



COLD STORAGE  REFRIGERATION  THERMAL PANELS

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TR 45/250 INSULATED ROOF & WALL SANDWICH PANEL

TR45/250 INSULATED ROOF PANELS

ABOUT US



With over 40 years experience in delivering gold standard commercial refrigeration and custom cool room construction in Perth and across Australia, ALLIED STRUCTURES keeps building a reputation for quality and excellence. We also take pride in delivering a superior product that meets your unique needs, providing expert and genuine service that will meet your time and budget demands.

All our commercial refrigeration and cool room construction projects are fully guaranteed and built to the

highest standards. Don't compromise on cool rooms, freezer rooms, clean rooms or warehouses. Let ALLIED STRUCTURES deliver service and experience that you can rely upon.

Our expertise encompasses many types of businesses; supermarkets, delicatessen stores, pubs, bottle shops, service stations, mobile units, fruit and vegetable shops and dairies just about any commercial space that requires controlled freezing or cooling would bear the ALLIED stamp.



**WE DESIGN, MANUFACTURE
AND INSTALL ALL ASPECTS
OF INSULATED PANELS AND
REFRIGERATION PROJECTS,
OVERSEEING EVERY DETAIL
FROM CONCEPT TO HANDOVER
AND MAINTENANCE.**

If your business is:

- Abattoir
- Bakery
- Butcher Shop
- Café or Restaurant
- Clubs & Sporting Facility
- Delicatessen
- Fast Food Outlet
- Fish Shop
- Florist
- Fruit & Vegetable Shop
- Growers Farm
- Hotels And Motel
- Liquor Store
- Poultry Farm
- Seafood Processor
- Service Station
- Small Goods Manufacturer
- Supermarket
- Water Bottling Plant
- Warehouses
- Winery

ALLIED STRUCTURES will provide you with premium quality products and exceptional customer service.

OUR PRODUCTS



COOL ROOMS

Cool Room structures have advanced dramatically over the last few decades. Where Insulated Panels were traditionally used for temperature controlled environments, we now see them being used in many different applications such as, high-level clean room projects, cladding building walls, offices and storage rooms.

Our Insulated PIR Panels are considered one of Australia's premium panels, offering high levels of thermal values and fire-retardant properties and are backed with long Warranties.

FREEZER ROOMS

We understand that hygiene is the key in food processing and storage environments. Our Insulated PIR Panel range are specifically designed to provide high levels of sanitation, to resist moisture, eliminating the risks of mould or bacterial growth.

ALLIED Structures design, supply and install the project to suit your unique needs.



CLEAN ROOM - STATIC SPACE ROOMS

With the ever-increasing health and safety regulations and the need for more sterile working environments, especially in the food preparation industry, we have experienced an increase in demand for our superior environmentally controlled clean rooms. These rooms have become popular for manufacturers, food processing companies that have a high level need for sterile work spaces.

Our Insulated PIR Panels feature a flat non-porous surface on both sides of an insulated panel, which aids cleaning and offers high levels of resistance to mould, moisture and bacterial growth, ensuring a controlled environment that minimises airborne particles and microorganisms. These rooms are the ideal solution at pharmaceutical and bio-technology laboratories; healthcare; medical research and advanced technology facilities.

CELLARS

According to NADK (National Alcohol and Drug Knowledgebase) the yearly average consumption of alcohol is 10 litres per person (aged 15 years and over) per year. As Australians are becoming more discerning consumers of wine and choosing to store larger volumes, there is a real demand in the market to create purpose designed home cellars where temperature control is the key factor in preserving the quality of the wine.

<http://nadk.flinders.edu.au/kb/alcohol/consumption-patterns/drinking-habits-of-australians/>

**WE TAKE GREAT PRIDE
ON DELIVERING A
PRODUCT THAT MEETS
YOUR UNIQUE NEEDS.**



THE FACTS



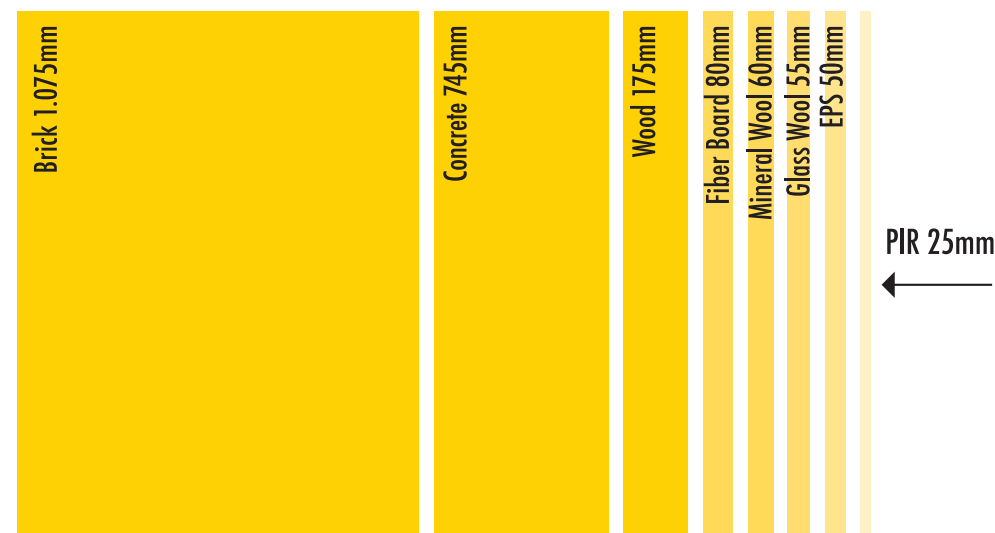
At ALLIED STRUCTURES we aim to be at the fore front of technology and as such have partnered with Tiger Building System to exclusively install PIR panels for all our cool rooms, freezers, clean rooms and insulated structures. Our PIR boards help to reduce the heating and cooling costs enabling temperatures in a room to stay at a constant controlled temperature.

WHY USE PIR INSULATION?

- A PIR insulation saves 80 times more energy than is used to make it over its lifetime
- Reduces the overall cost to build
- Fire retardant, acid and alkali resistant
- Indefinite life span
- Easy to cut and fit
- Minimises property wall thickness to maximise internal space
- High water vapour resistance
- Reflects heat
- Light-weight and will not weigh down the structure
- A fibre free insulation core resists attack by mould and microbial growth as well as not providing any food value to vermin
- Tough and durable
- Manufactured with a blowing agent that is CFC/HCFC free and has zero Ozone Depletion Potential (ODP) with a low Global Warming Potential (GWP)



THICKNESS OF MATERIAL REQUIRED TO ACHIEVE SAME R VALUE



OUR PANELS

The persistent need for excellence has enabled us to partner with one of the world's Market Leader in thermal panels, Tiger Building Systems.

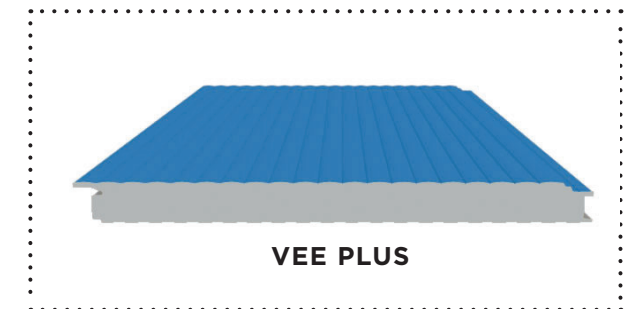
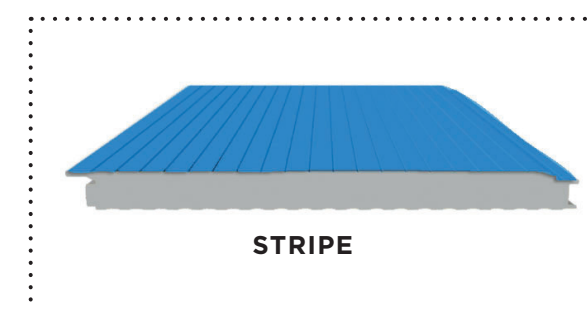
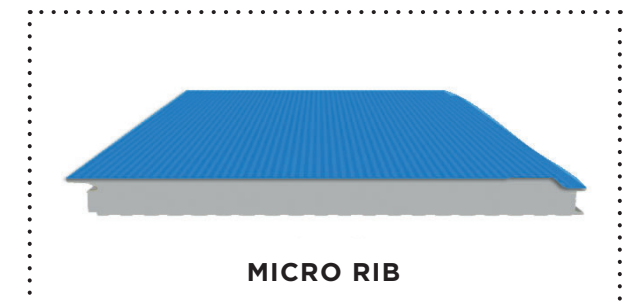
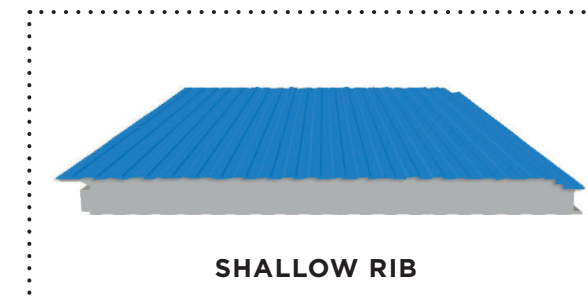
These Insulated Panels surpass many of the thermal panels that are currently in the market place today, incorporating high levels of research when it comes to fire retardant properties which will offer our clients the best and safest panel available. Further benefits are reduction in insurance premiums and the possible need not to fit fire sprinklers (Approvals from DEFES is mandatory though).

Our tongue and groove panels are also ideal for internal partitioning for industrial, commercial and retail use.

NOTE: the standard finish for our Insulated Panel is Flat/Flat both sides unless specified otherwise.



CLASSIFICATION EXTERNAL INSULATED PANELS



- Class A against ASTM E-84: Surface Burn Characteristics (achieved with Hi index PIR Foam Insulation)
- Class E against EN 13501-1:2007 (achieved with all foam insulation except PUR 35)
- Fire Resistant when tested against ASTM E119 (achieved with Hi index PIR Foam insulation)
- Class B s20 d) when tested for reaction to fire against EN13823:2002 (achieved with Hi index PIR Foam insulation)
- Fire Resistant for 65 minutes when tested against EN 1364-1(achieved with Mineral Wool insulation)

OUR PANELS



ALLIED STRUCTURES PIR PANELS OFFER BETTER THERMAL AND ENERGY EFFICIENCY THAN MANY OF THE TRADITIONAL BUILDING METHODS USED WITHIN THE MARKET TODAY AS WELL AS MANY OTHER BENEFITS.



As all our panels including Cold Store and Concealed Fix Panels and our Partition Panels are characterized by being:

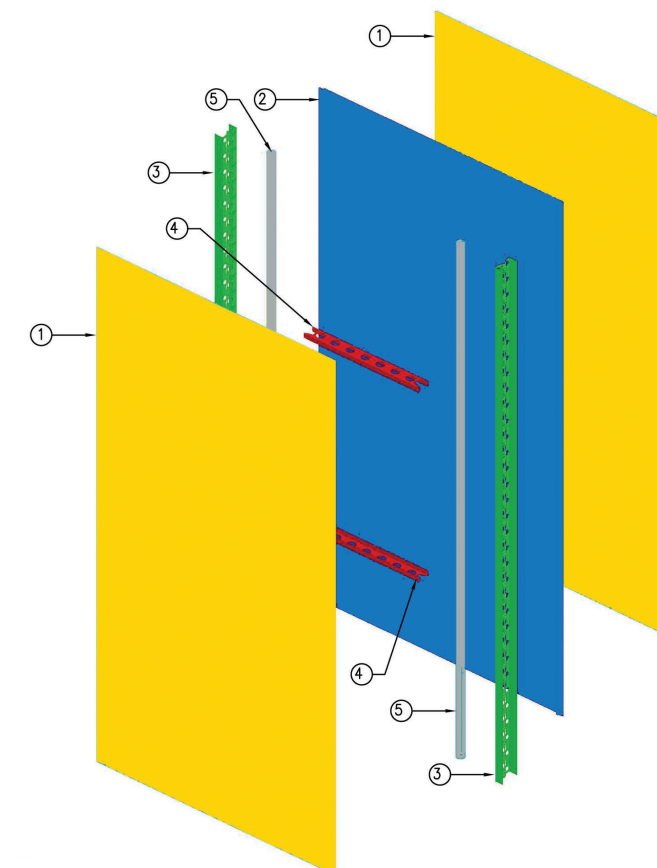
- Excellent R and U values for roof and walls
- No thermal bridges and thus able to significantly lower HVAC costs -with excellent air and water tightness
- Superior airtight performance
- Excellent acoustic performance
- Negligible reduction in long-term thermal resistance R-value
- No Formaldehyde is present in our raw material supply nor is it added at any stage during manufacturing
- Lightweight for easy and speedy assembly; offer strong support and are available in long spans
- Greatly decreases carbon emission of buildings
- Eco-friendly production that allows PIR foam insulated panels to be manufactured with the use of N-pentane blowing agents that have ZERO DOP and GWP less than eleven

- 1** Faster than normal construction resulting in less labour, materials and quicker cleaning after installation
- 2** Better acoustic values as the panels have excellent sound absorbing properties
- 3** Healthy, non-allergenic environment that provides mould and bacteria resistance
- 4** Energy efficiency that result in considerable savings on energy costs especially in air conditioning and refrigeration
- 5** Architecturally safe product that offers fire resistant properties responding to the growing focus on fire risks

SIP'S STRUCTURAL INSULATED PANELS

SIPs are suitable for use in many construction applications including exterior and interior walls, roofs, floors, and foundation systems. The SIPs can be configured to provide one or more functionalities than traditional building components, such as studs, joists, insulation, vapour barriers, moisture and air barriers.

- ① 6.5mm CFB (Fibre Cement Board)
- ② 0.46 Aluzinc
- ③ Custom Perforated Stud
- ④ Noggin
- ⑤ 40mm conduit



OUR ROOFING SYSTEMS

Thermal efficiency in Australia has become a very hot topic, with many mayor companies looking at alternative ways to reduce their running costs.

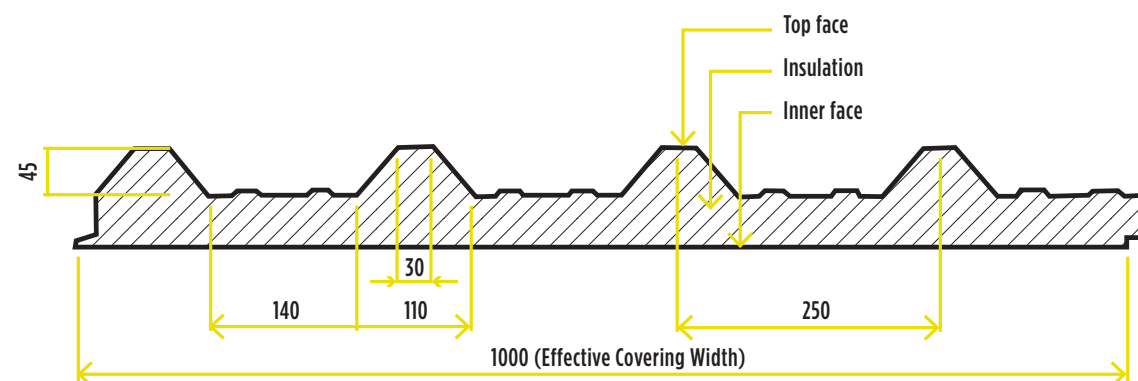
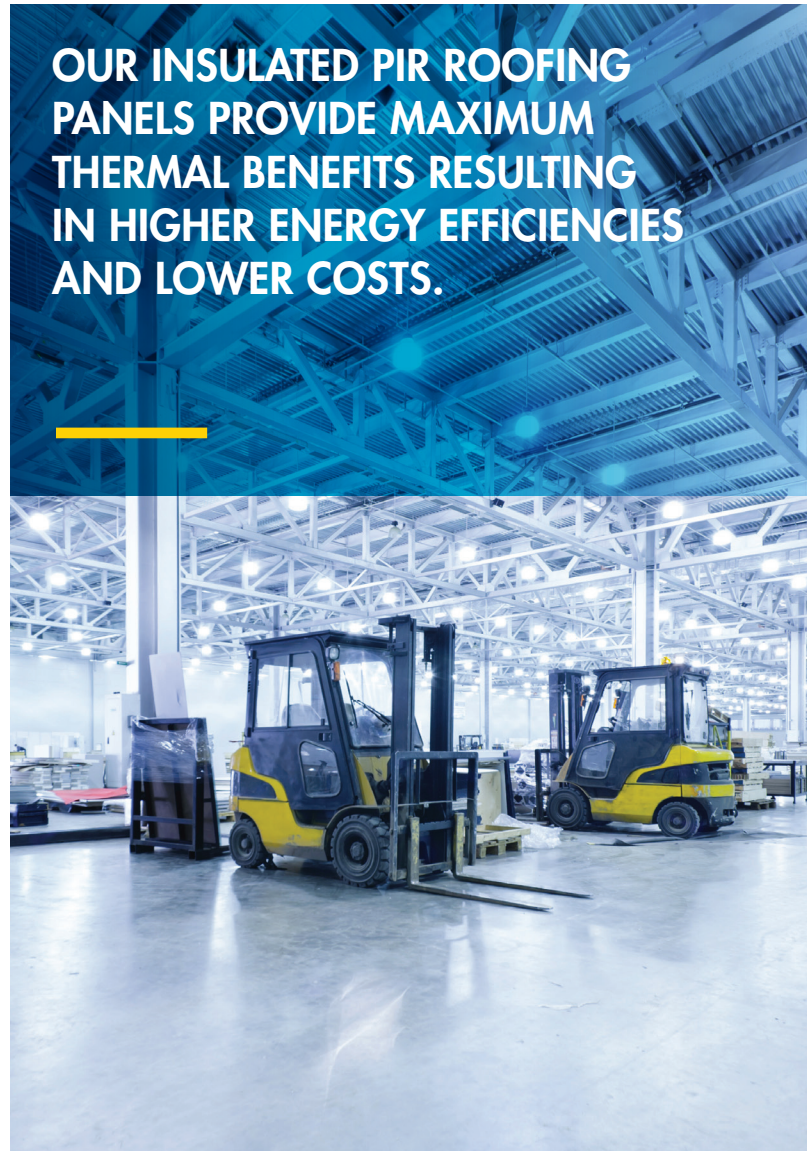
ALLIED Insulated Roofing Panel Systems represent an advancement for your roofing requirements, with increased energy efficiencies and speed of installation our products will save you money at project conception right through to the maintenance and running costs.

The new technological manufacturing plant which is over 13,000m² can produce a diverse range of roofing panel products from a fully automated line, to meet your needs.

This facility is the only production line, located in Western Australia, with the capacity to change profiles, thicknesses and colours with the push of a button, allowing reduced costs with increased efficiencies.

With a fully customised production and service facility, whatever your needs for roofing are, we have you covered.

OUR INSULATED PIR ROOFING PANELS PROVIDE MAXIMUM THERMAL BENEFITS RESULTING IN HIGHER ENERGY EFFICIENCIES AND LOWER COSTS.



OUR PANEL COATING



Tiger Building Systems presents CERAMATEK™ Paint Technology as a new liquid thermal insulation method, which is not only environmentally friendly but can also assist in reducing energy costs.

CERAMATEK™ COATINGS PROVIDE

- Green star rated and non-toxic product
- Fade resistance, guaranteed for 15 years
- Water based technology
- Solar UV reflective
- Design in Australia for Australian conditions
- Ceramic based for extreme durability
- Full spectrum of colours all with high solar reflectivity



CERAMATEK™ APPLICATIONS:

- Roofing and cladding
- Facades and panelling
- Sectional garage doors
- Refrigerated warehousing
- Residential – reduces energy costs
- SIP panels
- Anti-graffiti / anti-bacterial / anti-flame

The coating works by lowering the solar absorbance of the roof substrate ultimately decreasing the insulation required whilst increasing the total R value.

The Ceramatek™ coating was developed to offer range of attractive designer colours that are heat reflecting and have high emissivity characteristics so that surfaces remain cooler.

ALLIED STRUCTURES can offer our clients a choice from 10,000 colours available with no minimum orders, which is a first for the Australian market.

OUR CLIENTS



TECHNICAL DATA



TECHNICAL DATA - INTERNAL PARTITION INSULATED PANEL

LENGTH & WIDTH TOLERANCES			
Dimensions (mm)	Tolerances (mm)	Dimensions (mm)	Tolerances (mm)
<1000	±5	2001 to 4000	±10
1000 to 2000	±7.5	>4000	±15
Thickness Tolerances			
Class	Nominal Thickness (mm)		
	<50	50 to 75	>75
T2	32	33	+5, -3
Compressive Strength or Stress		CS(10\Y)100 i.e. ≥100kPa	
Density		≥38kg/m3	
Thermal Conductivity (Initial Value)		λ _D :0.0201 W / (m,K) @T= 23±C & RH=60%	
Dimensional Stability			
Test Condition	Relative Changes		Level DS(TH)4
DS (70,90)	ΔD _D ΔD _b	%	≤1
48H, 70°C, 90%RH	Δε _d	%	≤4
Water Vapor Transmission		Water vapor diffusion resistance factor (μ) :35 (un-faced foam)	
General		Code: OU-EN 13165-T2-DS(70,90)4-CS(10\Y)100-MU35	

TECHNICAL DATA - COLD STORE DATA SHEET

Foam Insulation Tolerances According To Bs En 13165: 2012

LENGTH & WIDTH TOLERANCES			
Dimensions (mm)	Tolerances (mm)	Dimensions (mm)	Tolerances (mm)
<1000	±5	2001 to 4000	±10
1000 to 2000	±7.5	>4000	±15
Thickness Tolerances			
Class	Nominal Thickness (mm)		
	<50	50 to 75	>75
T2	±2	±3	+5, -3
Compressive Strength or Stress		CS(10\Y)100 i.e. ≥100kPa	
Density		≥38kg/m3	
Thermal Conductivity (Initial Value)		λ _D :0.0201 W / (m,K) @T=23±C & RH=60%	
Dimensional Stability			
Test Condition	Relative Changes		Level DS(TH)4
DS (70,90)	Δε ₁	%	≤1
	Δε _b		
48H, 70° C, 90%RH	Δε _d	%	≤4
Water Vapor Transmission		Water vapor diffusion resistance factor (μ) :35 (un-faced foam)	
General		Code: OU-EN 13165-T2-DS(70,90)4-CS(10\Y)100-MU35	

NOTES

- Nominal thickness (min) : 50mm for wall
- Length (max) :16m / Width (max): 1000mm
- Reaction to Fire meets Euro Class E Fire Classification

- n-Pentane is used as blowing agent
- Chlorofluorocarbons (CFC's) haven't been used in manufacturing of this product
- n-Pentane blowing agent has Zero ODP (Ozone Depletion Potential) and low GWP (Global Warming Potential)

COOL ROOM PANELS - R VALUES

Material	Thickness	Air Gaps Surface 1	Air Gaps Surface 2	K Value	R Value
Outside Air Film		Unreflective and Ventilated			0.04
Metal Skin	0.6				
PIR Core		50		0.0201	2.48
Metal Skin	0.6				
Inside Air Film		Unreflective and Unventilated			0.12
					2.64

Material	Thickness	Air Gaps Surface 1	Air Gaps Surface 2	K Value	R Value
Outside Air Film		Unreflective and Ventilated			0.04
Metal Skin	0.6				
PIR Core		75		0.0201	3.73
Metal Skin	0.6				
Inside Air Film		Unreflective and Unventilated			0.12
					3.89

Material	Thickness	Air Gaps Surface 1	Air Gaps Surface 2	K Value	R Value
Outside Air Film		Unreflective and Ventilated			0.04
Metal Skin	0.6				
PIR Core		100		0.0201	4.9
Metal Skin	0.6				
Inside Air Film		Unreflective and Unventilated			0.12
					5.06

Material	Thickness	Air Gaps Surface 1	Air Gaps Surface 2	K Value	R Value
Outside Air Film		Unreflective and Ventilated			0.04
Metal Skin	0.6				
PIR Core		150		0.0201	7.46
Metal Skin	0.6				
Inside Air Film		Unreflective and Unventilated			0.12
					7.62

Material	Thickness	Air Gaps Surface 1	Air Gaps Surface 2	K Value	R Value
Outside Air Film		Unreflective and Ventilated			0.04
Metal Skin	0.6				
PIR Core		200		0.0201	9.95
Metal Skin	0.6				
Inside Air Film		Unreflective and Unventilated			0.12
					10.11

COOL STORE WALL PANELS

Allowable Uniform Loads (KN/M2): Base metal: Steel Nominal Thickness 0.5 + 0.5mm

CORE THICKNESS (MM)	SPAN	SPAN (m)																	
		2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40	5.70	6.00	6.30	6.60	6.90	7.20	7.50
100	S*	3.46	3.01	2.62	2.20	1.85	1.57	1.34	1.15	0.99	0.85	0.74	0.64	0.56	0.49	0.43	0.37	0.33	0.29
100	D**	4.18	3.63	3.16	2.76	2.44	2.16	1.93	1.73	1.56	1.37	1.21	1.06	0.93	0.82	0.72	0.64	0.56	0.49
120	S*	4.95	4.30	3.74	3.09	2.59	2.21	1.90	1.66	1.46	1.30	1.15	1.03	0.94	0.85	0.77	0.70	0.65	0.57
120	D**	5.87	5.11	4.44	3.99	3.62	2.95	2.35	1.91	1.85	1.13	1.13	0.99	0.88	0.77	0.68	0.60	0.52	0.46
150	S*	5.57	4.84	4.21	3.48	2.92	2.49	2.14	1.87	1.64	1.30	1.30	1.17	1.06	0.95	0.87	0.79	0.73	0.67
150	D**	6.33	5.51	4.79	4.30	3.91	3.55	2.82	2.28	1.88	1.33	1.33	1.14	1.00	0.88	0.78	0.68	0.60	0.53

Allowable Uniform Loads (KN/M2): Base metal: Steel Nominal Thickness 0.6 + 0.6mm

CORE THICKNESS (MM)	SPAN	SPAN (m)																	
		2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40	5.70	6.00	6.30	6.60	6.90	7.20	7.50
100	S*	3.54	3.08	2.62	2.26	1.91	1.63	1.39	1.20	1.03	0.89	0.77	0.67	0.59	0.51	0.45	0.40	0.35	0.31
100	D**	4.22	3.67	3.19	2.80	2.47	2.20	1.96	1.76	1.59	1.44	1.31	1.19	1.08	0.95	0.84	0.74	0.65	0.57
120	S*	5.34	4.65	4.04	3.46	2.98	2.58	2.24	1.96	1.71	1.51	1.33	1.17	1.04	0.92	0.82	0.73	0.65	0.57
120	D**	6.00	5.22	4.54	4.00	3.56	3.18	2.86	2.59	2.35	2.14	1.96	1.79	1.65	1.51	1.40	1.23	1.08	0.95
150	S*	6.27	5.45	4.74	4.08	3.53	3.08	2.69	2.36	2.08	1.84	1.63	1.45	1.29	1.15	1.03	0.92	0.83	0.75
150	D**	6.92	6.01	5.23	4.62	4.11	3.69	3.32	3.01	2.74	2.50	2.29	2.11	1.94	1.79	1.65	1.53	1.42	1.25

Allowable Uniform Loads (KN/M2): Base metal: Steel Nominal Thickness 0.7 + 0.46mm

CORE THICKNESS (mm)	SPAN	SPAN (m)																	
		2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40	5.70	6.00	6.30	6.60	6.90	7.20	7.50
150	S*	6.27	5.45	4.74	4.08	3.53	3.08	2.69	2.36	2.08	1.84	1.63	1.45	1.29	1.15	1.03	0.92	0.83	0.75
150	D**	6.92	6.01	5.23	4.62	4.11	3.69	3.32	3.01	2.74	2.50	2.29	2.11	1.94	1.79	1.65	1.53	1.42	1.25

Allowable Uniform Loads (KN/M2): Base metal: Steel Nominal Thickness 0.7 + 0.7 mm

CORE THICKNESS (MM)	SPAN	SPAN (m)																	
		2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40	5.70	6.00	6.30	6.60	6.90	7.20	7.50
100	S*	3.63	3.15	2.74	2.32	1.69	1.69	1.44	1.25	1.07	0.93	0.80	0.70	0.62	0.53	0.47	0.43	0.38	0.33
100	D**	4.26	3.70	3.22	2.84	2.24	2.24	1.99	1.79	1.62	1.51	1.42	1.33	1.25	1.10	0.97	0.85	0.75	0.66
120	S*	3.63	3.15	2.74	2.32	1.69	1.69	1.44	1.25	1.07	0.93	0.80	0.70	0.62	0.53	0.47	0.43	0.38	0.33
120	D**	6.14	5.35	4.64	4.01	3.43	3.43	3.48	3.41	3.32	3.21	3.10	2.88	2.73	2.54	2.44	2.10	1.81	1.56
150	S*	7.06	6.15	5.34	4.78	3.81	3.81	3.38	2.98	2.64	2.32	2.04	1.80	1.57	1.39	1.22	1.07	0.94	0.84
150	D**	7.55	6.57	5.71	4.96	3.84	3.84	3.91	3.85	3.80	3.71	3.60	3.49	3.29	3.12	2.95	2.83	2.71	2.34

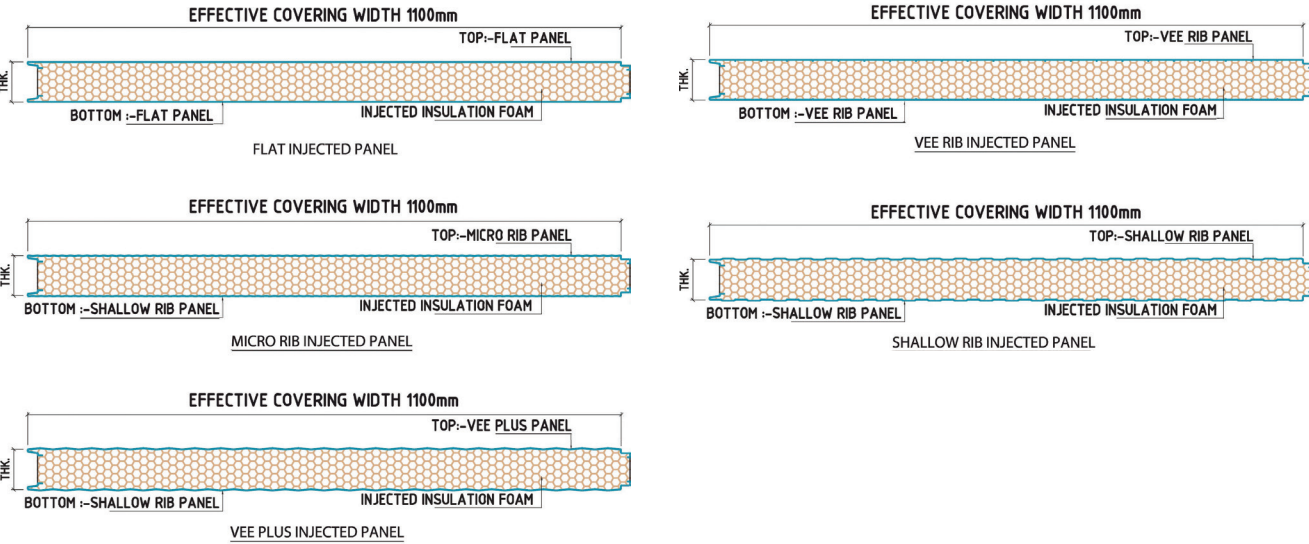
- NOTES
- S* = Single span
 - D** = Double span
 - Design Of Sheetting Is Based On Aisi 2007 (Asd-Allowable Stress Design)
 - Deflection limits - Span/200, panels are under uniform load
 - Nominal Thickness refers to Base Metal Thickness
 - Assume bond with Insulation ensures that lateral sliding of sheet does not occur, and insulation don't have significant compression

SHALLOW RIBBED WALL PANEL (COOL STORE PROFILE)

Steel Skin - 0.60Mm Grade 400 Mpa (Both Sides) Limit State Factored Uniform Load Capacity (kN/m2):

THICKNESS	LOAD	HEIGHT (H) IN METERS												
		1.80	2.10	2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40
PIR (mm)														
50	Inward	1.97	1.24	0.83	-	-	-	-	-	-	-	-	-	-
	Outward	1.97	1.24	0.83	-	-	-	-	-	-	-	-	-	-
75	Inward	4.14	2.84	1.90	1.34	0.97	0.73	0.56	-	-	-	-	-	-
	Outward	4.14	2.84	1.90	1.34	0.97	0.73	0.56	-	-	-	-	-	-
100	Inward	5.51	4.05	3.10	2.39	1.74	1.31	1.01	0.79	0.64	-	-	-	-
	Outward	5.51	4.05	3.10	2.39	1.74	1.31	1.01	0.79	0.64	-	-	-	-
125	Inward	7.00	5.14	3.93	3.11	2.52	2.07	1.60	1.26	1.01	0.82	0.67	-	-
	Outward	7.00	5.14	3.93	3.11	2.52	2.07	1.60	1.26	1.01	0.82	0.67	-	-
150	Inward	8.44	6.20	4.75	3.75	3.04	2.51	2.11	1.80	1.46	1.19	0.98	0.82	0.69
	Outward	8.44	6.20	4.75	3.75	3.04	2.51	2.11	1.80	1.46	1.19	0.98	0.82	0.69
200	Inward	11.40	8.38	6.41	5.07	4.10	3.39	2.85	2.43	2.09	1.82	1.60	1.42	1.24
	Outward	11.40	8.38	6.41	5.07	4.10	3.39	2.85	2.43	2.09	1.82	1.60	1.42	1.24

INSULATED WALL PANEL PROFILES



SHALLOW RIBBED ROOF / CEILING PANEL (COOL STORE PROFILE)

Steel Skin - 0.60Mm Grade 400 Mpa Top And Bottom Limit State Factored Uniform Load Capacity (kN/m2):

THICKNESS	NO OF SPANS	LOAD	LENGTH (L) IN METERS														
			1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40
PIR (mm)																	
50	1	Down	6.71	3.79	2.19	1.38	0.92	0.65	-	-	-	-	-	-	-	-	-
		Up	6.71	3.79	2.19	1.38	0.92	0.65	-	-	-	-	-	-	-	-	-
	2	Down	6.71	4.30	2.98	2.19	1.68	1.33	1.07	0.86	0.66	-	-	-	-	-	-
		Up	6.71	4.30	2.98	2.19	1.68	1.33	1.07	0.86	0.66	-	-	-	-	-	-
	3	Down	8.39	5.37	3.73	2.60	1.74	1.23	0.89	0.67	-	-	-	-	-	-	-
		Up	8.39	5.37	3.73	2.60	1.74	1.23	0.89	0.67	-	-	-	-	-	-	-
75	1	Down	10.34	6.62	4.59	3.15	2.11	1.48	1.08	0.81	0.63	-	-	-	-	-	-
		Up	10.34	6.62	4.59	3.15	2.11	1.48	1.08	0.81	0.63	-	-	-	-	-	-
	2	Down	10.34	6.62	4.59	3.38	2.58	2.04	1.65	1.37	1.15	0.98	0.84	0.74	0.64	-	-
		Up	10.34	6.62	4.59	3.38	2.58	2.04	1.65	1.37	1.15	0.98	0.84	0.74	0.64	-	-
	3	Down	12.92	8.27	5.74	4.22	3.23	2.55	2.04	1.53	1.18	0.93	0.74	-	-	-	-
		Up	12.92	8.27	5.74	4.22	3.23	2.55	2.04	1.53	1.18	0.93	0.74	-	-	-	-
100	1	Down	13.77	8.81	6.12	4.50	3.44	2.66	1.94	1.46	1.12	0.88	0.71	-	-	-	-
		Up	13.77	8.81	6.12	4.50	3.44	2.66	1.94	1.46	1.12	0.88	0.71	-	-	-	-
	2	Down	13.77	8.81	6.12	4.50	3.44	2.72	2.20	1.82	1.53	1.30	1.12	0.98	0.86	0.76	0.68
		Up	13.77	8.81	6.12	4.50	3.44	2.72	2.20	1.82	1.53	1.30	1.12	0.98	0.86	0.76	0.68
	3	Down	17.21	11.01	7.65	5.62	4.30	3.40	2.75	2.28	1.91	1.63	1.33	1.08	0.89	0.74	0.63
		Up	17.21	11.01	7.65	5.62	4.30	3.40	2.75	2.28	1.91	1.63	1.33	1.08	0.89	0.74	0.63
125	1	Down	17.49	11.19	7.77	5.71	4.37	3.45	2.80	2.30	1.77	1.39	1.12	0.91	0.75	-	-
		Up	17.49	11.19	7.77	5.71	4.37	3.45	2.80	2.30	1.77	1.39	1.12	0.91	0.75	-	-
	2	Down	17.49	11.19	7.77	5.71	4.37	3.45	2.80	2.31	1.94	1.66	1.43	1.24	1.09	0.97	0.86
		Up	17.49	11.19	7.77	5.71	4.37	3.45	2.80	2.31	1.94	1.66	1.43	1.24	1.09	0.97	0.86
	3	Down	21.86	13.99	9.72	7.14	5.46	4.32	3.50	2.89	2.43	2.07	1.78	1.55	1.37	1.18	0.99
		Up	21.86	13.99	9.72	7.14	5.46	4.32	3.50	2.89	2.43	2.07	1.78	1.55	1.37	1.18	0.99
150	1	Down	21.11	13.51	9.38	6.89	5.28	4.17	3.38	2.79	2.35	2.00	1.62	1.32	1.09	0.91	0.76
		Up	21.11	13.51	9.38	6.89	5.28	4.17	3.38	2.79	2.35	2.00	1.62	1.32	1.09	0.91	0.76
	2	Down	21.11	13.51	9.38	6.89	5.28	4.17	3.38	2.79	2.35	2.00	1.72	1.50	1.32	1.17	1.04
		Up	21.11	13.51	9.38	6.89	5.28	4.17	3.38	2.79	2.35	2.00	1.72	1.50	1.32	1.17	1.04
	3	Down	26.39	16.89	11.73	8.62	6.60	5.21	4.22	3.49	2.93	2.50	2.15	1.88	1.65	1.46	1.30
		Up	26.39	16.89	11.73	8.62	6.60	5.21	4.22	3.49	2.93	2.50	2.15	1.88	1.65	1.46	1.30
200	1	Down	28.50	18.24	12.67	9.31	7.13	5.63	4.56	3.77	3.17	2.70	2.33	2.03	1.78	1.58	1.38
		Up	28.50	18.24	12.67	9.31	7.13	5.63	4.56	3.77	3.17	2.70	2.33	2.03	1.78	1.58	1.38
	2	Down	28.50	18.24	12.67	9.31	7.13	5.63	4.56	3.77	3.17	2.70	2.33	2.03	1.78	1.58	1.41
		Up	28.50	18.24	12.67	9.31	7.13	5.63	4.56	3.77	3.17	2.70	2.33	2.03	1.78	1.58	1.41
	3	Down	35.63	22.80	15.83	11.63	8.91	7.04	5.70	4.71	3.96	3.37	2.91	2.53	2.23	1.97	1.76
		Up	35.63	22.80	15.83	11.63	8.91	7.04	5.70	4.71	3.96	3.37	2.91	2.53	2.23	1.97	1.76

NOTATION
Down - Ultimate Limit state uniform pressure resulting to top steel skin at midspan to be in compression
Up - Ultimate Limit state uniform pressure resulting to bottom steel skin at midspan to be in compression
1 span - Denotes single span
2 spans - Denotes two continuous span with the same length
3 spans - Denotes three continuous span with the same length

- DESIGN CRITERIA
- Capacity Table calculation is based on AS4600
 - The panel has been checked for serviceability criteria - maximum deflection of span /180
 - This table applies only for Non-Cyclonic Regions (Region A to Region B)
 - Roof density is 42 kg/m3, selfweight has not been included in calculation of the load capacity table and should be considered in panel
 - This table is based on the condition that the steel skin is fully bonded to insulation bond which ensures there are no lateral sliding of sheet
 - Support bearing width: minimum 50mm. Panel shall be fixed to support as per Tiger Modular Cold Room Joining Methods and Seals
 - The supporting member shall be designed by a certifying Structural Engineer

MATERIAL AND PRODUCT SPECIFICATIONS

Usage		Roofing		Cladding	
Material Type		Aluminium	Alu-zinc	Galvanized Iron (GI)	Aluminium Paper
Material Thickness*		Aluminium: 0.35 - 1.2mm		(GI): 0.30mm - 0.90mm	
Dimensions		Covering Width: 1,000mm		Profile Pitch: 250mm	
		Crown: 30mm		Profile DepthH: 45mm	
		Valley: 140mm		Rib Width: 110mm	
Colours		Standard RAL Colours. Special colours on request; min. order applied			
Coating / Finish		Pre-painted Polyester		Pre-Painted PVDF	Mill-Finish
Insulation Options	Core	PUR 35 & 40		Low PIR(38) Hi PIR 45 (Foam)	Mineral Wool
	Thickness	50-200mm			
Key Features		• Energy efficiency	• Resistance to heat transfer	• Fire resistance	
Accessories		Curved eave TR 45/250, PB Ridge, flashing, butters, GI Self-tapping screws with neoprene, SS Self-drilling screws with neoprene, Butyle Sealant tape, Purlin Tape, PVC Tape, PVC Colour Caps, Aluminium Rivets, Bulb-tite Rivets, Filter Blocks, Silicon Sealant.			
Classification		Class A against ASTM E-84: Surface Burning Characteristics (achieved with PUR or Low index PIR foam insulation and GI inner skin)			
		Class E against EN 13501-1:2007 (achieved with all foam insulation except PUR 35)			

TR 45/250 INSULATED ROOF & WALL SANDWICH PANEL

Technical Data Sheet													
Section Properties (Per Meter Width) Base Metal: Steel													
Thickness T (MM)	Cover Width (mm)	Nominal Weight (kg/m2)	Area (cm2)	Full Sect 1x (cm4)	Elastic Modulus (E) (kN/cm2)	Top in Compression				Bottom in Compression			
						I _x et (cm4)	S _x -Top (cm3)	S _x -Bot (CM3)	M _a _{bx} (kNm)	I _x et (cm4)	S _x -Top (cm3)	S _x -Bot (CM3)	M _a _{bx} (kNm)
0.40	1000	3.83	4.84	14.66	20300	11.20	3.40	9.03	0.46	10.82	4.45	5.12	0.60
0.50	1000	4.79	6.05	24.82	20300	15.66	4.95	11.28	0.67	14.18	5.65	6.95	0.77
0.60	1000	5.75	7.26	21.99	20300	20.54	6.74	13.58	0.92	17.63	6.86	8.86	0.93
0.70	1000	6.70	8.47	25.65	20300	24.85	8.52	15.92	1.12	21.21	8.08	10.91	1.10
0.80	1000	7.66	9.86	29.31	20300	28.69	9.55	18.19	1.30	24.90	9.30	13.08	1.27
0.90	1000	8.62	10.88	32.97	20300	32.56	10.86	20.45	1.48	28.70	10.54	15.37	1.44
1.00	1000	9.58	12.09	36.63	20300	36.39	12.14	22.68	1.65	32.57	11.77	17.76	1.60
1.20	1000	11.49	14.51	43.96	20300	43.85	14.61	27.10	1.99	50.56	14.26	22.83	1.94

TR45/250 INSULATED ROOF PANEL

Steel Skin - Grade 400 Mpa, 0.50Mm Bmt Top & 0.60Mm Bmt Bottom

Limit State Factored Uniform Load Capacity (kN/m²):

THICKNESS	NO OF SPANS	LOAD	LENGTH (L) IN METERS														
			1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80	5.10	5.40
PIR (mm)																	
50	1	Down	6.88	4.40	3.06	1.99	1.33	0.94	0.68	0.51	-	-	-	-	-	-	-
		Up	9.58	5.46	3.16	1.99	1.33	0.94	0.68	0.51	-	-	-	-	-	-	-
	2	Down	9.58	6.13	4.26	3.13	2.40	1.89	1.53	1.24	0.95	0.75	0.60	-	-	-	-
		Up	6.88	4.40	3.06	2.25	1.72	1.36	1.10	0.91	0.76	0.65	0.56	-	-	-	-
	3	Down	8.86	6.88	4.78	3.51	2.52	1.77	1.29	0.97	0.75	0.59	-	-	-	-	-
		Up	8.60	5.50	3.82	2.81	2.15	1.70	1.29	0.97	0.75	0.59	-	-	-	-	-
60	1	Down	7.97	5.10	3.54	2.44	1.63	1.15	0.84	0.63	-	-	-	-	-	-	-
		Up	11.11	6.70	3.87	2.44	1.63	1.15	0.84	0.63	-	-	-	-	-	-	-
	2	Down	9.75	7.11	4.94	3.63	2.78	2.19	1.78	1.47	1.17	0.92	0.74	0.60	-	-	-
		Up	7.97	5.10	3.54	2.60	1.99	1.57	1.28	1.05	0.89	0.75	0.65	0.57	-	-	-
	3	Down	8.86	7.09	5.54	4.07	3.08	2.17	1.58	1.19	0.91	0.72	0.58	-	-	-	-
		Up	8.86	6.38	4.43	3.25	2.49	1.97	1.58	1.19	0.91	0.72	0.58	-	-	-	-
100	1	Down	12.34	7.90	5.48	4.03	3.08	2.31	1.68	1.26	0.97	0.77	0.61	-	-	-	-
		Up	17.23	11.03	7.66	4.90	3.28	2.31	1.68	1.26	0.97	0.77	0.61	-	-	-	-
	2	Down	9.75	7.80	6.50	5.57	4.31	3.40	2.76	2.28	1.91	1.63	1.41	1.20	0.99	0.83	0.70
		Up	9.75	7.80	5.48	4.03	3.08	2.44	1.97	1.63	1.37	1.17	1.01	0.88	0.77	0.68	0.61
	3	Down	8.86	7.09	5.91	5.06	4.43	3.81	3.08	2.38	1.84	1.44	1.16	0.94	0.77	0.65	0.54
		Up	8.86	7.09	5.91	5.04	3.86	3.05	2.47	2.04	1.71	1.44	1.16	0.94	0.77	0.65	0.54
150	1	Down	17.80	11.39	7.91	5.81	4.45	3.52	2.85	2.35	1.88	1.48	1.18	0.96	0.79	0.66	0.56
		Up	19.50	15.60	11.08	8.14	6.23	4.45	3.25	2.44	1.88	1.48	1.18	0.96	0.79	0.66	0.56
	2	Down	9.75	7.80	6.50	5.57	4.88	4.33	3.90	3.30	2.77	2.36	2.03	1.77	1.56	1.38	1.23
		Up	9.75	7.80	6.50	5.57	4.45	3.52	2.85	2.35	1.98	1.69	1.45	1.27	1.11	0.99	0.88
	3	Down	8.86	7.09	5.91	5.06	4.43	3.94	3.55	3.22	2.95	2.63	2.23	1.82	1.50	1.25	1.05
		Up	8.86	7.09	5.91	5.06	4.43	3.94	3.55	2.94	2.47	2.11	1.82	1.58	1.39	1.23	1.05
200	1	Down	19.50	14.89	10.34	7.59	5.81	4.59	3.72	3.08	2.58	2.20	1.90	1.59	1.31	1.10	0.92
		Up	19.50	15.60	13.00	10.66	8.16	6.45	5.22	4.04	3.11	2.45	1.96	1.59	1.31	1.10	0.92
	2	Down	9.75	7.80	6.50	5.57	4.88	4.33	3.90	3.55	3.25	3.00	2.67	2.32	2.04	1.81	1.61
		Up	9.75	7.80	6.50	5.57	4.88	4.33	3.72	3.08	2.58	2.20	1.90	1.65	1.45	1.29	1.15
	3	Down	8.86	7.09	5.91	5.06	4.43	3.94	3.55	3.22	2.95	2.73	2.53	2.36	2.22	2.01	1.74
		Up	8.86	7.09	5.91	5.06	4.43	3.94	3.55	3.22	2.95	2.73	2.37	2.07	1.82	1.61	1.44

NOTATION

Down - Ultimate Limit state uniform pressure resulting to top steel skin at midspan to be in compression

Up - Ultimate Limit state uniform pressure resulting to bottom steel skin at midspan to be in compression

1 span - Denotes single span

2 spans - Denotes two continuous span with the same length

3 spans - Denotes three continuous span with the same length

DESIGN CRITERIA

1. Capacity Table calculation is based on AS4600

2. The panel has been checked for serviceability criteria - maximum deflection of span /180

3. This table applies only for Non-Cyclonic Regions (Region A to Region B)

4. Roof density is 42 kg/m³, selfweight has not been included in calculation of the load capacity table and should be considered in panel

5. This table is based on the condition that the steel skin is fully bonded to insulation bond which ensures there are no lateral sliding of sheet

6. Support bearing width: minimum 50mm. Panel shall be fixed to support as per Tiger Modular Cold Room Joining Methods and Seals

7. The supporting member shall be designed by a certifying Structural Engineer



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