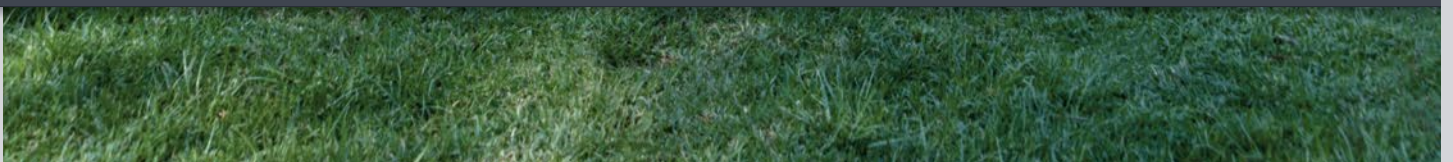




Stratco Cooldek® Roofing

Design Guide: Domestic Patio Application



Cooldek® Roofing

Design Guide: Domestic Patio Application

Form and Function

The innovative Cooldek® insulated panel provides a roof, insulation and ceiling like finish all in one product. With superior spanning capabilities, two roof profiles and five insulation thicknesses, it is an ideal solution for domestic patio roof applications.

Design Considerations

The minimum recommended roof pitch for 'flat' verandahs shall be 1° (1 in 60) for Cooldek Classic panels and 3° (1 in 20) for Cooldek CGI panels. The maximum roof pitch for 'flat' verandahs shall be 5° (1 in 12). Care must be taken to ensure the minimum roof pitch is maintained to avoid ponding of rainwater. The roof is designed to withstand actions incidental to maintenance, roofs are not to be used for floor type activities. The design contained within these span tables relate to wind classifications N1, N2, N3, and N4 applicable to Regions A & B1. Stratco does not accept liability for any loss or damage suffered as a result of any errors in the interpretation or application of these span tables.

Compliance

The Wind Capacity Tables are based on testing in accordance with AS1562.1-2018 and AS4040.0, 1 & 2-1992. Span tables have been developed by determining wind pressures in accordance with AS4055-2021 for domestic applications. Capacity tables are in limit state format.

Spans

Spans given in Table 2.0 are determined for wind speeds for non-cyclonic areas. Spans are suitable for 'flat' roof patios unless indicated otherwise. Open freestanding unit spans can be taken from open three sides unless a wall, eaves or boundary exists within 500mm of two or more sides.

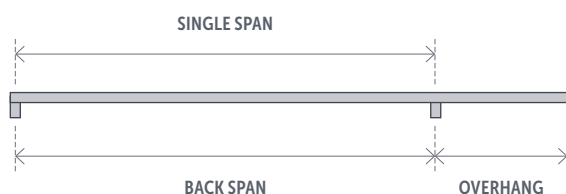
For Cooldek roofing in attached or freestanding domestic gable patio application, sheet spans shall not exceed those given for one or no open sides. Alternatively, Table 3.0 indicating wind capacities may be used to determine allowable single spans for any application.

Spans specified for units with three sides open are suitable for units considered 'empty under' and not exceeding 3 metres in height (from ground or deck level). For units in which goods or materials stored under the roof are expected to block greater than 50% of any open side exposed to the wind spans are to be taken from open two sides.

For units with two open sides, spans are based on $C_{p,n} = -1.0$ while for units with only one or no open sides, $C_{p,n} = -1.2$. In all cases, relevant consideration has been given to local pressure.

Note: Table 3.0 provides allowable wind capacities for Cooldek in single span application for serviceability and strength limit states. The pressures given may be used by a suitably qualified engineer for any single span application ensuring appropriate fixing details are applied.

Span Definitions

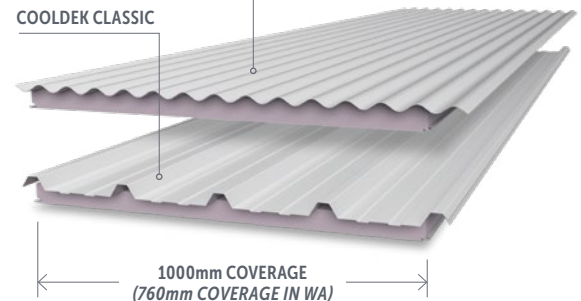


Cooldek Panel Options

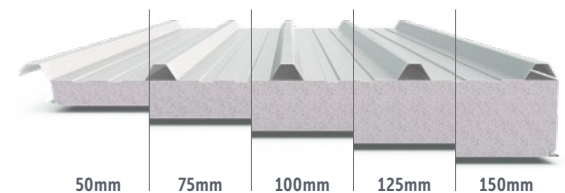
Rooftop Profiles

COOLDEK CGI

COOLDEK CLASSIC



Insulation Thickness

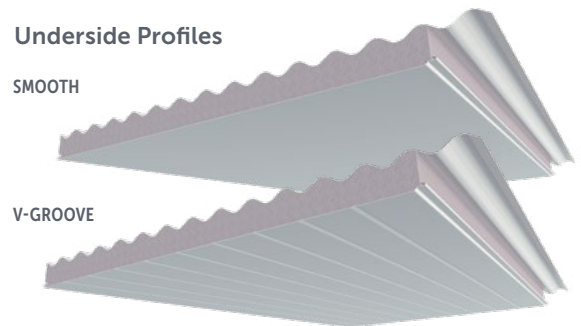


NOTE: All Cooldek sheets are provided at a minimum length of 2000mm. Where Cooldek sheets of less than 2000mm are required they will need to be cut on site.

Underside Profiles

SMOOTH

V-GROOVE

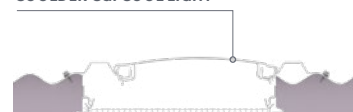


Let Even More Light In With Cooldek Cool Light

- Suitable for all panel profiles, thicknesses and lengths
- Easy to install
- Suits Flat & Gable applications
- 270mm wide for both profiles

Refer Cool Light Installation Guide for further details.

COOLDEK CGI COOL LIGHT



COOLDEK CLASSIC COOL LIGHT



Material Specifications

Table 1.0

Material Properties		Cooldek Classic	Cooldek CGI
Base Metal Thickness & Material Grade	Top Skin	0.42mm/G550	0.42mm/G550
	Bottom Skin	0.60mm/G300	0.60mm/G300
Mass (kg/linear metre)	50mm Panel	9.5	9.6
	75mm Panel	9.8	9.9
	100mm Panel	10.1	10.2
	125mm Panel	10.4	10.5
	150mm Panel	10.7	10.8
R Value (m²K/W) at 14°C mean temp.	50mm Panel	1.24	1.42
	75mm Panel	1.82	2.16
	100mm Panel	2.46	2.77
	125mm Panel	3.10	3.41
	150mm Panel	3.73	4.04
Width Coverage (mm)		1000	1000
Minimum Roof Pitch		1°	3°
Core	Material:	SL Grade EPS (expanded polystyrene)	
	Thermal Conductivity:	0.037 W/mK (0°C mean temp.)	

NOTE: All Cooldek sheets are provided at minimum length of 2000mm. Where Cooldek sheets of less than 2000mm are required they will need to be cut on site.

Table 2.1 - Maximum Deck Overhang (mm)

Panel Thickness	N1	N2	N3	N4
50mm	900	900	900	300
75mm	900	900	900	600
100mm	1200	1200	900	600
125mm	1500	1500	1200	900
150mm	1800	1800	1500	900

Table 3.0 - Single Span Wind Capacities (kpa)

Profile	Panel Thickness	Limit State	SPAN (mm)																
			1800	2400	3000	3600	4200	4800	5400	6000	6600	7200	7800	8400	9000	9600	10200	10800	
Classic	50mm	Serviceability	3.80	2.69	2.06	1.66	1.38	1.18	1.02	-	-	-	-	-	-	-	-	-	-
		Strength	6.70	4.50	3.30	2.56	2.07	1.72	1.46	-	-	-	-	-	-	-	-	-	-
	75mm	Serviceability	-	4.86	3.43	2.58	2.02	1.64	1.37	1.16	1.00	-	-	-	-	-	-	-	-
		Strength	-	5.11	3.63	2.75	2.17	1.77	1.48	1.26	1.08	-	-	-	-	-	-	-	-
	100mm	Serviceability	-	-	3.60	2.81	2.25	1.84	1.52	1.32	1.18	1.04	0.93	0.80	0.69	-	-	-	-
		Strength	-	-	4.59	3.50	2.70	2.20	1.68	1.57	1.34	1.17	1.03	0.85	0.73	-	-	-	-
	125mm	Serviceability	-	-	3.88	3.23	2.61	2.17	1.85	1.60	1.40	1.24	1.11	1.00	0.91	0.84	0.77	-	-
		Strength	-	-	6.49	4.73	3.62	2.87	2.34	1.95	1.65	1.42	1.24	1.09	0.96	0.86	0.78	-	-
	150mm	Serviceability	-	-	5.38	4.12	3.20	2.60	2.27	1.95	1.70	1.49	1.31	1.16	1.03	0.92	0.83	0.75	-
		Strength	-	-	6.74	4.94	3.70	3.00	2.47	2.06	1.75	1.51	1.31	1.16	1.03	0.92	0.83	0.75	-
CGI	50mm	Serviceability	3.72	2.62	1.99	1.60	1.32	1.13	0.97	-	-	-	-	-	-	-	-	-	-
		Strength	6.78	4.47	3.24	2.49	1.99	1.64	1.38	-	-	-	-	-	-	-	-	-	-
	75mm	Serviceability	-	3.81	2.86	2.27	1.86	1.57	1.35	1.18	1.04	-	-	-	-	-	-	-	-
		Strength	-	5.84	4.15	3.14	2.48	2.02	1.69	1.44	1.24	-	-	-	-	-	-	-	-
	100mm	Serviceability	-	-	3.73	2.91	2.31	1.89	1.58	1.35	1.17	1.03	0.91	0.80	0.69	-	-	-	-
		Strength	-	-	3.90	3.34	2.83	2.37	1.95	1.59	1.28	1.02	0.81	0.65	0.54	-	-	-	-
	125mm	Serviceability	-	-	3.79	2.86	2.25	1.82	1.52	1.29	1.11	0.99	0.86	0.76	0.68	0.62	0.56	-	-
		Strength	-	-	7.19	4.95	3.62	2.76	2.18	1.76	1.45	1.21	1.03	0.89	0.77	0.68	0.60	-	-
	150mm	Serviceability	-	-	5.28	3.55	2.58	2.10	1.95	1.63	1.39	1.20	1.05	0.92	0.81	0.74	0.67	0.60	0.60
		Strength	-	-	8.42	6.00	5.0	3.10	2.42	1.96	1.62	1.36	1.16	1.00	0.81	0.75	0.68	0.61	0.61

Unless indicated otherwise, the values in the above tables are for use with steel supports of minimum thickness 1.0mm BMT, G550, or timber supports. For 100mm Cooldek panel thickness, over 7200mm single span, and for all 125 & 150mm panels, steel supports shall be minimum 1.5mm BMT, G450. Fixing details as specified in 'Fixing Recommendations'.

Table 2.0 - Single Spans (mm) - Domestic Patio Application

Cooldek Classic					
Open Sides	Panel Thickness	N1	N2	N3	N4
Three	50mm	5400	5400	5400	4200
	75mm	6600	6600	6000	4800
	100mm	9000	8750	7200	5350
	125mm	10200	10200	7900	6350
	150mm	10800	10500	8150	6550
Two	50mm	5400	5400	3900	3300 (3200)
	75mm	6600	5500	4800 (4400)	3900 (3000)
	100mm	8100	6900	5150 (5000)	4100 (3300)
	125mm	9050	7600	6000	4800
	150mm	9450	7850	6000	5000 (4800)
One/None or Gable Patio	50mm	5400	4500	3300	3000 (2500)
	75mm	6000	4800	3900 (3300)	3300 (2200)
	100mm	7350	6150	4700 (3800)	3750 (2500)
	125mm	8250	6950	5500	4350 (3600)
	150mm	8550	7200	5700 (5000)	4350 (3600)

Cooldek CGI					
Open Sides	Panel Thickness	N1	N2	N3	N4
Three	50mm	5400	5400	5100	3900
	75mm	6600	6600	6000	4800 (3900)
	100mm	8850	7900	6850	5800
	125mm	10200	8950	7150	6000
	150mm	10800	9250	7600	6350
Two	50mm	5400	5100	3600	3000
	75mm	6600	5700	4800	3900 (3000)
	100mm	7400	6650	5150	4100
	125mm	8150	7100	5700	4750
	150mm	8550	7350	6000	5050 (4800)
One/None or Gable Patio	50mm	5400	4500	3300	3000 (2000)
	75mm	6300	5100	3900	3300 (2100)
	100mm	7050	6150	4750	3700
	125mm	7450	6500	5300	4350
	150mm	7900	6850	5600	4700 (4400)

NOTE: IF values are shown in brackets they represent the maximum allowable span if an overhang is used. The cladding back span shall be no less than 1.5 times the deck overhang.

Fixing Recommendations

Cooldek roofing should be laid into the prevailing wind and sit neatly on the preceding roof sheet. For Classic profile fasten through each crest and for CGI profile fasten through every second crest. Use cyclone caps and neoprene washers in all crest fixings. Fix side laps with 12x20mm hex head screws with neoprene washers at approximately 1000mm centres, refer below.

Fastener Size Selection

Cooldek Classic Crest Fixing Only

One fixing required per crest

Fixing to Steel		Fixing to Timber (Minimum F7)	
Panel Thickness		Panel Thickness	
50mm	14-14x125 Hex Head Screw	50mm	14-10x125 Type 17 Screw
75mm	14-14x150 Hex Head Screw	75mm	14-10x150 Type 17 Screw
100mm	14-14x175 Hex Head Screw	100mm	14-10x175 Type 17 Screw
125mm	14-14x205 Hex Head Screw	125mm	14-10x200 Type 17 Screw
150mm	14-14x230 Hex Head Screw	150mm	14-10x230 Type 17 Screw

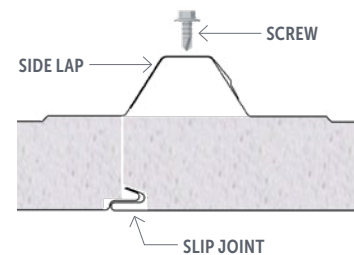
Cooldek CGI Crest Fixing Only

One fixing required every second crest

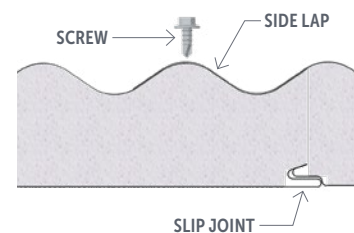
Fixing to Steel		Fixing to Timber (Minimum F7)	
Panel Thickness		Panel Thickness	
50mm	14-14x110 Hex Head Screw	50mm	14-10x110 Type 17 Screw
75mm	14-14x125 Hex Head Screw	75mm	14-10x150 Type 17 Screw
100mm	14-14x150 Hex Head Screw	100mm	14-10x175 Type 17 Screw
125mm	14-14x175 Hex Head Screw	125mm	14-10x200 Type 17 Screw
150mm	14-14x205 Hex Head Screw	150mm	14-10x230 Type 17 Screw

Lapping

Cooldek Classic



Cooldek CGI



Maintenance

The performance of Cooldek over time depends on its correct application and maintenance. Maintenance should be performed as often as is required to remove dirt, salt and pollutants. Where used in severely corrosive environments, cleaning should be performed more often. It is important that screws have the same life expectancy as the cladding you have specified.

Packs of Cooldek should always be kept dry and stored above ground level while on site. If the sheets have become wet, they should be separated, wiped and placed in the open to dry.

Walking On Cooldek

When walking on Cooldek roofing, it is recommended you walk over the support beam to avoid damage. Wear flat, rubber soled shoes and walk flat footed in the sheet pans for Classic, and with your weight spread over as many crests as possible for CGI. For carport and verandah applications, away from supports, crawl boards should be used to avoid damage during installation and maintenance.

Refer to Stratco 'Selection, Use and Maintenance' brochure, for more detailed information about the correct use and maintenance of this product.



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How To.

