electrical conduits and boxes
- Electrical and sanitary connections ready for plug and play
- Electrical, light fixtures, A/C units and Furniture are available (optional)
- Can be manufactured based on custom floor plans and dimensions
- 10 Pcs of standard sized flat-pack fit into a 40ft container



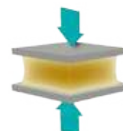
High Quality
Panels



Moisture
Resistance



Environment
Friendly



Structural
Strength



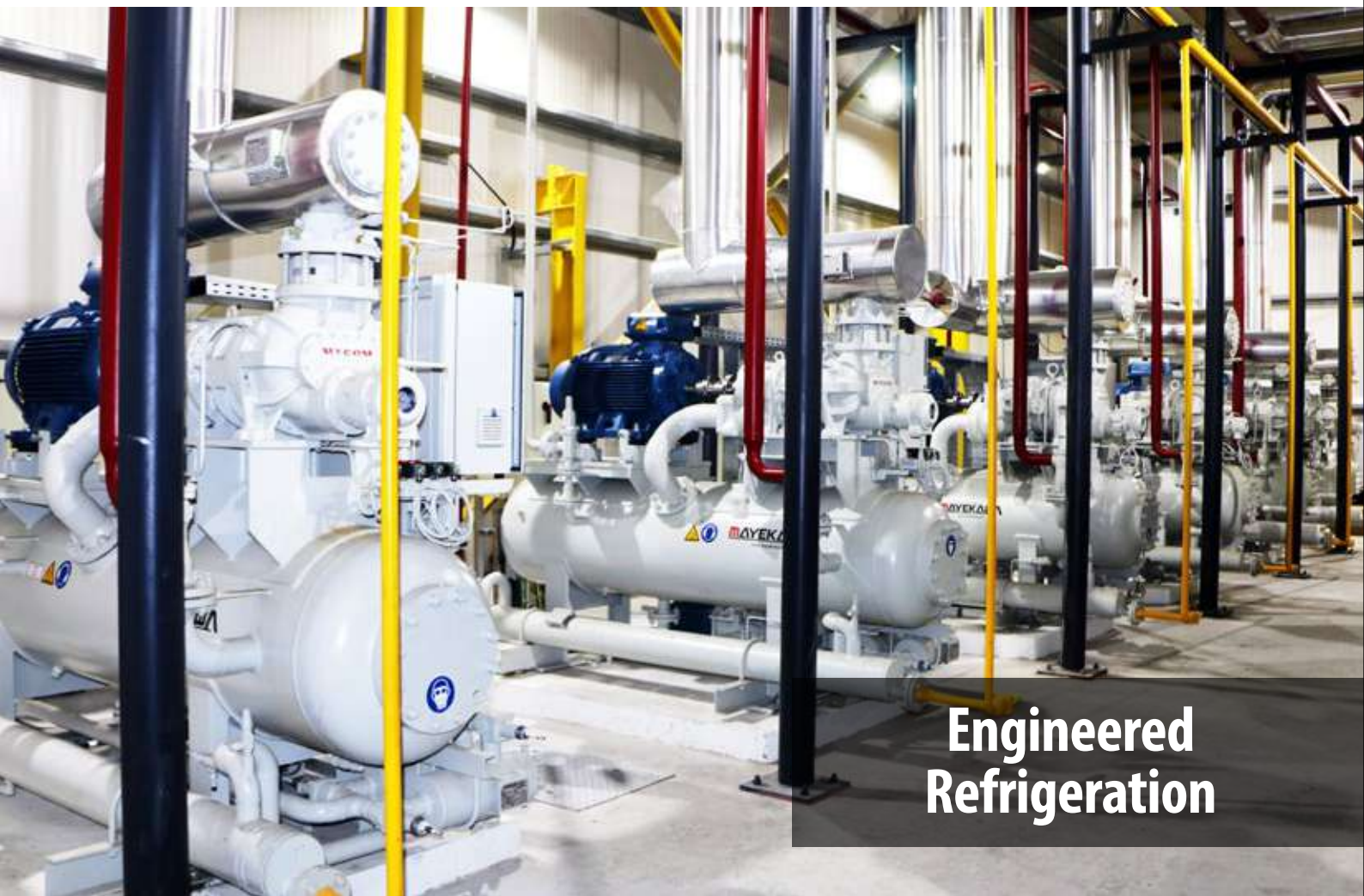
Fire Retardant



Cold Chain Solutions



**Temperature
Controlled Stores**



**Engineered
Refrigeration**



**Cold Storage
Warehouses**



**Refrigerated
Transport**

Cold Stores

TSSC has been the frontrunner of manufacturing insulated panels for over 48 years in the Gulf region. Our FM approved insulated panels systems are ideal for use as internal and external walls, roofs and ceilings within temperature controlled and hygiene safe environments such as cold storages, freezers and coolers, refrigerated vehicles, food processing facilities and clean rooms for pharmaceutical industries.

Panels in lengths up to 17m are produced in our state-of-the-art production facilities and are available in a variety of profiles and thicknesses to allow for a range of temperatures to be maintained. The panels are washable, preventing bacteria and mold growth and the panel joints offer excellent air tightness, preventing thermal bridging and condensation.

TSSC offers its customers a diverse product line for temperature extremes; from blast freezers as cold as -40°C to pharmaceutical stability rooms up to 60°C. TSSC is the only company in the GCC region which provides FM certified camlock panels.

TSSC also manufactures Insulated doors of specified sizes to be used in cold rooms. Hygienic flooring methods such as polyurea coating complement the solutions we offer. With years of expertise in industrial & commercial refrigeration, transport refrigeration as well as HVAC systems, TSSC can provide turnkey, economic and environmentally friendly solutions for the cold chain industry.

- **Warehouse Cold Storages**
- **Walk-In Chillers & Freezers**
- **Portable Skid Mounted Cold Rooms**
- **Offshore Refrigerated Containers**
- **Refrigerated Truck Bodies & Semi-Trailers**



**High Quality
Panels**



**Environment
Friendly**



**Largest
Production**



**Fire
Retardant**



■ Assembly

Insulated panels are joined together to assemble cold room walls, ceilings and floors in required lengths. The panels are tightly secured by the slip joint system for good structural stability.

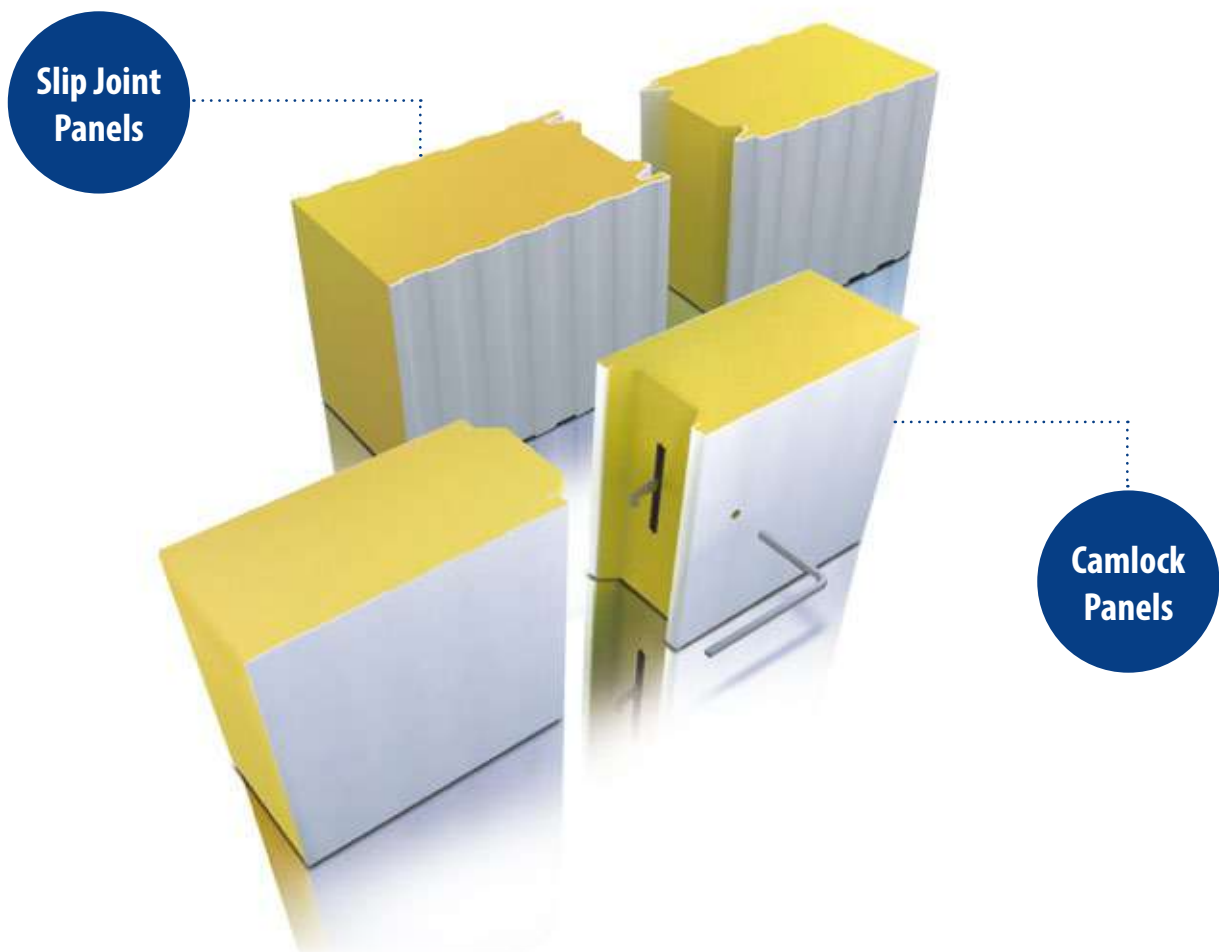
The Slip Joint is a unique, interlocking, tongue-and-groove joint technology that has been adopted across the world for its unsurpassed sealing and waterproofing. It is a well-organized sandwich panel system that utilizes a male-female action on the longitudinal joint to achieve superior tightness and insulation.

Panels slip into place allowing for easy and rapid installation, whilst improving structural strength and thermal efficiency, offering a clean aesthetical appeal.

TSSC also provides an All-Camlock system to connect ceiling to wall and floor to wall panels. This provides an easy to assemble connection system, which has a high aesthetic appearance. Insulated panels connected to assemble cold room walls, ceilings and floor are also tightly secured by the tongue-and-groove system into a monolithic assembly. For joining the panels, camlocks with steel hooks are used to lock securely. The camlocks are molded and permanently anchored in the injected rigid polyurethane foam core during the manufacture of the sandwich panel.

The use of camlocks in connecting the panels makes TSSC cold rooms easily expandable as well as dismountable, thus allowing easy reassembly at various locations.

TSSC is the only company in the GCC region which provides FM certified camlock panels.





■ Insulated Doors

Hinged doors are of different types such as single leaf or double leaf, overlapping or flush. These doors are always open in the outward direction towards the left or the right. For applications that require flexibility in the location of the door, TSSC supplies retrofit reachin doors. If the location of the door were on a single panel, it could be factory installed. However, if the door space needs to be shared between two panels, the hole would need to be size cut at the site.

The size of standard doors are 90cm(2.95ft) x 190cm(6.23ft) and are insulated with CFC free polyurethane of density 42 kg / cubic meter (2.62 lb/ft³).

TSSC supplies a choice of CFC free polyurethane insulated doors in different thickness for various applications. These include:

1. Sliding doors from ITALY and DENMARK
2. Hinged doors from USA and France
3. Traffic swing type doors with glass porthole from MIV (Italy)
4. Hydraulic self-closing doors
5. Controlled atmosphere doors
6. Horizontal and Vertical Automatic doors from Europe
7. Single and Double leaf swing doors from Europe
8. Display thermal glass doors
9. Insulated sectional doors
10. High Speed Curtain Doors
11. Controlled Atmosphere Entrance

Other features of TSSC™ doors include:

1. Durable hardware and attractive hinges and handles built for years of trouble-free usage.
2. Safety release handles that glows in the dark to prevent entrapment inside old storage.
3. Door heater wire.
4. Aluminum or stainless steel railings for
5. Highly durable.
6. PVC Curtains



TSSC also supplies a range of door accessories that include:

1. Interior or exterior ramps manufactured according to client requirements
2. Display thermal glass
3. Hydraulic door closers (self-closing doors)
4. SS & Chequered Aluminum Kick Plates



Industrial & Commercial Refrigeration

With extensive experience in carrying out major projects in the GCC, TSSC provides a full range of service in the construction of cold rooms including the design, supply, installation and commissioning of a complete refrigeration plant through its association with Kelvin Controls.

Kelvin Controls is a leading design, engineering and contracting company providing services pertaining to temperature control. The company has extensive expertise in end to end execution of cold chain facilities. Through extensive knowledge and technology partnerships with leading international cold chain solution providers Kelvin Controls caters to all types of cold storage facilities, logistics centers, food processing areas, clean rooms and quickfreezing applications including blast freezing, IQF, Plate freezing and other such processes.

With years of expertise in industrial & commercial refrigeration, transport refrigeration as well as HVAC systems, TSSC in association with Kelvin Controls provides turnkey, economic and environmentally friendly refrigeration solutions to clients. With a reliable after sales and service workforce, we also offer annual maintenance contracts, spare parts for our valued customers and a 24-hour service to guarantee that all systems installed by the company operate without fail. The large volume of returning customers is evidence to TSSC's commitment towards customer satisfaction.



Refrigeration

TSSC and Kelvin Controls, with its in-depth knowledge in refrigeration systems delivers smart Engineered Refrigeration Systems for Industrial, Commercial & HVAC applications. We provide world class solutions for creating temperaturecontrolled storage systems and processing plants using globally accepted natural refrigerants like Ammonia(NH₃), CO₂, H₂O as well as ZERO ODP, Low GWP Synthetic Refrigerants creating a greener atmosphere while ensuring better ROIs for its customers with lowest energy consumption.



- Pioneers in Ammonia / CO² based Cold Storage facility to optimize energy consumption. [UAE]
- Plan, Design, Estimate and Build complete Temperature Controlled Warehouses
- Auditing / Troubleshooting of Refrigeration Systems





COLDBOX - Modular Walk - In Chillers & Freezers

COLDBOX is an Innovative modular cold room manufactured from high quality HCFC free PIR insulated panels. The exterior surface of the panels is coated with durable polyester.



Easy to Assemble

- The unique slip joint system of COLD BOX results in perfect panel fitting making it quick and easy to assemble. Compared to the traditional tongue & groove panels slip joint panels are also faster to produce.

Excellent Temperature Retention

- Due to fewer joints COLD BOX Slip Joint Cold Rooms are airtight causing no air leakage. Excellent thermal efficiency is achieved through insulation thickness of 100mm for chiller applications and upto 200mm for freezer applications.

Easy to Transport (Knock Down)

- COLD BOX cold rooms are available in standard sizes and all the packs are marked with product descriptions which are individually packed. These walk-in chillers and freezers are detachable and supplied in Knock-down form. The panels are highly durable and designed to fit in standard shipping containers

■ Certified Panels

COLD BOX Slip Joint Cold Room panels are FM and Dubai Civil defence approved unlike other cold room panels.

■ Highly Efficient Insulated Doors

COLD BOX cold storage doors are equipped with European and US accessories from renowned companies such as DANDOOR, KASON & FERMOD. The door hardware and accessories are either chrome plated, or PVC coated providing a perfect tightness for positive and negative temperatures.

Features

Construction	Fire Resistant PIR foam core panels with modular dimensions
Joint System	Slip joint connection for structural strength and air tightness
Panel Thicknesses	100 mm, 150 mm, 170 mm and 200 mm.
Profile Options	Low Rib, Micro Lining, Micro Wave, Groove, Flat
Panel Height	2500 mm to 3500 mm
Corner Pieces	Internal PVC rounded profiles. External panels are manufactured as corner panel
Coating of walls & ceilings	RAL 9010 or RAL 9003 Material substrate : Galvanized Pre-Painted Polyester coated Steel /PVC Coating /Food Safe coating as optional (Stainless Steel is available upon request)
Available Volumes	13m ³ to 32m ³
Floor Panel	Marine Plywood / WBP Plywood covered with aluminum checkered plate / Stainless Steel surface.
Insulation	HCFC & CFC Free PIR Insulation with density 40 +/- 4 Kg/m ³
Temperature Range	+2°C to + 18 °C for chilled products. -2°C to + 5 °C for meat and fish. -18°C to - 22 °C for frozen food.
Doors	Flange mounted or Flush Mounted Doors are supplied with heavy duty hinges and lockable door handles. The doors are pre-mounted onto the panels for ease of assembly.

Standard Sizes

Item		Standard Cold Room Sizes MODULO-S				Refrigeration Capacity	Applications
No.	L (m)	W (m)	H (M)	Area (m2)	V (m3)	kW	
1	2.25	2.25	2.6	5.06	13.2	1.76	Chiller
2	2.25	3.375	2.6	7.59	19.7	2.50	Chiller
3	3.375	3.375	2.6	11.39	29.6	3.90	Chiller
4	2.25	4.5	2.6	10.13	26.3	3.90	Chiller
5	2.25	2.25	2.6	5.06	13.2	1.76	Chiller
6	3.375	3.375	2.6	11.39	29.6	2.61	Freezer
7	2.25	4.5	2.6	10.13	26.3	2.21	Freezer
8	2.25	5.625	2.6	12.66	32.9	2.61	Freezer

• Chiller Applications Range from +2°C to + 18 °C

• Freezer Applications Range from 0 °C to -25 °C

Refrigerated Trucks & Semi-Trailer



Refrigerated Trucks

TSSC has long been a pioneer in the manufacture of isothermal bodyworks and employs the latest production techniques to manufacture insulated vehicle bodies to the highest standards.

From small to large, mid-temperature to deep-frozen, TSSC can build refrigerated vehicle bodies for pickups, trucks and vans to specific requirements. These vehicle bodies are ideal for transporting dry goods as well as food products such as dairy, poultry, meat, fruits and juices.



Reefer Trailers

TSSC is the market leader in providing cold chain logistics solutions to its clients and builds rigid Refrigerated Trailers. The Reefer Trailer combination is built high performance parameters and the Trailer Bodies are available from 73 CBM to 81 CBM with a length ranging from 13.6 meters to 15.0 meters. TSSC also supplies and installs Refrigeration Units from reputable brands.





Solar Powered Trucks

With proven expertise in isothermal body works, TSSC is providing an innovative, cost-efficient, clean, quiet and easy to use system by harnessing the power of the sun. Our innovative range is the use of solar panels to power the refrigeration units. This application is suitable for refrigerated trucks & trailers designed to maintain refrigerated conditions of the insulated box, which must be able to operate at chiller temperatures (+10°C).

Benefits of the Solar Powered S-Series Units

- Less Energy Consumption - Harnesses the energy of the sun
- Cost Savings on Fuel - Eliminate idling
- Low Maintenance
- Vehicle engine failure does not effect the cooling system
- Less Noise Pollution
- Long life Battery
- Green Technology - Elimination of emissions associated with diesel exhausts and global warming

Refrigerated Vans



Refrigerated Van and Pickups are built by fitting a refrigerated box inside the van or pickup. While the standard size refrigerated box measures 3.5m x 1.6m, different sizes can be customized to meet client requirements.

TSSC refrigerated boxes are extremely durable and combine high quality insulation with excellent thermal characteristics. They are easy to clean and maintain, and provide the ideal temperature-controlled environment for your goods. Flooring options include aluminum checkered plate and polyurea coating.

TSSC Refrigerated Vans are ideal for small businesses such as restaurants, supermarkets and general stores.

MEP Services



Harwal Technical Services, our MEP division provides integrated engineering solutions which encompasses design, procurement, installation, project management and maintenance of mechanical, electrical and plumbing services for commercial, residential and infrastructure projects. Our services extend across the supply and installation of

- Electrical systems
- Fire alarm systems
- Plumbing systems
- Airconditioning Systems with PI and GI duct installation
- Fire Detection and Protection Systems (pumps, clean agent system , FM 200 and foam system) .
- Low current system (SMART TV , CCTV , Access control , Gate barriers , Telecommunication system) .
- Interior fit- out contracting for restaurants and shops





TSSC also manufactures PU and Phenolic Ducts and provides ducting fabrication services, supply, installation, and maintenance for various scale of projects, whether it is residential luxury villas, commercial buildings, warehouses, labor camps, hotels, schools, or office towers. Our MEP division is among renowned service providers for HVAC offering Design, Implementation, Installation, Commissioning, Maintenance and Repair services.

We handle various services including the following elements:

- Ducting-GI, Polyurethane and Phenolic Duct Board
- Supply and installation of A/C plant and equipment
- Insulation
- Panel installations- Distribution Boards



■ uPVC Drainage Pipes & Fittings

Cosmoplast provides the most comprehensive range of uPVC drainage pipes and fittings in sizes 36mm up to 630mm manufactured according to the latest European standards.

The pipes and fittings are produced with both solvent welded joints and rubber (push fit) joints, to satisfy all drainage applications in residential and industrial buildings.



Cosmoplast uPVC drainage pipes and fittings are certified by BSI and awarded the BS Quality Kite Mark



■ HDPE Drainage Systems

Cosmoplast HDPE drainage system is the ultimate solution for the drainage applications that require special high-performance material. These pipes and fittings are manufactured according to the latest European standards and joined by butt-fusion or electrofusion techniques.

The characteristics of the polyethylene such as the outstanding chemical resistance, high temperature rating, flexibility and high sound insulation make it the ideal selection for laboratories, hospitals, universities, hotels, residential and industrial buildings.

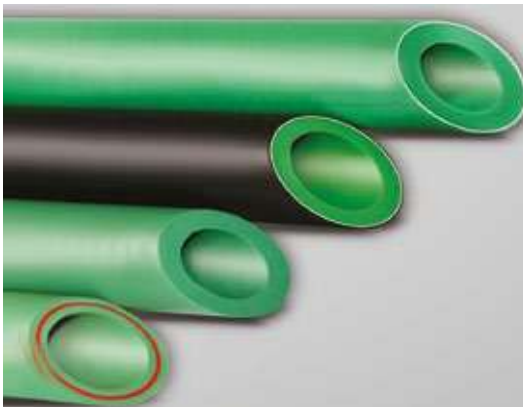
Cosmoplast HDPE Drainage Pipes are certified by BSI and awarded the BS Quality Kite Mark.



■ PP-R Pipes & Fittings

Cosmoplast PP-R pipes and fittings are manufactured according to the German and ISO Standards in sizes 20mm to 160mm. The outstanding temperature rating up to 95°C, pressure rating up to 25 Bar and life expectancy exceeding 50 years make PPR system the ideal solution for hot and cold water distribution systems in all types of buildings.

Cosmoplast PPR Pipes and Fittings are certified by WRAS and by DVGW



■ CPVC Pipes & Fittings

Cosmoplast CPVC pipes and fittings are characterized by unique thermal, physical and mechanical properties which them the ideal option for the application that which require high temperature and pressure tings, high impact resistance and fire resistance.

Cosmoplast CPVC pipes and fittings are manufactured to the ASTM standards in sizes ½" to 8"and certified by NSF.



■ PEX Pipes & Fittings

Cosmoplast PEX pipes manufactured from crosslinked high density polyethylene material pulled inside corrugated conduits of polyethylene. The flexibility and pliability of the PEX pipes coupled with reusable compression fittings make it the ultimate solution for hot and cold and water distribution systems characterised by easy maintenance and long-life expectancy exceeding 50 years.

Cosmoplast PEX Pipes are certified by DVGW, SKZ WRAS and BECETEL.



■ UPVC Pressure Pipes and Fittings

Cosmoplast provides the most comprehensive range of UPVC pipes and fittings manufactured in both metric and imperial sizes according to wide set of American and European standards in various pressure ratings.

Cosmoplast UPVC pipes and fittings are manufactured in sizes from 20mm to 630mm and 1/2" to 12" with both solvent welded joints and rubber (push fit) joints, to satisfy all piping applications in residential and industrial buildings in addition to the irrigation and landscaping applications.



Electrical Systems PVC & Metal

DECODECT[®]
CABLE MANAGEMENT SYSTEMS



■ Conduits & Accessories (U PVC)

An exhaustive range of Cable Management System manufactured in accordance with BS EN 61386-21 for rigid PVC conduits & fittings, BS EN 61386-22 for PVC Corrugated Conduits and BS 5733/BS 4662 PVC Accessory Boxes. Complete range is INTERTEK certified for quality and RoHS compliant. Complete range of products are also available in Low Smoke & Fume (LSF) meeting BS EN 500086-2-1 and passing smoke and HCL emission rating meeting ASTM E662 as well as IEC 60754-1. In addition, American Standard Conduits & Accessories are manufactured from 1/2" to 6" sizes meeting NEMA TC2 standards for Schedule 40 rating.



■ Trunkings & Accessories (U PVC)

Widest range of PVC trunking and accessories covers Perimeter(Dado), Skirting, Coving, Mini & Maxi trunking products with accessories for all types of surface wiring systems. All products are manufactured in accordance with BS EN 50085-2-1. Accessories include all fittings and surface boxes in accordance with BS5733 & BS4662.



■ Metal Cable trays, Trunkings, Ladders & Accessories (HDG/ GI)

DECODECT[®]
METAL CABLE MANAGEMENT SYSTEMS



One stop solution for all types of metal cable management systems are manufactured in both Hot Dip Galvanized (HDG) & Pre-galvanized (GI) steel material. Exhausted product categories include Cable Trays, Trunking, Ladder, Channels and all supported accessories.

HDG Cable Tray System is manufactured in accordance with BS EN 10143, BS EN 1461 & BS 1449-1. GI Metal Trunking range is manufactured in accordance with BS EN 10346, BS EN 10143 & BS EN 50085-2-1. HDG & GI Floor Distribution System is manufacturing in accordance with BS EN 10346. A complete range of Metal Channels & support system is available along with hardwares to get the job done at a single source of quality products.



■ Under Floor Boxes and GI Metal boxes

A complete range of GI metal mounting boxes is manufactured in accordance with BS 4662:2006 + A1:2009.



■ Corrugated Conduits and Accessories



Rigid PVC Corrugated Conduits & accessories are manufactured from 20mm to 50mm diameter with snap-in fittings in PP ('0' Halogen) meeting the international standards BS EN 61386-22.

■ Steel and PVC Coated Flexible Conduits and Accessories

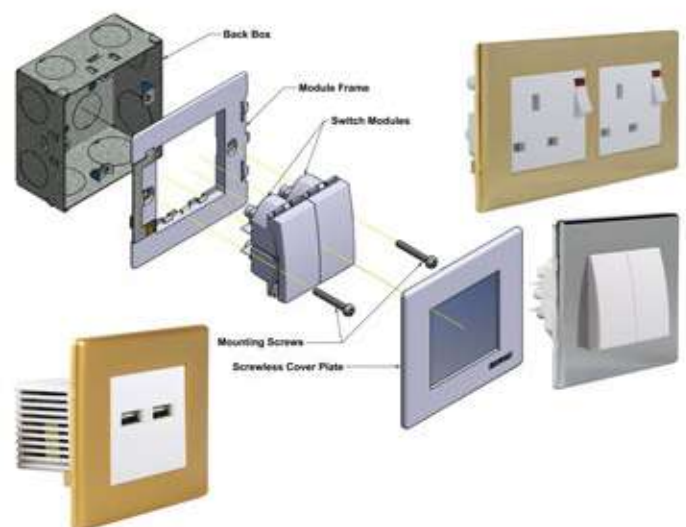
PVC Coated GI Flexible Conduit range is available from 20mm to 50mm size suitable for higher weathering resistance for applications in harsh weather conditions with salinity. These are suitable to be used for maximum operating temperature of +80 deg C. The PVC coating material meets the international standards of Low Smoke & Fumes applications.



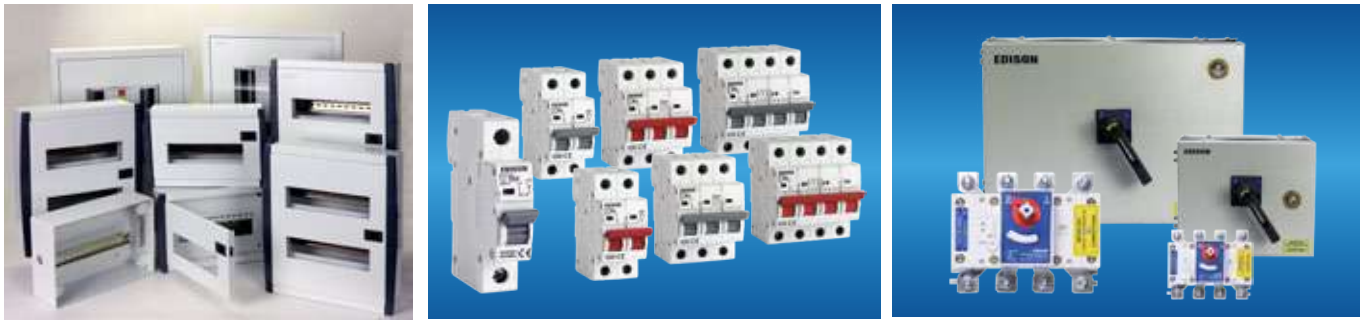


A state-of-art & fully integrated manufacturing facility established in 1997 is offering complete range of Wiring Devices meeting BS EN 60669-1:1999 +A2:2008 and BS 1363-2:1995. All products manufactured under EDISON Wiring Devices are ASTA certified with Diamond Mark for quality. All products' cover plates are manufactured in unbreakable Polycarbonate Engineering Plastics with 20 years limited warranty. All product ranges are CE certified meeting European Safety norms. The ranges offered are:

- DURA: Curved Edges with Screw Plugs
- ELITE: Screwless PC Cover Plates in attractive finishes.
- ROYALE: Complete range of Modular Accessories with Large Rockers
- PLUS: Medium Size Rocker Switches
- WEATHERPROOF: IP56 & IP65 rated Weather Proof Accessories
- SLIMLINE: Screwless Slim Cover Plates in attractive colours
- INDUSTRIAL: IP66 rated Industrial Plugs and Switched Sockets
- ADAPTABLE BOXES: IP56 rated self extinguishing boxes with UL94 rating



■ EDISON Low Voltage Components and Distribution Boards



An exhaustive range of Low Voltage Components and Distribution Boxes are manufactured under stringent quality as follows:
Miniature Circuit Breaker: In accordance with IEC 60898-1 & IEC 60947-2, DIN rail mountable from 1P to 4P types up to 63 amp at 240/415 V.

Distribution Boxes: In accordance with BS EN 60439-3 in 60 to 80 micron RAL 9003 powder coated boxes ranges

- SPN 1 Row -4,6,8,10,12,16,20 Way
- SPN 2 Row -12x2, 16x2, 20x2 Way
- TPN Horizontal -4, 6, 8, 12 Way
- TPN Vertical -4, 6, 8, 12 Way
- Isolating Switches : Ranges include
- Enclosed Dis connectors Rotary Switch - Meeting BS EN60947 suitable up to 100 amp rating
- Enclosed Switch Isolators -Meeting BS EN 60947-3 from 16amp to 63amp rating in 1p+1, 2P, 3P+N and 4P
- Load Break Switches - Meeting EN 60947-1&3 from 125A to 1250A 4 frame size, 4 poles
- On Load Changeover Switches - Meeting EN 60947-1&3 from 63A to 1250A 5 frame size, 4 poles

■ INTERGARD Cable Protection Systems



An extensive ranges of Cable Protection Systems are manufactured meeting BS 2484:1985 for the impact strength. Ranges include;

- Rigid PVC Cable Tiles - In 3 widths 150mm, 200mm & 300mm and 4 thicknesses 2mm,2.5mm,2.7mm & 4mm
- Polyethylene Cable Tiles & Boards - Tiles in 200mm width and 3 thicknesses 6mm, 9mm & 12mm
- Polyethylene Warning Tapes - In 100 micron thickness and 3 widths 100mm, 150mm & 250mm
- Detectable Warning Tapes - Detectable Metal backed PE tapes in 150 micron thickness 3 widths 150mm, 250mm & 300mm
- Custom widths, thickness and warning printing is also offered for bulk requirements

Solar Solutions



Through its growth initiative, TSSC has strategic marketing relationships with RECOM Global and ENERWHERE to promote high efficiency PV modules and solar solutions for the housing, construction, cold chain, warehousing and logistics industries in Saudi Arabia and the Middle East region(Ongrid and Offgrid).

RECOM is the largest PV module manufacturing company in Europe and a comprehensive solar solutions provider. The collaboration will accelerate TSSC's Solar Panels and Power projects to meet customer needs and increased demand for the design, manufacturing and purchase of sustainable energy housing in the Kingdom.



Roof Area	Solar Rooftop System	Electricity Generated Annually	Annual Savings on Electricity Consumption (approx.)
100 sqm	12 kWp *	18 MWh*	75% *

* The above figures are for reference only based on a Life Cycle assessment of a 100 sqm Roof House in Saudi Arabia prepared in consultation with EnerWhere Solutions. For exact calculations, please check with ENERWHERE or TSSC Technical Department

Global Locations



“Innovation is our Culture”



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