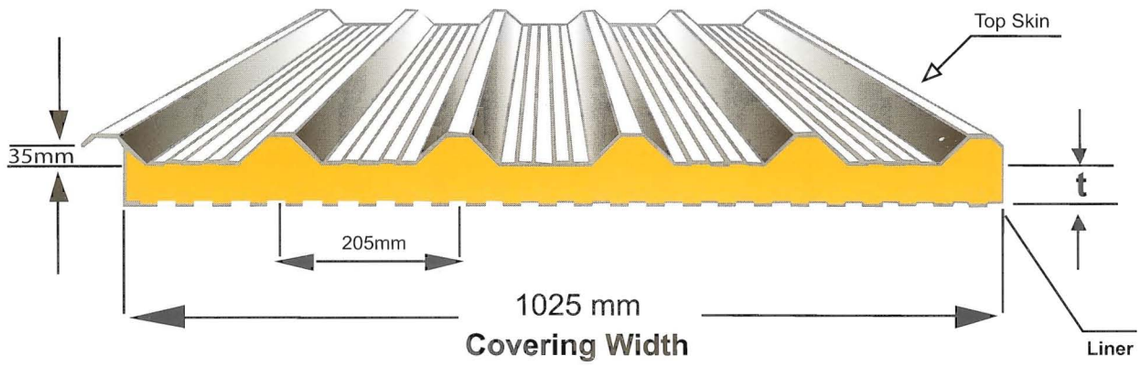
Profile 35 / 205

COMPOSITE PANELS (ROOF & WALL CLADDING)



(t) Panel Core Thickness (mm)	I x (cm^4) for 1m width	Z top for 1m width cm^3	Z bottom for 1m width cm^3	Moment kN m Top	Moment Bottom kN m
50	38	11	22	1.31	2.58
75	99	23	31	2.66	3.53
100	198	38	42	4.37	4.79
based on 0.7 mm external and 0.5 mm internal Aluminium skin					

(t) Panel Core Thickness (mm)	Allowable Uniform Loads kN/m^2																	
	1.0 m		1.5 m		2.0 m		2.5 m		3.0 m		3.5 m		4.0 m		4.5 m		5.0 m	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
50	10.47	14.46	4.65	4.28	2.62	1.81	1.68	0.93	1.16	0.54	0.85	0.34	0.65	0.23	0.52	0.16	0.42	0.12
75	21.28	37.86	9.46	11.22	5.32	4.73	3.40	2.42	2.36	1.40	1.74	0.88	1.33	0.59	1.05	0.42	0.85	0.30
100	34.92	76.06	15.52	22.54	8.73	9.51	5.59	4.87	3.88	2.82	2.85	1.77	2.18	1.19	1.72	0.83	1.40	0.61

f_y Al 170 N/mm^2 permisible span-deflection ratio = 100

(t) Panel Core Thickness (mm)	I x (cm^4) for 1m width	Z top for 1m width cm^3	Z bottom for 1m width cm^3	Moment kN m Top	Moment kN m Bottom
50	31	9	21	0.99	2.40
75	84	18	30	2.05	3.44
100	170	29	41	3.34	4.74
based on 0.5 mm external Al and 0.5 mm internal Aluminium skin					

(t) Panel Core Thickness (mm)	Allowable Uniform Loads kN/m^2																	
	1.0 m		1.5 m		2.0 m		2.5 m		3.0 m		3.5 m		4.0 m		4.5 m		5.0 m	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
50	7.95	11.70	3.54	3.47	1.99	1.46	1.27	0.75	0.88	0.43	0.65	0.27	0.50	0.18	0.39	0.13	0.32	0.09
75	16.39	32.05	7.28	9.50	4.10	4.01	2.62	2.05	1.82	1.19	1.34	0.75	1.02	0.50	0.81	0.35	0.66	0.26
100	26.74	65.22	11.88	19.33	6.68	8.15	4.28	4.17	2.97	2.42	2.18	1.52	1.67	1.02	1.32	0.72	1.07	0.52

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(t) Panel Core Thickness (mm)	I x (cm^4) for 1m width	Z top for 1m width cm^3	Z bottom for 1m width cm^3	Moment kN m Top	Moment kN m Bottom
50	38	11	22	1.93	1.93
75	99	23	31	3.91	3.91
100	198	38	42	6.42	6.42
based on 0.7 mm external Aluminium and 0.5 mm internal GI skin					

(t) Panel Core Thickness (mm)	Allowable Uniform Loads kN/m^2																	
	1.0 m		1.5 m		2.0 m		2.5 m		3.0 m		3.5 m		4.0 m		4.5 m		5.0 m	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
50	10.47	14.46	4.65	4.28	2.62	1.81	1.68	0.93	1.16	0.54	0.85	0.34	0.65	0.23	0.52	0.16	0.42	0.12
75	21.28	37.86	9.46	11.22	5.32	4.73	3.40	2.42	2.36	1.40	1.74	0.88	1.33	0.59	1.05	0.42	0.85	0.30
100	34.92	76.06	15.52	22.54	8.73	9.51	5.59	4.87	3.88	2.82	2.85	1.77	2.18	1.19	1.72	0.83	1.40	0.61

f_y Al 170 N/mm^2 permisible span-deflection ratio = 100 fy GI 250 N/mm^2

(t) Panel Thickness (mm)	I x (cm^4) for 1m width	Z top for 1m width cm^3	Z bottom for 1m width cm^3	Moment Top kN m	Moment Bottom kN m
50	31	9	21	1.46	1.46
75	84	18	30	3.01	3.01
100	170	29	41	4.91	4.91
based on 0.5 mm external Aluminium and 0.5 mm internal GI skin					

(t) Panel Thickness (mm)	Allowable Uniform Loads kN/m^2																	
	1.0 m		1.5 m		2.0 m		2.5 m		3.0 m		3.5 m		4.0 m		4.5 m		5.0 m	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
50	7.95	11.70	3.54	3.47	1.99	1.46	1.27	0.75	0.88	0.43	0.65	0.27	0.50	0.18	0.39	0.13	0.32	0.09
75	16.39	32.05	7.28	9.50	4.10	4.01	2.62	2.05	1.82	1.19	1.34	0.75	1.02	0.50	0.81	0.35	0.66	0.26
100	26.74	65.22	11.88	19.33	6.68	8.15	4.28	4.17	2.97	2.42	2.18	1.52	1.67	1.02	1.32	0.72	1.07	0.52

f_y Al 170 N/mm^2 permisible span-deflection ratio = 100 fy GI 250 N/mm^2

(t) Panel Thickness (mm)	I x (cm^4) for 1m width	Z top for 1m width cm^3	Z bottom for 1m width cm^3	Moment Top kN m	Moment Bottom kN m
50	31	9	21	1.46	3.53
75	84	18	30	3.01	5.05
100	170	29	41	4.91	6.96
based on 0.5 mm external GI and 0.5 mm internal GI skin					

assumes bond with insulation ensures that lateral sliding of sheets does not occur & insulation does not have significant compression

(t) Panel Thickness (mm)	Allowable Uniform Loads kN/m^2																	
	1.0 m		1.5 m		2.0 m		2.5 m		3.0 m		3.5 m		4.0 m		4.5 m		5.0 m	
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
50	11.70	34.27	5.20	10.16	2.92	4.28	1.87	2.19	1.30	1.27	0.95	0.80	0.73	0.54	0.58	0.38	0.47	0.27
75	24.10	93.85	10.71	27.81	60.03	11.73	3.86	6.01	2.68	3.48	1.97	2.19	1.51	1.47	1.19	1.03	0.96	0.75
100	39.32	191.01	17.47	56.59	9.83	23.88	6.29	12.22	4.37	7.07	3.21	4.45	2.46	2.98	1.94	2.10	1.57	1.53

Permisible span-deflection ratio = 100
assumes bond with insulation ensures that lateral sliding of sheets does not occur & insulation does not have significant compression
fy GI 250 N/mm^2

S = Strength
D = Defection

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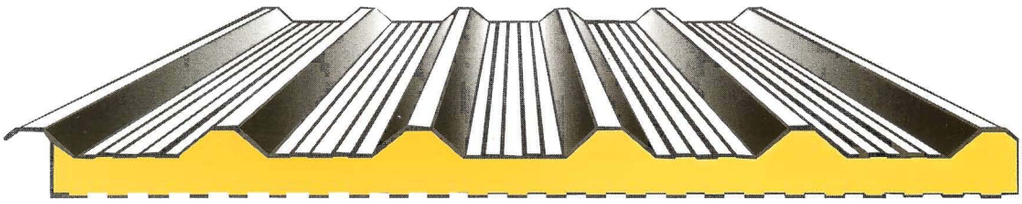
INSULATED COMPOSITE PANEL



GENERAL FEATURE

A. Mechanical characteristic of the foam
(At density of 35 ÷ 37 kg\m³)
- Maximum tensile stress :kg-4.00 /cm²
- Compression resistance : kg- 2.00/cm²
- Shear resistance :kg- 1.00/cm²

B. Insulating capacity
Assuming 0.020 Kcal/mh ℃ as a K Value the thermic transmission coefficient for 35 and 50mm. Thick insulated panel, is the following :
- For 35 mm = 0.57 Kcal/m²h ℃
- For 50 mm = 0.40 Kcal/m²h ℃

C.Water absorption of the foam
- After 24 hours ; 1.9% of volume.

D. Colse cells
- 93%

E. Self extinguishing type
- As per ASTMD 169268/ norms.

F. Standards
Available standard panel thickness 50,75,100,125 &150mm.
Metal sheet ASTM 446 GRADE A (Fep02 GZ 275 MB) ,
Metal sheet standard color bone white .
Metal sheet thickness 0.50 MM UPTO 0.80 MM.
Length from 1000 MM to 14.000 MM.
Density 35 to 42 Kg/CM
Thermal conductivity , K value 0.016 W/M.C

TEST	MEASURED VALUE	UNIT	STANDARD
Density (core)	42	Kg/m³	DIN EN ISO 845
Compressive strength	0.21	N/mm²	DIN 53 421
Compression	10	%	DIN 53 421
Flexural Strength	0.56	N/mm²	DIN 53 423
Bending	13	mm	DIN 53 423
Water absorption after 24 hrs	1.9	Vol.%	DIN 53 428
Closed cells	93	%	ISO 4590
Dimensional Stability	H W L	%	DIN 53 431
- 30°C	-0.2 -0.2 +0.2		
+80°C	-0.6 -0.4 -0.3		
+100°C	-0.6 -0.8 +0.2		
Long-term temperature resistance range			-50° C10 + 110° C
Thermal conductivity (k Value)	0.013Btu/hr.ft. °F 0.023 W/m.k		
Thermal conductivity (U Value)	0.013/ff.Thickness = Btu/hr.ff.² °F 0.023/meter Thickness = W/m² k		

Thickness of insulation to be determined by contractor using design U Value

A: Thermal conductivity 'k'

w/m. k	Kcal/hr.m.°C	Btu/hr.ft. °F
1	0.860	0.578
1.163	1	0. 672
1.1730	1.488	1

B: Transmission coefficient 'U'

w/m² k	Kcal/hr.m.²°C	Btu/hr.ft.² °F
1	0.860	0.176
1.163	1	0.205
5.678	4.882	1

C: Heat transfer 'Q'

W	kcal/hr	Btu/hr
1	0.860	3.413
1.163	1	3.969
0.293	0.252	1

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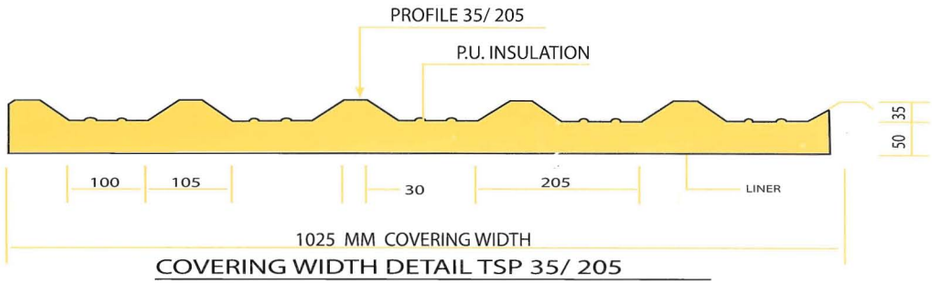
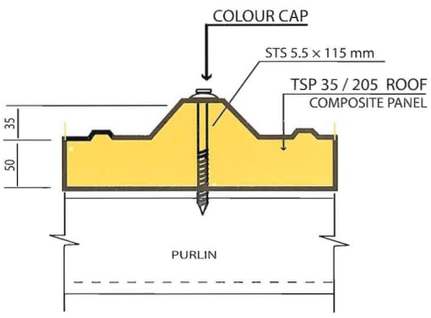
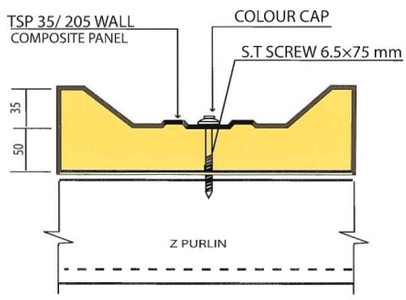


COVERING WIDTH DETAIL TSP 35/ 205

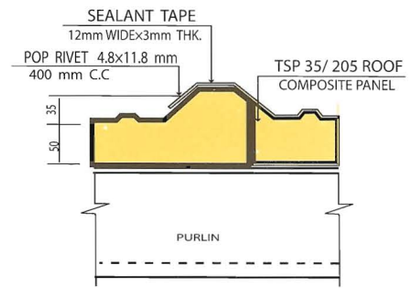
DETAIL TSP 35/ 205



Fixing Detail of Roof Composite panel TSP 35/ 205
- at Every high corrugation on end and overlapping purlins
- at Alternative high corrugation on intermediate purlins



Fixing Detail of Roof Composite panel tsp 35/ 205
- at Everylow corrugation on end and overlapping purlins
- at Alternative high corrugation



Side - lap detail of roof composite panel

Specifications

1025 mm width panel, consists of corrugated surface externally (Top), and slightly ribbed internally (Bottom), The exterior and interior skins are of a hot dipped galvanized steel confirming to ASTM A653 , coated with 5 µ epoxy primer coating + 20 µ of polyester as external coat , the reverse coat is 5 - 7 µ of epoxy primer coat. Both skins will sandwich a 75 mm of POLYURETHANE foam insulation.

THERMAL TRANSMISSION
Thermal conductivity of polyurethane K=0. 023W/m c

Thickness in mm			50	80	100	120	150	180	200
Useful U(W/m ²℃			0.460	0.288	0.230	0.192	0.153	0.128	0.115
? = Temperature variation	10	Q= Thermal transmission in W/m²	4.60	2.88	2.30	1.92	1.53	1.28	1.15
	15		6.90	4.32	3.45	2.88	2.29	1.92	1.72
	20		9.20	5.76	4.60	3.84	3.06	2.56	2.30
	25		11.50	7.20	5.75	4.80	3.82	3.20	2.87
	30		13.80	8.64	6.90	5.76	4.59	3.84	3.45
	35		16.10	10.08	8.05	6.72	5.36	4.48	4.02
	40		18.40	11.52	9.20	7.68	6.12	5.12	4.60
	45		20.70	12.96	10.35	8.64	6.89	5.76	5.17
	50		23.00	14.40	11.50	9.60	7.65	6.40	5.75
	55		25.30	15.84	12.65	10.56	8.41	7.04	6.32
	60		27.60	17.28	13.80	11.52	9.18	7.68	6.90
	65		29.90	18.72	14.95	12.48	9.84	8.32	7.47
	70		32.20	20.16	16.10	13.44	10.71	8.96	8.05
	75		32.20	21.60	17.25	14.40	11.74	9.60	8.62
	80		34.50	23.04	18.40	15.36	12.24	10.24	9.20
	85		36.80	24.48	19.55	16.32	13.00	10.88	9.77
	90		39.10	25.92	20.70	17.28	13.77	11.52	10.35
			41.40						

Allowable thermal transmission 10 to 12 W/m²

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AL HOTY- STANGER	HAITHAM FOAD BAKHSH	M 2K120054 / 1
	THICKNESS MEASURMENT	16 JAN. 2012

SAMPLE DESCRIPTION	:	SANDWEDGE BLOCK UP – SIDE
SAMPLE NO.	:	1
THICKNESS READINGS	(mm):	0.35
		0.40
		0.38
		0.40
		0.38
AVERAGE THICKNESS	(mm):	**0.40**

Nagesh Balraj.M
Asst. Manager
Metallurgical & Mechanical Section
For Al Hoty-Stanger Ltd. Co.

Tested by: **Sathiyaraj.T**
Mat'l Testing Engineer

Verified by: **Louie D.Hermogenes**
Supervisor NDT Department

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F-5

AL HOTY- STANGER	HAITHAM FOAD BAKHSH	M 2K120054 / 2
	THICKNESS MEASURMENT	16 JAN. 2012

SAMPLE DESCRIPTION	:	SANDWEDGE BLOCK DOWN – SIDE
SAMPLE NO.	:	1
THICKNESS READINGS	(mm):	0.66
		0.68
		0.68
		0.66
		0.66
AVERAGE THICKNESS	(mm):	**0.70**

Nagesh Balraj.M
Asst. Manager
Metallurgical & Mechanical Section
For Al Hoty-Stanger Ltd. Co.

Tested by: **Sathiyaraj.T**
Mat'l Testing Engineer

Verified by: **Louie D.Hermogenes**
Supervisor NDT Department

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F-5