

October 08, 2024

DELTA PANELS PTY LTD
 ATTN: MR JOHN GUY
 731 BOUNDARY ROAD,
 RICHLANDS, QUEENSLAND, 4077
 AUSTRALIA

Thermal Performance of Delta Panels - Phenolic Foam Composite (TPC) panels Roofing, External Wall & Internal Wall Applications

Dear Mr Guy:

Further to your request, I can confirm the thermal performance of:

- Delta Panels Phenolic Foam Composite (TPC) Panels,
 as described in the following reports by an accredited testing laboratory.
- CSIRO Report XC4002/R1(Rev B) – Final Issue, Thermal Transmission Properties of Phenolic foam composite with nominal thickness of 50mm, 28-August-2024. *(measured density 33.5-37.0kg/m³)*
- CSIRO Report XC4002/R2(Rev B) – Final Issue, Thermal Transmission Properties of Phenolic foam composite with nominal thickness of 200mm, 28-August-2024. *(measured density 34.0-37.9kg/m³)*
- CSIRO Report XC4016/R3(Rev B) – Final Issue, Thermal Transmission Properties of Phenolic Foam Composite Panels, 28-August-2024.

The Declared Material R-values of Delta Panels Phenolic Foam Composite (TPC) panels have been determined in accordance with AS/NZS 4859.1:2018 as:

Table 1: Delta Panels TPC Declared Material R-value

Declared Material R-value [(m ² .K)/W]													
TPC	Thickness (mm)	50	60	70	75	80	90	100	110	125	150	175	200
Mean Temp (°C)	0°C	1.40	1.65	1.95	2.05	2.20	2.45	2.75	3.05	3.45	4.10	4.85	5.55
	15°C	1.30	1.55	1.85	1.95	2.10	2.35	2.60	2.90	3.25	3.90	4.60	5.25
	23°C	1.30	1.55	1.80	1.90	2.05	2.30	2.55	2.85	3.20	3.80	4.50	5.15

Summary tables of calculations of Total R-value of Delta Panels Phenolic Foam Composite (TPC) Panels for; External Roof; External Wall; and, Internal Wall construction performed in accordance with AS/NZS 4859.1:2018 are provided below. In all cases the construction is assumed to consist of the panel.

The contribution of R-value for the external and internal non-reflective air films have been added to the R-value contribution of the panel incorporating the effects of mean temperature for Australian conditions:

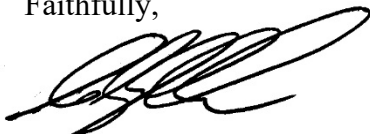
- Heat flow out (Winter): Indoors 18°C, outdoors 12°C, mean 15°C
- Heat flow in (Summer): Indoors 24°C, outdoors 36°C, mean 30°C

Contribution of Air-film resistances [(m ² .K)/W]						
	Roof		External Wall		Internal Wall	
	Wint.	Sum.	Wint.	Sum.	Wint.	Sum.
Outside Air Film	0.04	0.04	0.04	0.04	0.12	0.12
Inside Air Film	0.11	0.16	0.12	0.12	0.12	0.12

**Table 2: - Delta Panels Phenolic Foam Composite (TPC) Panels
Total R-value - External Roof, External Wall & Internal Wall**

Australia	Total R-value [(m ² .K)/W] (Summer/Winter) & System U-value W/m ² K (Summer/Winter)												
TPC	Thickness (mm)	50	60	70	75	80	90	100	110	125	150	175	200
Roof	R _(Sum.)	1.45	1.70	1.95	2.05	2.20	2.40	2.65	2.95	3.30	3.90	4.60	5.20
	U _(Sum.)	0.69	0.59	0.51	0.49	0.45	0.42	0.38	0.34	0.30	0.26	0.22	0.19
	R _(Wint.)	1.45	1.70	2.00	2.10	2.25	2.50	2.75	3.05	3.40	4.05	4.75	5.40
	U _(Wint.)	0.69	0.59	0.50	0.48	0.44	0.40	0.36	0.33	0.29	0.25	0.21	0.19
Ext Wall	R _(Sum.)	1.41	1.66	1.91	2.01	2.16	2.36	2.61	2.91	3.26	3.86	4.56	5.16
	U _(Sum.)	0.71	0.60	0.52	0.50	0.46	0.42	0.38	0.34	0.31	0.26	0.22	0.19
	R _(Wint.)	1.46	1.71	2.01	2.11	2.26	2.51	2.76	3.06	3.41	4.06	4.76	5.41
	U _(Wint.)	0.68	0.58	0.50	0.47	0.44	0.40	0.36	0.33	0.29	0.25	0.21	0.18
Internal Wall	R _(Sum.)	1.49	1.74	1.99	2.09	2.24	2.44	2.69	2.99	3.34	3.94	4.64	5.24
	U _(Sum.)	0.67	0.57	0.50	0.48	0.45	0.41	0.37	0.33	0.30	0.25	0.22	0.19
	R _(Wint.)	1.54	1.79	2.09	2.19	2.34	2.59	2.84	3.14	3.49	4.14	4.84	5.49
	U _(Wint.)	0.65	0.56	0.48	0.46	0.43	0.39	0.35	0.32	0.29	0.24	0.21	0.18

Faithfully,



Cameron Chick BE(Hons), Ph.D., GC.Com.(Mktg), M.AIRAH, RPEQ
Registered Professional Engineer - Qld. (Structural): 15370, Vic. (Civil): PE0000967
for and on behalf of – Acronem Consulting Australia Pty Ltd