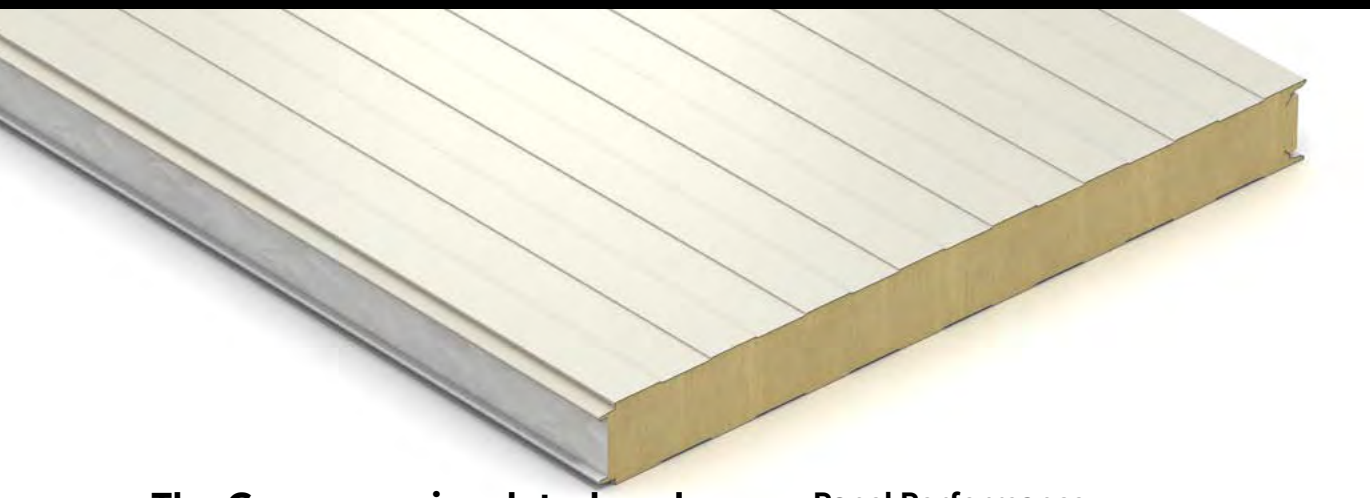
CONQUEROR
INSULATED PANELS

CQ1100CRP Cool Room
Wall & Ceiling Panel

Technical Specification

NEW ZEALAND MADE ®

Product Information



The Conqueror insulated cool room panels are designed to be used for internal and external walls and ceilings of food processing facilities, clean rooms, pharmaceuticals, chillers / cool rooms and freezers.

System Key Benefits

- Manufactured in Christchurch, New Zealand.
- Suitable for new buildings and renovations.
- Easy to install, allowing for faster installation than built-up solutions.
- High thermal performance PIR foam.

Product Properties

Core	Polyisocyanurate (PIR) foam
External facing*	0.55 mm thick Z275 CP G300S coated steel to AS 1397
Internal facing	0.55 mm thick Z275 CP G300S coated steel to AS 1397
Width	1,100 mm cover width (standard) 1,000 mm available on request (MOQ applies).
Length	As required, 2.4m–24m (Note: for projects involving lengths over 17m, contact Conqueror)
Thickness	50mm, 75mm, 100mm, 125mm, 150mm, and 200mm

Note: Other steel thicknesses and coatings available on request.

* For external applications, high-performance Maxam AM150 coat steel is available.

Panel Performance

A - Core Thickness (mm)	50	75	100	125	150	200
Material R Value @ 15°C (m^2.K/W)*	2.10	3.19	4.31	5.64	6.77	9.02
Installed R Value @ 15°C (m^2.K/W)**	2.22	3.31	4.43	5.76	6.89	9.14
Weight (kg/m^2)***	12.1	13.1	14.1	15.1	16.1	18.1

* Material R value = the aged thermal value @ 15°C, as independently tested and calculated to the requirements of AS/NZS 4859 Parts 1 & 2: 2018. Note this is for the product only before installation.

** Installed R value = the thermal resistance of the installed product plus air films as per NZS 4214.

*** Actual weight subject to vary ±10% due to manufacturing and raw material tolerances.

Fire Performance

Internal Surface Finish (Walls & Ceiling) (to ISO 9705)	
50-150mm panel: Group 1S 200mm panel: Group 2S	
Foam Plastic Core	
Meets the requirements of AS1366.2	
External Radiation (NZBC C.5.8) (to ISO 5660-1)	
Building Code Document	**Cladding Material Type**
NZBC Acceptable Solutions C/AS1 Table 5.1	< 100kW/m^2 and < 25 MJ/m^2
NZBC Acceptable Solutions C/AS2 Table C1.3	Type A

Insurance

Conqueror CQ1100CRP Cool Room Wall & Ceiling Panels are approved by FM to the following Approval Standards:

FM4880	Internal wall and ceiling panels without height restriction (50, 75, 100, 125, and 150mm thicknesses only) (certified name: CQ1100CRP)
FM4881	External Wall Panel System without height restriction (50, 75, 100, 125, and 150mm thicknesses only) (certified name: CQ1100CRP)

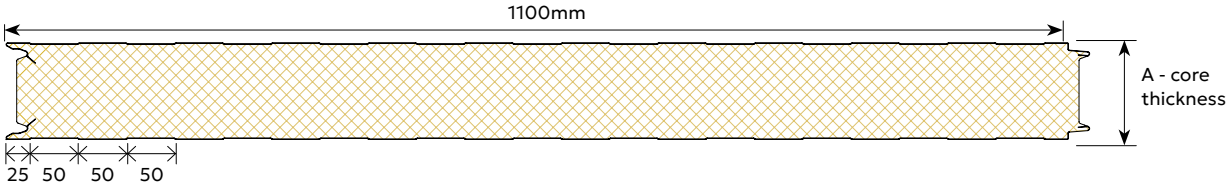
FM APPROVED

FM Approvals involve comprehensive large-scale fire and performance testing, supported by regular factory audits to ensure ongoing compliance with the approved standard. These approvals are specific to panel attributes such as thickness, width, orientation, joint design, steel finish, and the manufacturing facility.

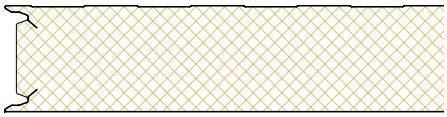
Product Information

Profile Options

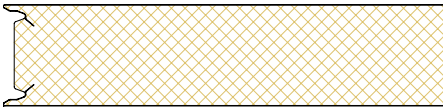
Ribbed / Ribbed



Flat / Ribbed



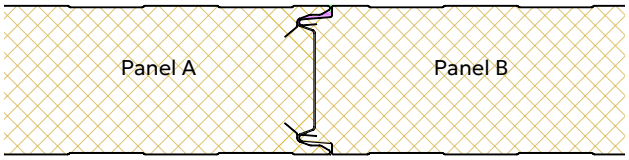
Flat / Flat



All dimensions in mm.

Joint Detail

Engineered tongue and groove joint.



Acoustic Properties

Frequency	125	250	500	1000	2000	4000	STC	R_w
Hz	17.2	18.2	19.1	24.8	37.3	39.5	21	24

Tested to ISO 10140-2 on 100 mm panel.

Colours

The steel skins are Colorsteel®, provided by NZ Steel. The standard colour is Titania, other colours are available on request at an additional cost. Please be aware some NZ Steel dark colours are not recommended and may affect the available warranty. Lower spans also apply to dark colours.

Titania
(indicative colour representation only)

Warranty

In business, your reputation is everything and minimising risk makes sound business sense. Conqueror's range for thermal insulated cladding will give you the peace of mind you've chosen a quality material that conforms to relevant Australian and New Zealand standards and backed by a warranty you can count on.

Packaging & Delivery

Lead times vary depending on the applicable coil colour ordered.Non-stocked coatings / colours require extra lead time. Protective film is applied to the steel facing during the production process. Conqueror PIR panels are stacked flat with the external side facing up. The number of panels in each pack depends on panel thickness.

Handling guidelines are available from Conqueror.

Helping Your Steel Cladding Last Longer

All cladding products are subject to the cumulative effects of weather. Regular washing of steel products increases their durability by limiting their attack from airborne salts, pollutants and other build up.

Wall cladding requires manual washing to prevent build-up of contaminants that aren't removed by rain washing.

Other areas that do not receive adequate rain washing (known as unwashed areas) require more extensive manual washing. These areas include soffits, undersides of gutters, fascias and sheltered areas of garage doors, as well as any external objects such as air conditioning units, television aerials, flues and solar panels.

Washing Your Steel Cladding

Roofing and wall cladding may be manually washed with water and either a sponge or a soft nylon-bristled brush.

Spans - Internal Walls and Ceilings

Panel Thickness (mm)	Internal Walls* (m)		Internal Ceilings (trafficable)
	Single	Double	
50	4.20	5.40	NR
75	7.00	6.30	4.80
100	9.00	6.90	6.40
125	10.10	8.00	7.60
150	11.20	9.20	8.50
200	13.60	**	9.80

* Temperature Delta 50degC between panel surfaces (ie +25 / -25 degC)

** Refer to Conqueror Technical Services

NR - Not recommended for trafficable ceilings

These spans are indicative - contact Kingspan Technical Services for any project specific calculations

Notes

Internal Wall & Ceiling:

1. Internal walls spans are based on the worst case of pressures of ULS +/- 0.5kPa and SLS +/-0.33kPa with thermal load applied. Deflection limit L/100.
2. Wall span in double span condition account for potential creasing at the mid support.
3. Ceiling spans are based on 0.25kPa live load + 1.4kN point load with worst case thermal load applied. Deflection limit L/200 short term or L/100 long term.
4. Ceiling spans do not include additional permanent gravity loads or penetrations greater than 300dia.
5. Additional permanent loads on ceilings need to be considered separately.
6. The allowable steelwork tolerance between bearing panels of adjacent supports is +/- 5mm or L/600.
7. Values have been calculated in accordance with AS/NZS1170 and also take into account the method described in EN 14509:2011 titled 'Self-supporting double skin metal face insulating panels (Light coloured) - Factory made products - Specifications', taking imposed loads and temperature into account.

External Wall:

1. Values have been calculated in accordance with AS/NZS 1170 and also take into account the methods described in EN 14509:2011 titled 'Self-supporting double skin metal face insulating panels (Light coloured) – Factory made products – Specifications', taking imposed loads and temperature into account.
2. The serviceability limit state is defined by local buckling, bending or crushing failure at an intermediate support or the exceedance of a specified deflection limit.
3. A deflection limit of L/100 was used for walls. Deflection limit may not have been exceeded at the SLS limit (refer to note 2).
4. The tables are for an internal temperature of 0°C for chiller and -25°C for freezer and an external surface temperature of 60°C (light coloured panel).
5. The actual wind loads resisted by the panel is also dependant on the number of fasteners used and the support width as well as the fastener material. This table is based on a support width of 80mm.
6. The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
7. The allowable steelwork tolerance between bearing panels of adjacent supports is +/- 5mm or L/600, whichever is least.
8. Load span tables for the panel specifications not shown are available from Kingspan Technical Services.
9. For multiple span conditions in a freezer, the values assume no stress cuts across the panel.
10. When the panel is stress cut, fixings are required both sides of the cut.
11. Span 'L' is assumed to be equal across spans. Where spans are not equal, use largest span or contact Kingspan Technical Services.

Roof:

1. Values have been calculated in accordance with AS/NZS 1170.0 and also take into account the methods described in EN 14509:2011 titled 'Self-supporting double skin metal face insulating panels (Light coloured) – Factory made products – Specifications', taking gravity loads and temperature into account.
2. The serviceability limit state is defined by local buckling, bending or crushing failure at an intermediate support or the exceedance of a specified deflection limit.
3. A deflection limit of L/150 was used upward and L/200 downward.
4. The table is for an internal temperature of 0°C for chiller and -25°C for freezer and an external surface temperature of 60°C (light coloured membrane).
5. The actual wind suction load resisted by the panel is also dependant on the number of fasteners used and the support width as well as the fastener material. This table is based on a support width of 80mm.
6. The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
7. The allowable steelwork tolerance between bearing panels of adjacent supports is +/- 5mm or L/600, whichever is the least.
8. Load span tables for the panel specifications not shown are available from Kingspan Technical Services.
9. Membrane colour is assumed to be either white or light grey. For any other colour, please contact Kingspan.
10. In the tables, panels in multiple span conditions are not stress cut. If stress cut then use the applicable span condition after cutting and fix either side of the cut.
11. The gravity load of the panel has been considered in the tables. No other loads or penetrations have been considered.
12. Refer Kingspan for longterm snow load applications.

Spans - External Ambient Walls

Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa²															
				Span L in metres															
				2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5
50	Pressure	**ULS**	**ALL**	**1.03**	**0.93**	**0.86**	**0.79**	**0.73**	**0.68**										
		SLS	Single	1.03	0.93	0.86	0.79	0.73	0.68										
			Multi	1.03	0.93	0.86	0.79	0.73	0.68										
	Suction	**ULS**	**ALL**	**1.03**	**0.93**	**0.86**	**0.79**	**0.73**	**0.68**										
		SLS	Single	1.03	0.93	0.86	0.79	0.73	0.68										
			Multi	0.98	0.90	0.82	0.76	0.71	0.67										
75	Pressure	**ULS**	**ALL**	**3.84**	**3.49**	**3.20**	**2.95**	**2.74**	**2.56**	**2.40**	**2.26**	**2.13**	**2.02**	**1.90**	**1.73**	**1.57**	**1.44**	**1.32**	**1.22**
		SLS	Single	3.84	3.49	3.20	2.95	2.74	2.56	2.40	2.26	2.13	1.98	1.79	1.62	1.47	1.34	1.22	1.12
			Multi	3.80	3.41	3.10	2.84	2.62	2.43	2.26	2.12	2.00	1.88	1.78	1.70	1.57	1.44	1.32	1.22
	Suction	**ULS**	**ALL**	**3.84**	**3.49**	**3.20**	**2.95**	**2.74**	**2.56**	**2.40**	**2.26**	**2.13**	**2.02**	**1.82**	**1.65**	**1.51**	**1.38**	**1.27**	**1.17**
		SLS	Single	3.84	3.49	3.20	2.95	2.74	2.56	2.40	2.26	2.13	1.98	1.79	1.62	1.47	1.34	1.22	1.12
			Multi	3.84	3.49	3.20	2.95	2.74	2.56	2.40	2.26	2.13	1.84	1.60	1.40	1.24	1.10	0.99	0.89
100	Pressure	**ULS**	**ALL**	**6.45**	**5.86**	**5.37**	**4.96**	**4.60**	**4.30**	**4.03**	**3.79**	**3.56**	**3.19**	**2.88**	**2.62**	**2.38**	**2.18**	**2.00**	**1.85**
		SLS	Single	6.45	5.86	5.37	4.96	4.60	4.30	4.03	3.79	3.56	3.19	2.88	2.62	2.38	2.18	2.00	1.85
			Multi	4.33	3.89	3.53	3.23	2.98	2.77	2.58	2.42	2.27	2.15	2.03	1.93	1.84	1.76	1.68	1.61
	Suction	**ULS**	**ALL**	**8.20**	**7.45**	**6.83**	**5.95**	**5.13**	**4.47**	**3.93**	**3.48**	**3.10**	**2.78**	**2.51**	**2.28**	**2.08**	**1.90**	**1.75**	**1.61**
		SLS	Single	8.20	7.45	6.83	5.95	5.13	4.47	3.93	3.48	3.10	2.78	2.51	2.28	2.08	1.90	1.75	1.61
			Multi	8.20	7.45	6.83	5.95	5.13	4.47	3.93	3.48	3.10	2.72	2.36	2.07	1.83	1.63	1.46	1.32
125	Pressure	**ULS**	**ALL**	**6.33**	**5.75**	**5.27**	**4.87**	**4.52**	**4.22**	**3.95**	**3.72**	**3.52**	**3.33**	**3.16**	**3.01**	**2.86**	**2.62**	**2.40**	**2.22**
		SLS	Single	6.33	5.75	5.27	4.87	4.52	4.22	3.95	3.72	3.52	3.33	3.16	3.01	2.86	2.62	2.40	2.22
			Multi	4.30	3.87	3.51	3.21	2.96	2.74	2.55	2.39	2.25	2.12	2.01	1.90	1.81	1.73	1.66	1.59
	Suction	**ULS**	**ALL**	**9.57**	**8.70**	**7.98**	**7.36**	**6.52**	**5.68**	**4.99**	**4.42**	**3.94**	**3.54**	**3.19**	**2.90**	**2.64**	**2.42**	**2.22**	**2.04**
		SLS	Single	9.57	8.70	7.98	7.36	6.52	5.68	4.99	4.42	3.94	3.54	3.19	2.90	2.64	2.42	2.22	2.04
			Multi	9.57	8.70	7.98	7.36	6.52	5.68	4.99	4.42	3.94	3.54	3.19	2.90	2.64	2.38	2.12	1.90
150	Pressure	**ULS**	**ALL**	**6.19**	**5.62**	**5.16**	**4.76**	**4.42**	**4.12**	**3.87**	**3.64**	**3.44**	**3.26**	**3.09**	**2.95**	**2.81**	**2.69**	**2.58**	**2.47**
		SLS	Single	6.19	5.62	5.16	4.76	4.42	4.12	3.87	3.64	3.44	3.26	3.09	2.95	2.81	2.69	2.58	2.47
			Multi	4.25	3.82	3.46	3.16	2.91	2.70	2.51	2.35	2.21	2.08	1.97	1.87	1.78	1.69	1.62	1.55
	Suction	**ULS**	**ALL**	**10.66**	**9.69**	**8.88**	**8.20**	**7.61**	**6.92**	**6.08**	**5.39**	**4.81**	**4.31**	**3.89**	**3.53**	**3.22**	**2.94**	**2.70**	**2.49**
		SLS	Single	10.66	9.69	8.88	8.20	7.61	6.92	6.08	5.39	4.81	4.31	3.89	3.53	3.22	2.94	2.70	2.49
			Multi	10.66	9.69	8.88	8.20	7.61	6.92	6.08	5.39	4.81	4.31	3.89	3.53	3.22	2.94	2.70	2.49
200	Pressure	**ULS**	**ALL**	**8.27**	**7.52**	**6.89**	**6.36**	**5.91**	**5.52**	**5.17**	**4.87**	**4.60**	**4.35**	**4.14**	**3.94**	**3.76**	**3.60**	**3.45**	**3.31**
		SLS	Single	8.27	7.52	6.89	6.36	5.91	5.52	5.17	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31
			Multi	5.88	5.29	4.80	4.39	4.04	3.74	3.48	3.25	3.05	2.87	2.72	2.57	2.45	2.33	2.22	2.13
	Suction	**ULS**	**ALL**	**13.65**	**12.41**	**10.69**	**9.11**	**7.86**	**6.84**	**6.02**	**5.33**	**4.75**	**4.27**	**3.85**	**3.49**	**3.18**	**2.91**	**2.67**	**2.46**
		SLS	Single	13.65	12.41	10.69	9.11	7.86	6.84	6.02	5.33	4.75	4.27	3.85	3.49	3.18	2.91	2.67	2.46
			Multi	13.65	12.41	10.69	9.11	7.86	6.84	6.02	5.33	4.75	4.27	3.85	3.49	3.18	2.91	2.67	2.46

*Multi = panel connected to multiple purlins.

Spans - External Wall Chiller (0°C)

Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa Span L in metres													
				2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5
75	Pressure	**ULS**	**ALL**	**3.20**	**2.95**	**2.74**	**2.56**	**2.40**	**2.26**	**2.13**	**2.02**	**1.90**	**1.73**	**1.57**	**1.44**	**1.32**	**1.22**
		SLS	Single	3.20	2.95	2.74	2.56	2.40	2.26	2.13	1.98	1.79	1.62	1.47	1.34	1.22	1.12
			Multi	3.10	2.84	2.62	2.43	2.26	2.12	2.00	1.88	1.78					
	Suction	**ULS**	**ALL**	**3.20**	**2.95**	**2.74**	**2.56**	**2.40**	**2.26**	**2.13**	**2.02**	**1.82**	**1.65**	**1.51**	**1.38**	**1.27**	**1.17**
		SLS	Single	3.20	2.95	2.74	2.56	2.40	2.26	2.13	1.90	1.68	1.49	1.33	1.18	1.05	0.94
			Multi	3.20	2.95	2.27	1.76	1.35	0.96	0.68							
100	Pressure	**ULS**	**ALL**	**5.37**	**4.96**	**4.60**	**4.30**	**4.03**	**3.79**	**3.56**	**3.19**	**2.88**	**2.62**	**2.38**	**2.18**	**2.00**	**1.85**
		SLS	Single	5.37	4.96	4.60	4.30	4.03	3.79	3.56	3.19	2.88	2.62	2.38	2.18	2.00	1.85
			Multi	3.53	3.23	2.98	2.77	2.58	2.42	2.27	2.15	2.03	1.93	1.84	1.76		
	Suction	**ULS**	**ALL**	**6.83**	**5.95**	**5.13**	**4.47**	**3.93**	**3.48**	**3.10**	**2.78**	**2.51**	**2.28**	**2.08**	**1.90**	**1.75**	**1.61**
		SLS	Single	6.83	5.95	5.13	4.47	3.93	3.48	3.10	2.78	2.51	2.28	2.08	1.90	1.75	1.61
			Multi	6.77	5.09	3.93	3.09	2.49	1.87	1.41	1.07	0.82	0.63				
125	Pressure	**ULS**	**ALL**	**5.27**	**4.87**	**4.52**	**4.22**	**3.95**	**3.72**	**3.52**	**3.33**	**3.16**	**3.01**	**2.86**	**2.62**	**2.40**	**2.22**
		SLS	Single	5.27	4.87	4.52	4.22	3.95	3.72	3.52	3.33	3.16	3.01	2.86	2.62	2.40	2.22
			Multi	3.51	3.21	2.96	2.74	2.55	2.39	2.25	2.12	2.01	1.90	1.81	1.73	1.66	1.59
	Suction	**ULS**	**ALL**	**7.98**	**7.36**	**6.52**	**5.68**	**4.99**	**4.42**	**3.94**	**3.54**	**3.19**	**2.90**	**2.64**	**2.42**	**2.22**	**2.04**
		SLS	Single	7.98	7.36	6.52	5.68	4.99	4.42	3.94	3.54	3.19	2.90	2.64	2.42	2.22	2.04
			Multi	7.98	7.36	6.52	5.43	4.37	3.57	2.96	2.41	1.91	1.53	1.24	1.00	0.82	0.67
150	Pressure	**ULS**	**ALL**	**5.16**	**4.76**	**4.42**	**4.12**	**3.87**	**3.64**	**3.44**	**3.26**	**3.09**	**2.95**	**2.81**	**2.69**	**2.58**	**2.47**
		SLS	Single	5.16	4.76	4.42	4.12	3.87	3.64	3.44	3.26	3.09	2.95	2.81	2.69	2.58	2.47
			Multi	3.46	3.16	2.91	2.70	2.51	2.35	2.21	2.08	1.97	1.87	1.78	1.69	1.62	1.55
	Suction	**ULS**	**ALL**	**8.88**	**8.20**	**7.61**	**6.92**	**6.08**	**5.39**	**4.81**	**4.31**	**3.89**	**3.53**	**3.22**	**2.94**	**2.70**	**2.49**
		SLS	Single	8.88	8.20	7.61	6.92	6.08	5.39	4.81	4.31	3.89	3.53	3.22	2.94	2.70	2.49
			Multi	8.88	8.20	7.61	6.92	6.08	5.39	4.70	3.95	3.36	2.86	2.35	1.95	1.63	1.37
200	Pressure	**ULS**	**ALL**	**6.89**	**6.36**	**5.91**	**5.52**	**5.17**	**4.87**	**4.60**	**4.35**	**4.14**	**3.94**	**3.76**	**3.60**	**3.45**	**3.31**
		SLS	Single	6.89	6.36	5.91	5.52	5.17	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31
			Multi	4.80	4.39	4.04	3.74	3.48	3.25	3.05	2.87	2.72	2.57	2.45	2.33	2.22	2.13
	Suction	**ULS**	**ALL**	**10.69**	**9.11**	**7.86**	**6.84**	**6.02**	**5.33**	**4.75**	**4.27**	**3.85**	**3.49**	**3.18**	**2.91**	**2.67**	**2.46**
		SLS	Single	10.69	9.11	7.86	6.84	6.02	5.33	4.75	4.27	3.85	3.49	3.18	2.91	2.67	2.46
			Multi	10.69	9.11	7.86	6.84	6.02	4.92	3.83	3.02	2.40	1.92	1.55	1.26	1.03	0.84

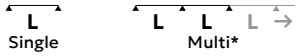
*Multi = panel connected to multiple purlins.

Spans - External Wall Freezer (-25°C)

Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa² Span L in metres												
				2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	5.2
125	Pressure	**ULS**	**ALL**	**4.52**	**4.22**	**3.95**	**3.72**	**3.52**	**3.33**	**3.16**	**3.01**	**2.86**	**2.62**	**2.40**	**2.22**	**2.05**
		SLS	Single	4.52	4.22	3.95	3.72	3.52	3.33	3.16	3.01	2.86	2.62	2.40	2.22	2.05
			Multi	2.96	2.74	2.55										
	Suction	**ULS**	**ALL**	**6.52**	**5.68**	**4.99**	**4.42**	**3.94**	**3.54**	**3.19**	**2.90**	**2.64**	**2.42**	**2.22**	**2.04**	**1.89**
		SLS	Single	6.52	5.68	4.99	4.42	3.94	3.54	3.19	2.90	2.64	2.42	2.22	2.04	1.89
			Multi	1.68	0.90											
150	Pressure	**ULS**	**ALL**	**4.42**	**4.12**	**3.87**	**3.64**	**3.44**	**3.26**	**3.09**	**2.95**	**2.81**	**2.69**	**2.58**	**2.47**	**2.36**
		SLS	Single	4.42	4.12	3.87	3.64	3.44	3.26	3.09	2.95	2.81	2.69	2.58	2.47	2.36
			Multi	2.91	2.70	2.51	2.35	2.21	2.08							
	Suction	**ULS**	**ALL**	**7.61**	**6.92**	**6.08**	**5.39**	**4.81**	**4.31**	**3.89**	**3.53**	**3.22**	**2.94**	**2.70**	**2.49**	**2.30**
		SLS	Single	7.61	6.92	6.08	5.39	4.81	4.31	3.89	3.53	3.22	2.94	2.70	2.49	2.30
			Multi	4.66	3.17	2.14	1.43	0.92								
200	Pressure	**ULS**	**ALL**	**5.91**	**5.52**	**5.17**	**4.87**	**4.60**	**4.35**	**4.14**	**3.94**	**3.76**	**3.60**	**3.45**	**3.31**	**3.18**
		SLS	Single	5.91	5.52	5.17	4.87	4.60	4.35	4.14	3.94	3.76	3.60	3.45	3.31	3.18
			Multi	4.04	3.74											
	Suction	**ULS**	**ALL**	**7.86**	**6.84**	**6.02**	**5.33**	**4.75**	**4.27**	**3.85**	**3.49**	**3.18**	**2.91**	**2.67**	**2.46**	**2.28**
		SLS	Single	7.86	6.84	6.02	5.33	4.75	4.27	3.85	3.49	3.18	2.91	2.67	2.46	2.28
			Multi	2.94	1.15											

*Multi = panel connected to multiple purlins.

Spans — Ambient Roof Under site-applied Membrane



Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa Span L in metres																				
				1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	5.2	5.4	5.6
50	Pressure	**ULS**	**ALL**	**1.17**	**0.99**	**0.84**																			
		SLS	Single	1.17	0.99	0.84																			
			Multi	1.17	0.99	0.84																			
	Suction	**ULS**	**ALL**	**1.59**	**1.40**	**1.26**																			
		SLS	Single	1.59	1.40	1.26																			
			Multi	1.43	1.26	1.13																			
75	Pressure	**ULS**	**ALL**	**5.16**	**4.47**	**3.94**	**3.52**	**3.17**	**2.88**	**2.63**	**2.42**	**2.24**	**2.08**	**1.94**	**1.81**	**1.70**	**1.60**	**1.51**							
		SLS	Single	4.44	3.74	3.19	2.74	2.38	2.07	1.81	1.59	1.40	1.24	1.09	0.95	0.82	0.71	0.61							
			Multi	4.53	3.86	3.33	2.91	2.56	2.28	2.03	1.83	1.65	1.49	1.35	1.22	1.11	1.01	0.92							
	Suction	**ULS**	**ALL**	**5.61**	**4.92**	**4.39**	**3.96**	**3.62**	**3.33**	**3.08**	**2.87**	**2.69**	**2.53**	**2.39**	**2.26**	**2.15**	**1.95**	**1.78**							
		SLS	Single	4.70	4.00	3.45	3.00	2.63	2.31	2.00	1.74	1.52	1.33	1.18	1.04	0.91	0.78	0.67							
			Multi	4.79	4.11	3.59	3.16	2.82	2.53	2.29	2.09	1.91	1.75	1.61	1.48	1.37	1.26	1.08							
100	Pressure	**ULS**	**ALL**	**9.07**	**7.92**	**7.02**	**6.31**	**5.72**	**5.23**	**4.82**	**4.47**	**4.16**	**3.89**	**3.65**	**3.42**	**3.06**	**2.74**	**2.48**	**2.24**	**2.04**	**1.86**	**1.71**	**1.57**		
		SLS	Single	7.76	6.56	5.61	4.84	4.21	3.68	3.24	2.86	2.53	2.25	2.00	1.79	1.60	1.43	1.29	1.16	1.04	0.92	0.81	0.71		
			Multi	6.11	5.23	4.56	4.04	3.62	3.27	2.99	2.75	2.54	2.36	2.21	2.07	1.95	1.84	1.69	1.55	1.43	1.31	1.21	1.11		
	Suction	**ULS**	**ALL**	**11.85**	**10.38**	**9.25**	**8.33**	**7.59**	**6.97**	**6.09**	**5.27**	**4.61**	**4.07**	**3.62**	**3.24**	**2.92**	**2.65**	**2.42**	**2.22**	**2.04**	**1.88**	**1.75**	**1.63**		
		SLS	Single	8.04	6.83	5.88	5.12	4.49	3.96	3.52	3.14	2.81	2.51	2.22	1.98	1.76	1.58	1.41	1.27	1.15	1.04	0.95	0.85		
			Multi	8.18	7.02	6.11	5.39	4.79	4.30	3.88	3.53	3.22	2.96	2.71	2.49	2.30	2.04	1.75	1.51	1.32	1.16	1.04	0.93		
125	Pressure	**ULS**	**ALL**	**8.89**	**7.76**	**6.88**	**6.18**	**5.60**	**5.13**	**4.72**	**4.37**	**4.07**	**3.81**	**3.57**	**3.37**	**3.18**	**3.02**	**2.87**	**2.71**	**2.47**	**2.26**	**2.07**	**1.90**	**1.75**	**1.62**
		SLS	Single	8.89	7.76	6.88	6.08	5.33	4.71	4.18	3.72	3.33	2.99	2.69	2.42	2.19	1.98	1.79	1.63	1.48	1.35	1.23	1.12	1.02	0.93
			Multi	6.05	5.18	4.52	3.99	3.57	3.23	2.94	2.70	2.49	2.31	2.16	2.02	1.90	1.80	1.70	1.61	1.54	1.46	1.40	1.34	1.28	1.23
	Suction	**ULS**	**ALL**	**13.82**	**12.11**	**10.78**	**9.72**	**8.85**	**8.12**	**7.51**	**6.67**	**5.83**	**5.14**	**4.57**	**4.09**	**3.69**	**3.34**	**3.05**	**2.79**	**2.56**	**2.37**	**2.19**	**2.04**	**1.90**	**1.78**
		SLS	Single	9.80	8.39	7.27	6.37	5.63	5.00	4.47	4.02	3.63	3.28	2.98	2.72	2.48	2.27	2.06	1.87	1.70	1.55	1.41	1.30	1.19	1.10
			Multi	9.91	8.53	7.46	6.59	5.89	5.30	4.80	4.38	4.01	3.69	3.41	3.16	2.93	2.72	2.53	2.36	2.15	1.90	1.68	1.50	1.34	1.21
150	Pressure	**ULS**	**ALL**	**8.68**	**7.57**	**6.72**	**6.03**	**5.47**	**5.00**	**4.60**	**4.26**	**3.97**	**3.71**	**3.48**	**3.28**	**3.10**	**2.94**	**2.79**	**2.65**	**2.53**	**2.42**	**2.32**	**2.20**	**2.03**	**1.87**
		SLS	Single	8.68	7.57	6.72	6.03	5.47	5.00	4.60	4.26	3.97	3.67	3.32	3.01	2.74	2.50	2.28	2.09	1.91	1.75	1.61	1.47	1.36	1.25
			Multi	5.95	5.09	4.44	3.92	3.50	3.16	2.87	2.63	2.43	2.25	2.10	1.96	1.85	1.74	1.64	1.56	1.48	1.41	1.35	1.29	1.23	1.18
	Suction	**ULS**	**ALL**	**15.38**	**13.48**	**12.00**	**10.82**	**9.85**	**9.04**	**8.36**	**7.77**	**7.08**	**6.24**	**5.55**	**4.96**	**4.47**	**4.05**	**3.69**	**3.38**	**3.10**	**2.86**	**2.65**	**2.46**	**2.29**	**2.14**
		SLS	Single	11.33	9.74	8.49	7.48	6.64	5.94	5.34	4.82	4.37	3.98	3.64	3.33	3.06	2.82	2.60	2.40	2.22	2.07	1.91	1.76	1.62	1.50
			Multi	11.41	9.85	8.64	7.66	6.85	6.19	5.62	5.14	4.72	4.35	4.03	3.74	3.48	3.26	3.05	2.85	2.67	2.51	2.36	2.16	1.95	1.78
200	Pressure	**ULS**	**ALL**	**11.64**	**10.16**	**9.01**	**8.09**	**7.34**	**6.72**	**6.19**	**5.73**	**5.34**	**4.99**	**4.69**	**4.42**	**4.18**	**3.96**	**3.76**	**3.58**	**3.42**	**3.27**	**3.13**	**3.00**	**2.89**	**2.78**
		SLS	Single	11.64	10.16	9.01	8.09	7.34	6.72	6.19	5.73	5.27	4.81	4.40	4.03	3.71	3.41	3.15	2.91	2.69	2.49	2.31	2.14	1.99	1.85
			Multi	8.31	7.15	6.25	5.53	4.95	4.47	4.07	3.73	3.44	3.19	2.97	2.78	2.61	2.45	2.32	2.20	2.09	1.99	1.89	1.81	1.73	1.66
	Suction	**ULS**	**ALL**	**19.67**	**17.24**	**15.34**	**13.83**	**12.58**	**10.87**	**9.29**	**8.03**	**7.02**	**6.19**	**5.51**	**4.93**	**4.44**	**4.03**	**3.67**	**3.36**	**3.09**	**2.85**	**2.64**	**2.46**	**2.29**	**2.14**
		SLS	Single	13.72	11.87	10.41	9.24	8.27	7.45	6.75	6.15	5.62	5.16	4.75	4.39	4.06	3.77	3.50	3.26	3.04	2.85	2.64	2.46	2.29	2.14
			Multi	13.77	11.94	10.50	9.35	8.40	7.61	6.94	6.37	5.87	5.43	5.05	4.71	4.40	4.03	3.67	3.36	3.09	2.75	2.44	2.10	1.82	1.58

*Multi = panel connected to multiple purlins.

Spans — Roof Chiller (0°C) Under site-applied Membrane

Single

Multi*

Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa Span L in metres															
				1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5
75	Pressure	**ULS**	**ALL**	**3.94**	**3.52**	**3.17**	**2.88**	**2.63**	**2.42**											
		SLS	Single	3.19	2.74	2.38	2.07	1.81	1.59											
			Multi	3.33	2.91	2.56	2.28	2.03	1.83											
	Suction	**ULS**	**ALL**	**4.39**	**3.96**	**3.62**	**3.33**	**3.08**	**2.87**											
		SLS	Single	3.23	2.69	2.25	1.82	1.39	1.05											
			Multi	3.59	3.16	2.82	2.44	1.64	1.12											
100	Pressure	**ULS**	**ALL**	**7.02**	**6.31**	**5.72**	**5.23**	**4.82**	**4.47**	**4.16**	**3.89**	**3.65**	**3.42**	**3.06**	**2.74**					
		SLS	Single	5.61	4.84	4.21	3.68	3.24	2.86	2.53	2.25	2.00	1.79	1.60	1.43					
			Multi	4.56	4.04	3.62	3.27	2.99	2.75	2.54	2.36	2.21	2.07							
	Suction	**ULS**	**ALL**	**9.25**	**8.33**	**7.59**	**6.97**	**6.09**	**5.27**	**4.61**	**4.07**	**3.62**	**3.24**	**2.92**	**2.65**					
		SLS	Single	5.88	5.12	4.35	3.72	3.19	2.75	2.38	1.99	1.61	1.30	1.04	0.82					
			Multi	6.11	5.39	4.79	4.30	3.25	2.36	1.75	1.30	0.82								
125	Pressure	**ULS**	**ALL**	**6.88**	**6.18**	**5.60**	**5.13**	**4.72**	**4.37**	**4.07**	**3.81**	**3.57**	**3.37**	**3.18**	**3.02**	**2.87**	**2.71**			
		SLS	Single	6.88	6.08	5.33	4.71	4.18	3.72	3.33	2.99	2.69	2.42	2.19	1.98	1.79	1.63			
			Multi	4.52	3.99	3.57	3.23	2.94	2.70	2.49	2.31	2.16	2.02	1.90	1.80	1.70	1.61			
	Suction	**ULS**	**ALL**	**10.78**	**9.72**	**8.85**	**8.12**	**7.51**	**6.67**	**5.83**	**5.14**	**4.57**	**4.09**	**3.69**	**3.34**	**3.05**	**2.79**			
		SLS	Single	7.27	6.37	5.63	5.00	4.44	3.88	3.41	3.01	2.66	2.36	2.10	1.84	1.56	1.32			
			Multi	7.46	6.59	5.89	5.30	4.80	4.38	3.71	2.87	2.27	1.82	1.36	0.97	0.69				
150	Pressure	**ULS**	**ALL**	**6.72**	**6.03**	**5.47**	**5.00**	**4.60**	**4.26**	**3.97**	**3.71**	**3.48**	**3.28**	**3.10**	**2.94**	**2.79**	**2.65**	**2.53**	**2.42**	**2.32**
		SLS	Single	6.72	6.03	5.47	5.00	4.60	4.26	3.97	3.67	3.32	3.01	2.74	2.50	2.28	2.09	1.91	1.75	1.61
			Multi	4.44	3.92	3.50	3.16	2.87	2.63	2.43	2.25	2.10	1.96	1.85	1.74	1.64	1.56	1.48	1.41	1.35
	Suction	**ULS**	**ALL**	**12.00**	**10.82**	**9.85**	**9.04**	**8.36**	**7.77**	**7.08**	**6.24**	**5.55**	**4.96**	**4.47**	**4.05**	**3.69**	**3.38**	**3.10**	**2.86**	**2.65**
		SLS	Single	8.49	7.48	6.64	5.94	5.34	4.82	4.37	3.92	3.51	3.15	2.83	2.55	2.30	2.08	1.89	1.71	1.50
			Multi	8.64	7.66	6.85	6.19	5.62	5.14	4.72	4.35	4.03	3.29	2.71	2.25	1.83	1.42	1.11	0.87	0.68
200	Pressure	**ULS**	**ALL**	**9.01**	**8.09**	**7.34**	**6.72**	**6.19**	**5.73**	**5.34**	**4.99**	**4.69**	**4.42**	**4.18**	**3.96**	**3.76**	**3.58**	**3.42**	**3.27**	**3.13**
		SLS	Single	9.01	8.09	7.34	6.72	6.19	5.73	5.27	4.81	4.40	4.03	3.71	3.41	3.15	2.91	2.69	2.49	2.31
			Multi	6.25	5.53	4.95	4.47	4.07	3.73	3.44	3.19	2.97	2.78	2.61	2.45	2.32	2.20			
	Suction	**ULS**	**ALL**	**15.34**	**13.83**	**12.58**	**10.87**	**9.29**	**8.03**	**7.02**	**6.19**	**5.51**	**4.93**	**4.44**	**4.03**	**3.67**	**3.36**	**3.09**	**2.85**	**2.64**
		SLS	Single	10.41	9.24	8.27	7.45	6.75	6.15	5.62	5.16	4.75	4.39	4.06	3.77	3.49	3.20	2.94	2.71	2.50
			Multi	10.50	9.35	8.40	7.61	6.94	6.37	5.60	3.93	2.75	1.91	1.31	0.87					

*Multi = panel connected to multiple purlins.

Spans — Roof Freezer (-25°C) Under site-applied Membrane

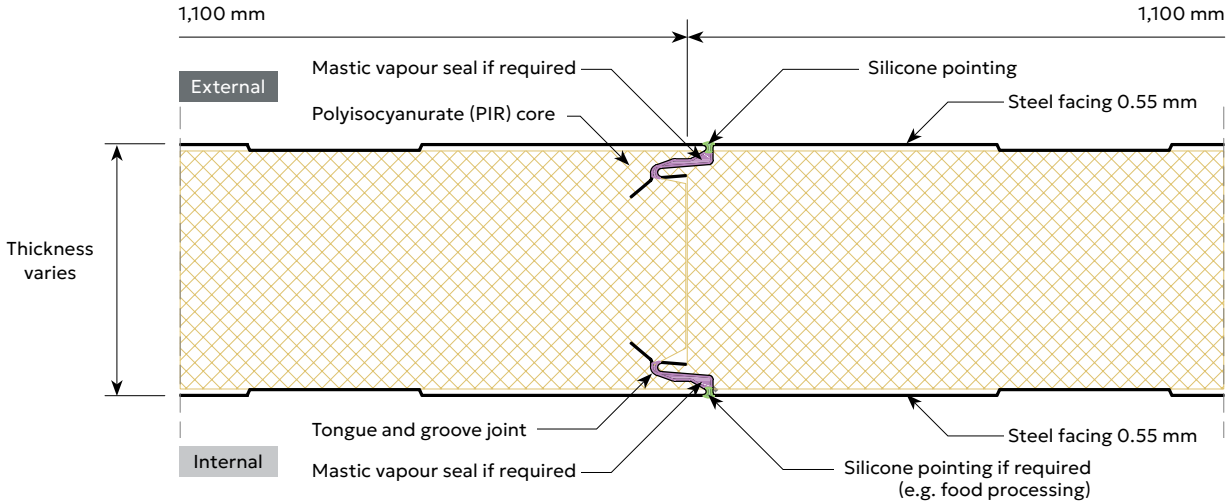
Single

Multi*

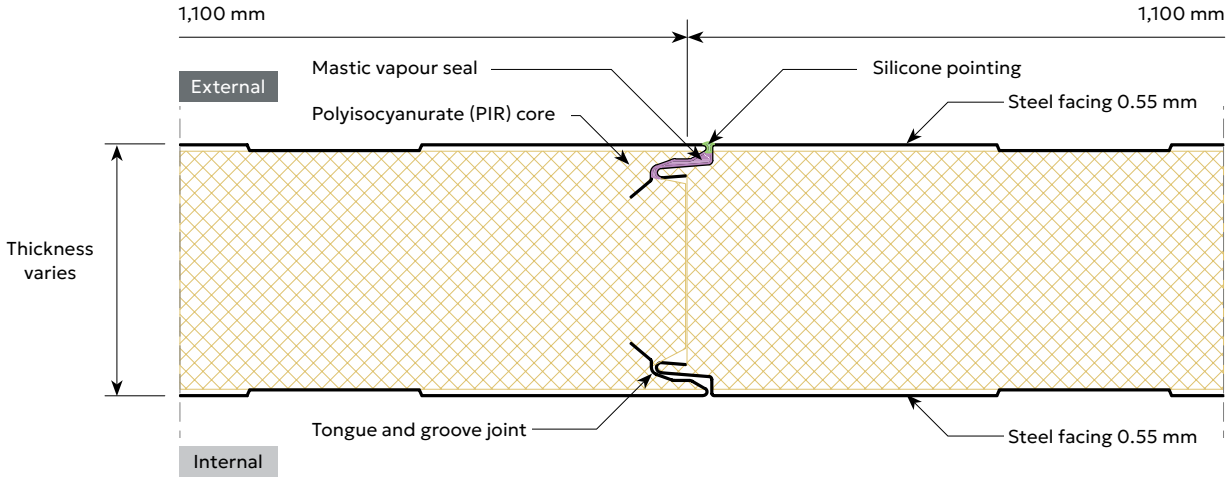
Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa												
				2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4
125	Pressure	**ULS**	**ALL**	**6.18**	**5.60**	**5.13**	**4.72**	**4.37**	**4.07**	**3.81**	**3.57**	**3.37**	**3.18**			
		SLS	Single	6.08	5.33	4.71	4.18	3.72	3.33	2.99	2.69	2.42	2.19			
			Multi	3.99	3.57	3.23	2.94									
	Suction	**ULS**	**ALL**	**9.72**	**8.85**	**8.12**	**7.51**	**6.67**	**5.83**	**5.14**	**4.57**	**4.09**	**3.69**			
		SLS	Single	6.20	5.28	4.52	3.89	3.36	2.70	2.15	1.68	1.29	0.97			
			Multi	6.59	4.44	1.99										
150	Pressure	**ULS**	**ALL**	**6.03**	**5.47**	**5.00**	**4.60**	**4.26**	**3.97**	**3.71**	**3.48**	**3.28**	**3.10**	**2.94**	**2.79**	**2.65**
		SLS	Single	6.03	5.47	5.00	4.60	4.26	3.97	3.67	3.32	3.01	2.74	2.50	2.28	2.09
			Multi	3.92	3.50	3.16	2.87	2.63	2.43	1.77						
	Suction	**ULS**	**ALL**	**10.82**	**9.85**	**9.04**	**8.36**	**7.77**	**7.08**	**6.24**	**5.55**	**4.96**	**4.47**	**4.05**	**3.69**	**3.38**
		SLS	Single	7.48	6.64	5.79	5.05	4.42	3.89	3.43	3.03	2.53	2.09	1.72	1.40	1.12
			Multi	7.66	6.85	6.19	4.06	2.25	1.08							
200	Pressure	**ULS**	**ALL**	**8.09**	**7.34**	**6.72**	**6.19**	**5.73**	**5.34**	**4.99**	**4.69**	**4.42**	**4.18**	**3.96**	**3.76**	**3.58**
		SLS	Single	8.09	7.34	6.72	6.19	5.73	5.27	4.81	4.40	4.03	3.71	3.41	3.15	2.91
			Multi	5.53	4.95	4.47	4.07									
	Suction	**ULS**	**ALL**	**13.83**	**12.58**	**10.87**	**9.29**	**8.03**	**7.02**	**6.19**	**5.51**	**4.93**	**4.44**	**4.03**	**3.67**	**3.36**
		SLS	Single	9.24	8.27	7.45	6.75	6.15	5.62	5.05	4.55	4.11	3.72	3.37	3.07	2.79
			Multi	9.35	8.40	5.70	1.94									

*Multi = panel connected to multiple purlins.

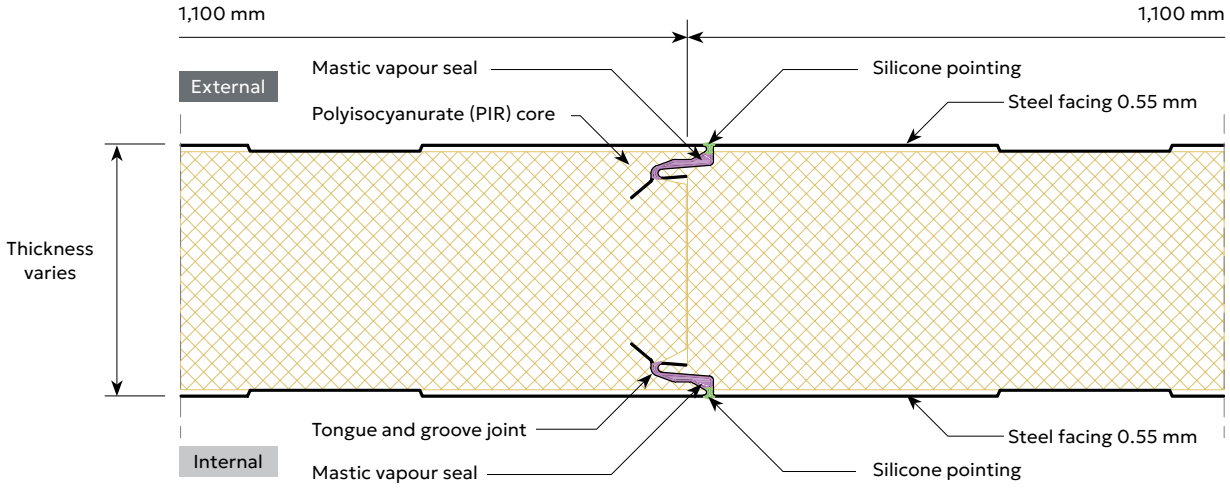
Typical Chiller / Food Processing or Preparation Joint Detail



Typical Wall Joint Detail

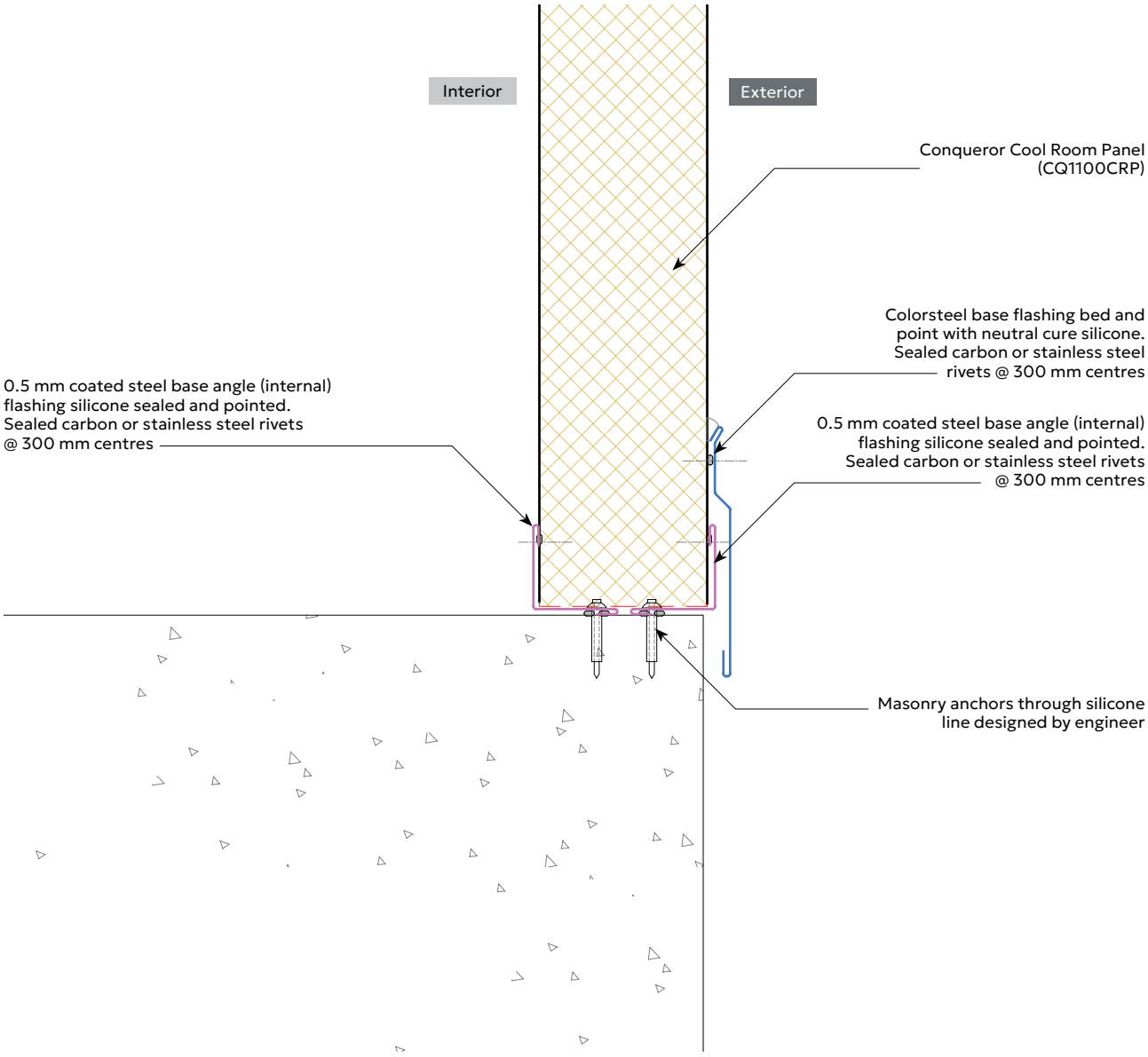


Typical Chiller Ceiling Joint Detail

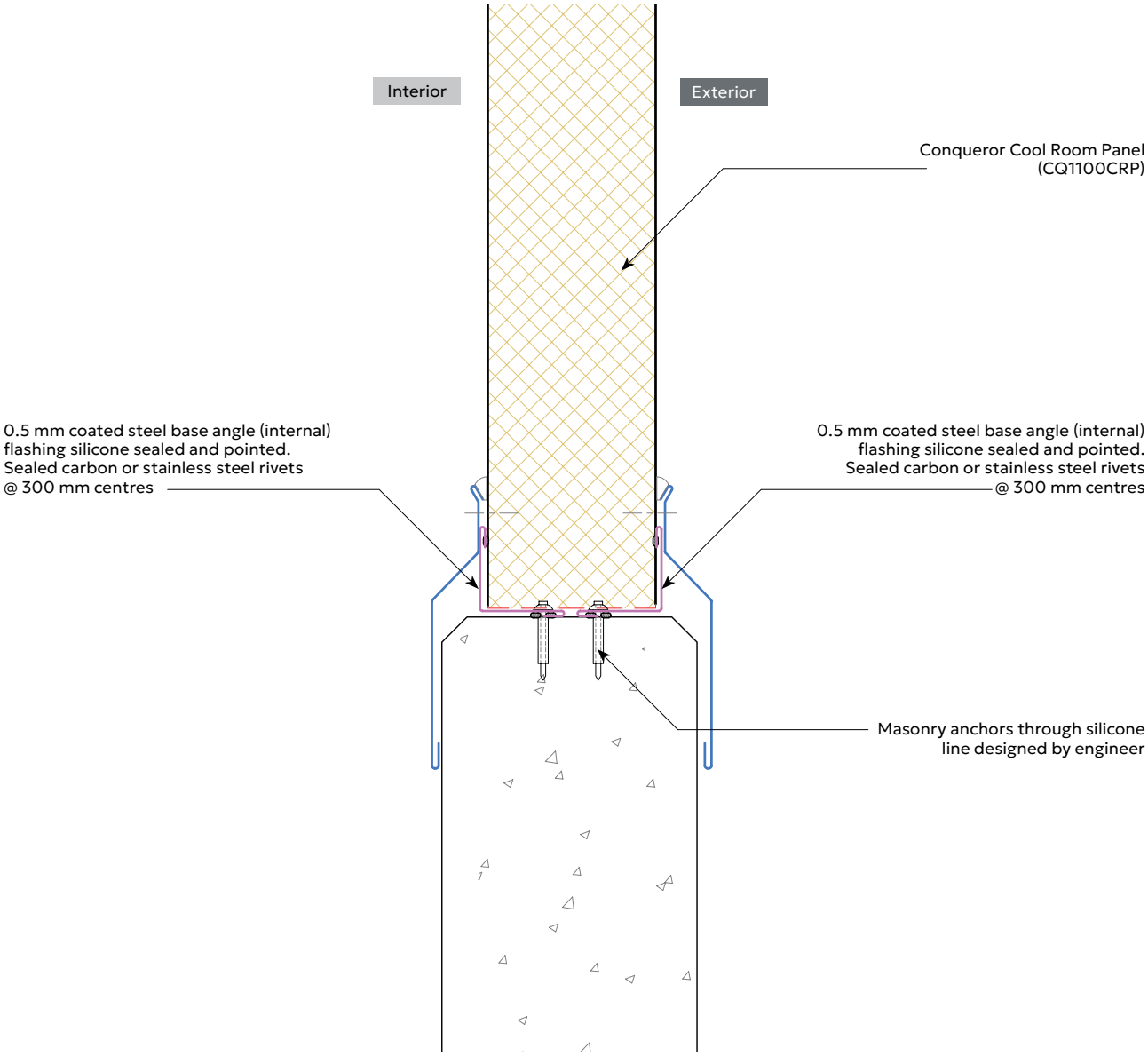


Chiller Panel Details

Typical External Wall Base Detail

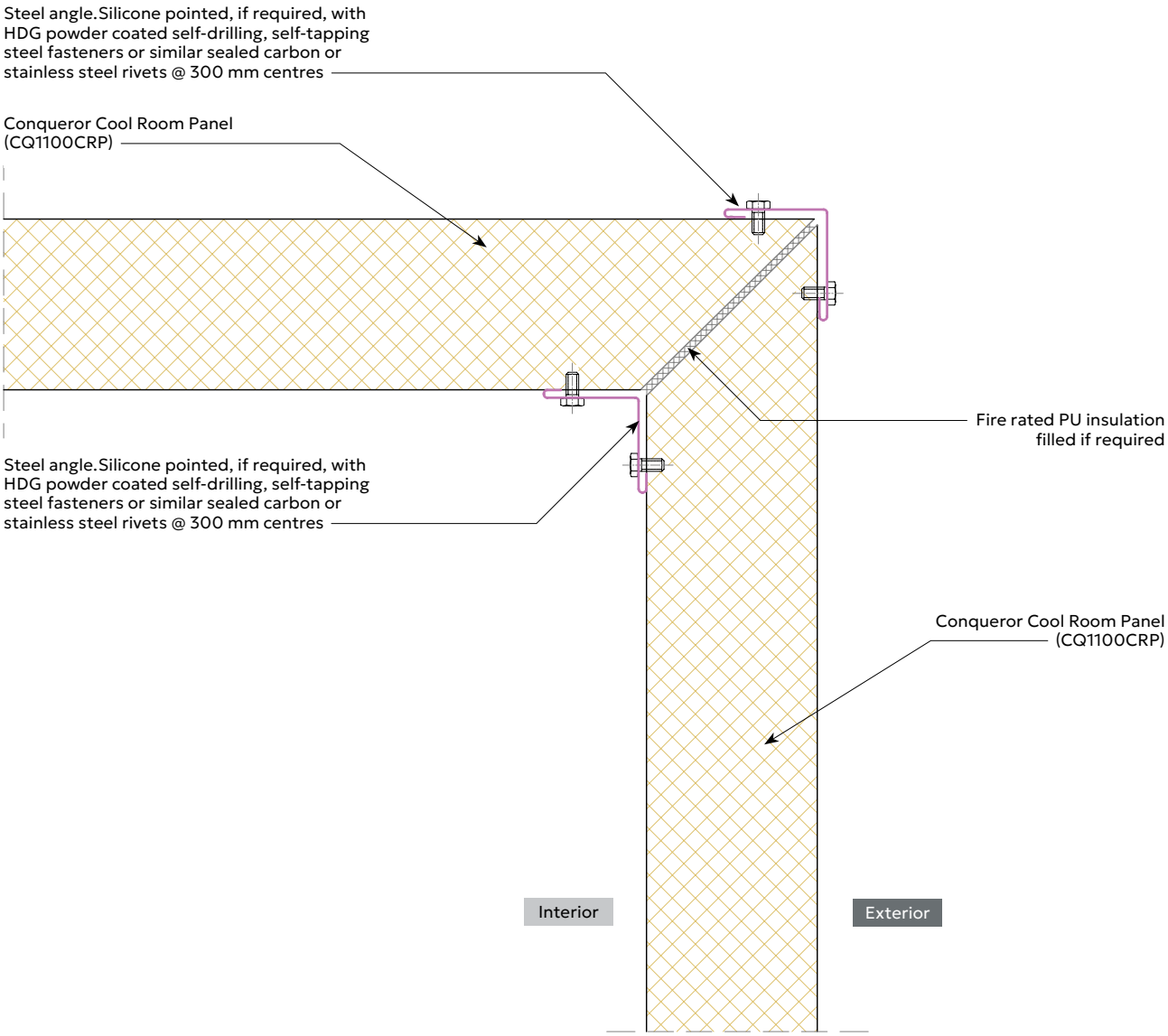


Chiller Base Nib Partition Detail

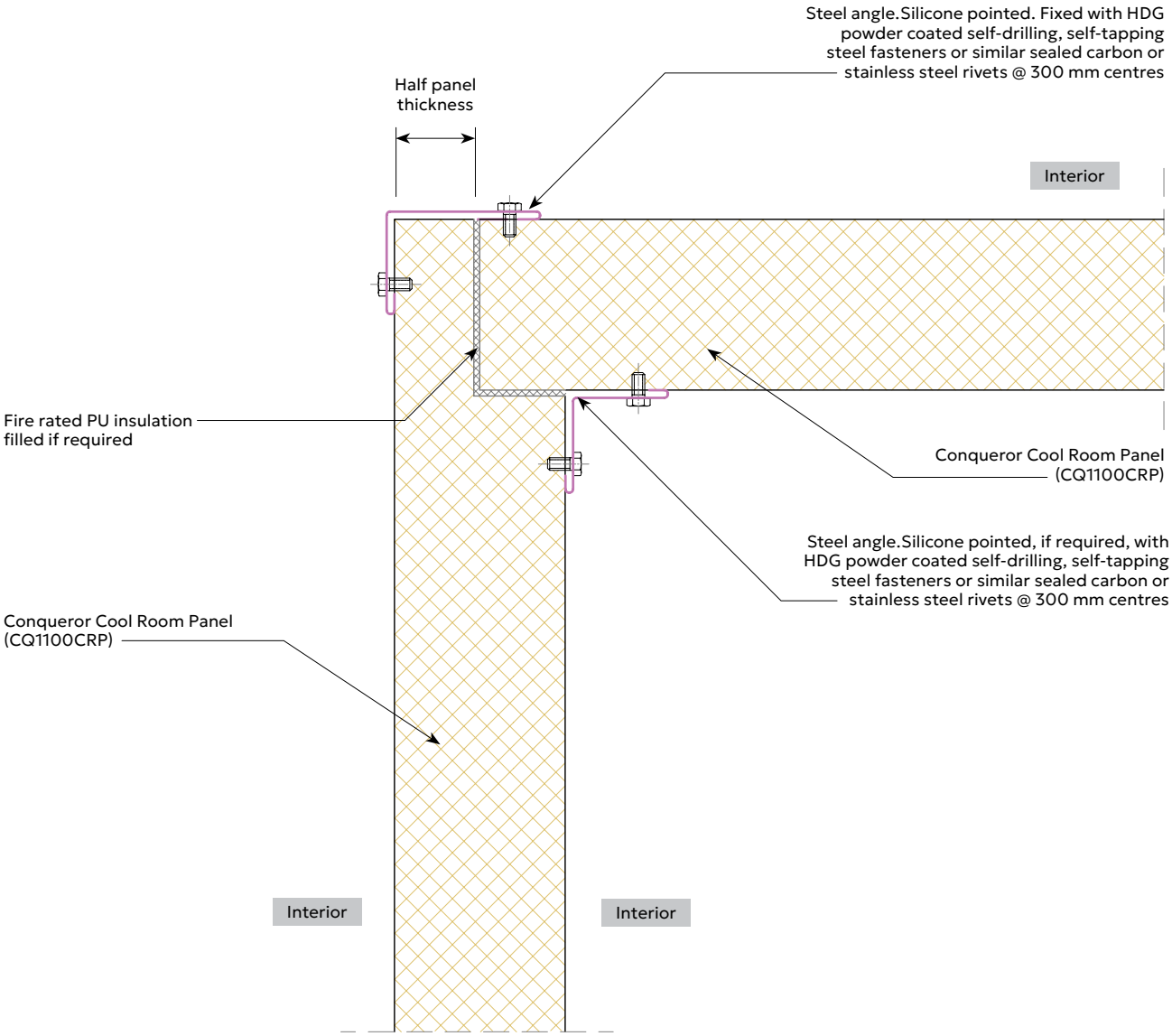


Chiller Panel Details

Typical Mitred External Coolstore Corner Joint Detail

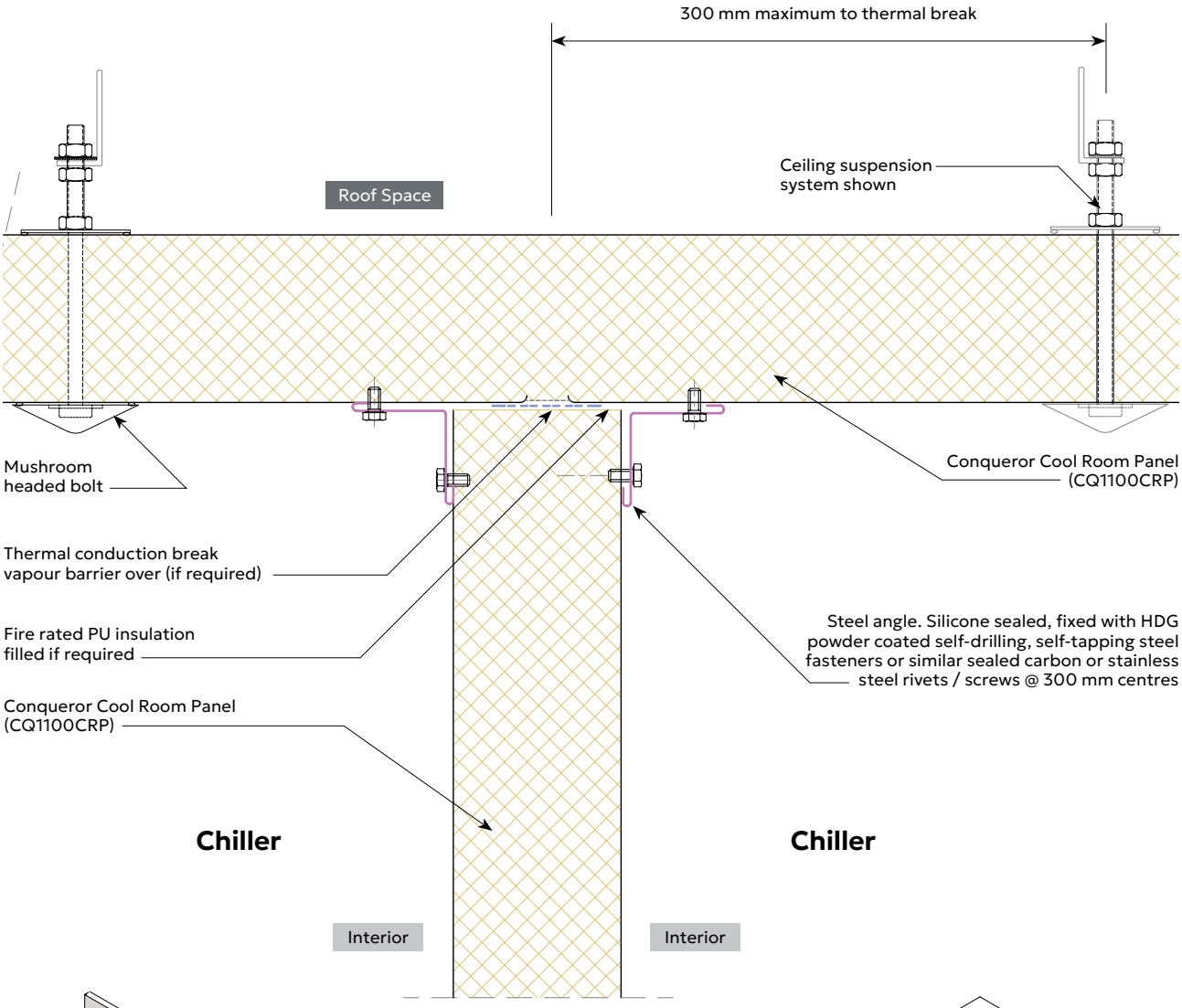


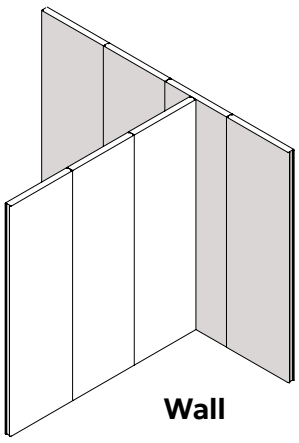
Typical Rebated External Coolstore Corner Joint Detail (Wall or Ceiling)



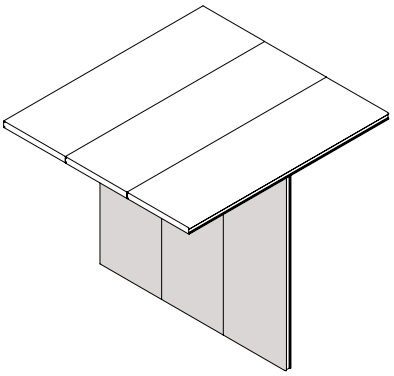
Chiller Panel Details

Coolstore Partition Wall or Ceiling Junction Detail



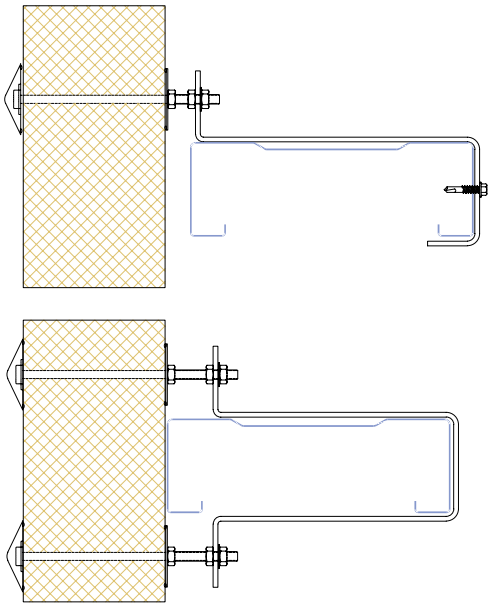


Wall



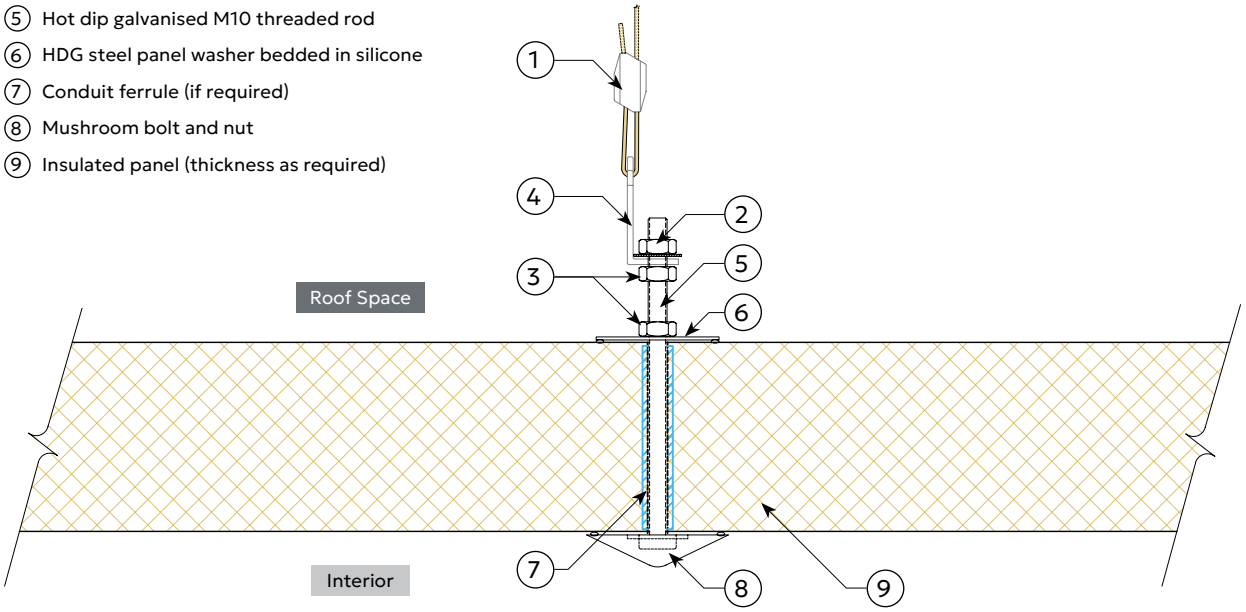
Ceiling

Typical Intermediate Wall Panel Support Fixing Detail for External Coolstore Walls



Typical Suspended Ceiling Intermediate Support (Chiller) Detail

① Suspension system
② Hot dip galvanised M10 nut and HDG spring washer
③ Hot dip galvanised M10 nut
④ Hot dip galvanised steel bracket
⑤ Hot dip galvanised M10 threaded rod
⑥ HDG steel panel washer bedded in silicone
⑦ Conduit ferrule (if required)
⑧ Mushroom bolt and nut
⑨ Insulated panel (thickness as required)

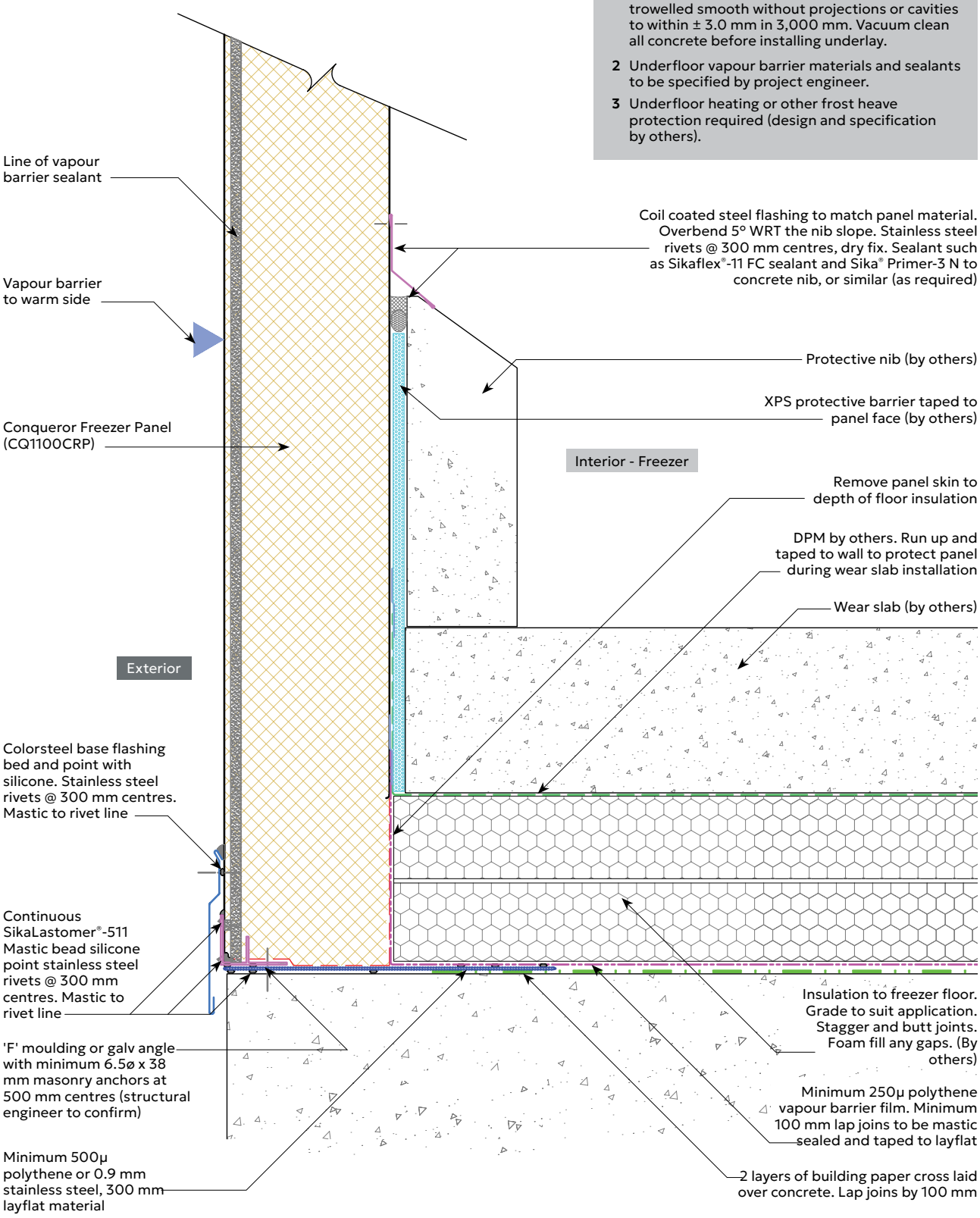


Freezer Panel Details

Typical External Wall Detail

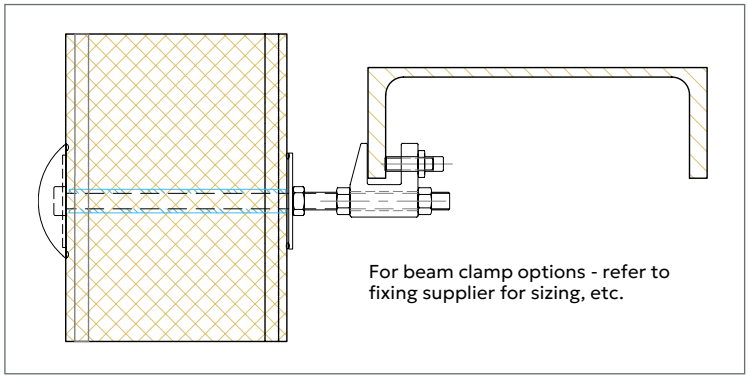
Notes:

1. Concrete surface under vapour barrier to be trowelled smooth without projections or cavities to within ± 3.0 mm in 3,000 mm. Vacuum clean all concrete before installing underlay.
2. Underfloor vapour barrier materials and sealants to be specified by project engineer.
3. Underfloor heating or other frost heave protection required (design and specification by others).



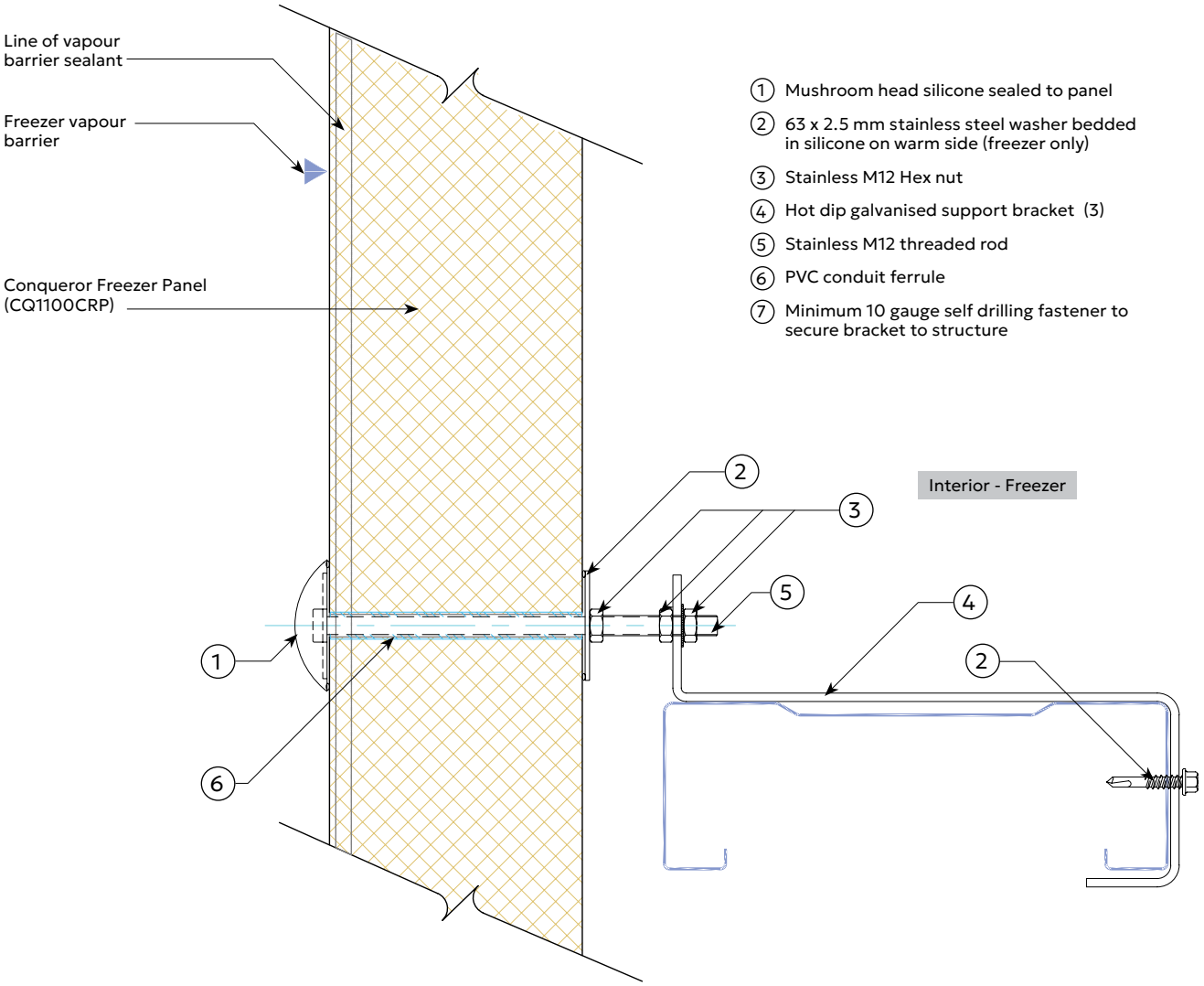
Freezer Panel Details

Typical Intermediate Wall Panel Support Fixing Detail for External Coolstore Walls



Notes:

1. Fixing may need to be adjusted to allow for thermal bow of wall panel in some cases.
2. Number of girt fixings per panel varies with wind loads.
3. Refer to project engineer for bracket specification.
4. Use stainless steel for fixings if required for reduced thermal conductivity.



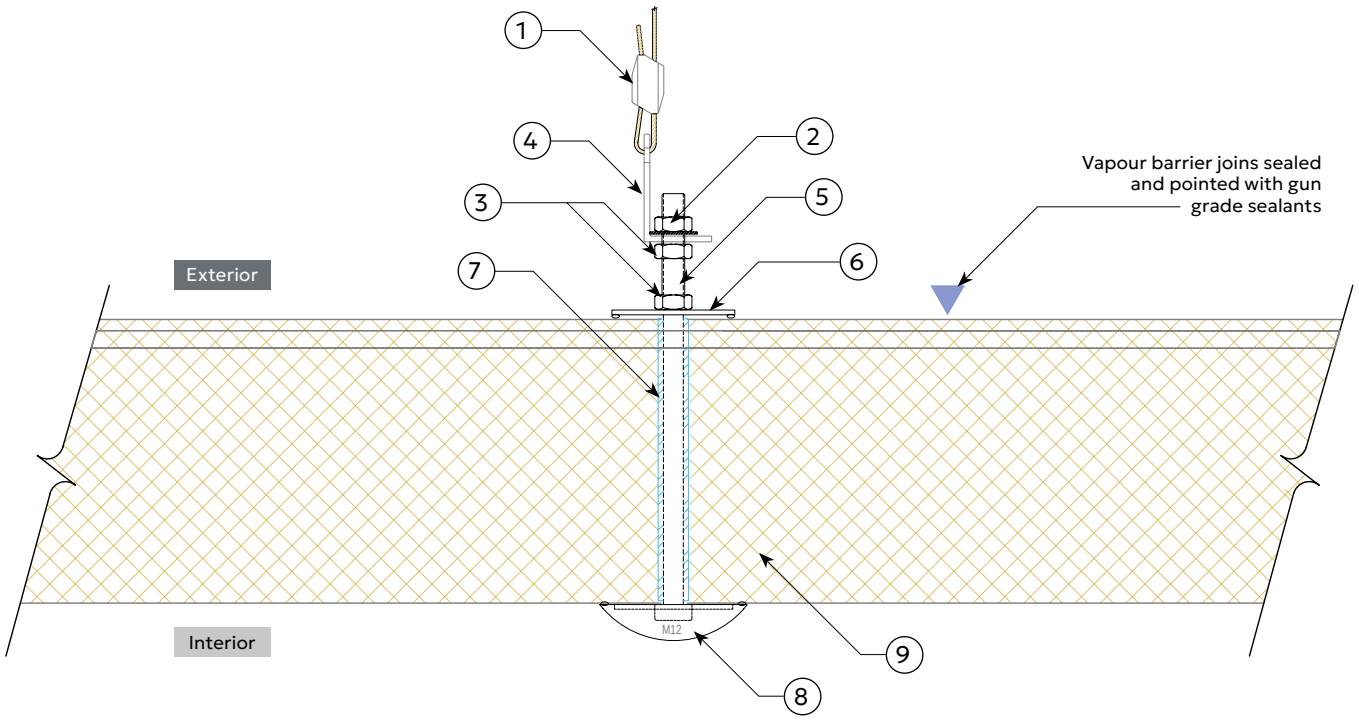
1. Mushroom head silicone sealed to panel
2. 63 x 2.5 mm stainless steel washer bedded in silicone on warm side (freezer only)
3. Stainless M12 Hex nut
4. Hot dip galvanised support bracket (3)
5. Stainless M12 threaded rod
6. PVC conduit ferrule
7. Minimum 10 gauge self drilling fastener to secure bracket to structure

Freezer Panel Details

Typical Suspended Ceiling Intermediate Support (Freezer) Detail

① Suspension system
② Hot dip galvanised M12 nut and HDG spring washer
③ Hot dip galvanised M12 nut
④ Hot dip galvanised steel bracket
⑤ Hot dip galvanised M12 threaded rod
⑥ 63 x 2.5 mm HDG steel panel washer bedded in silicone
⑦ Conduit ferrule (freezer only)
⑧ Mushroom bolt and nut
⑨ Insulated panel (thickness as required)

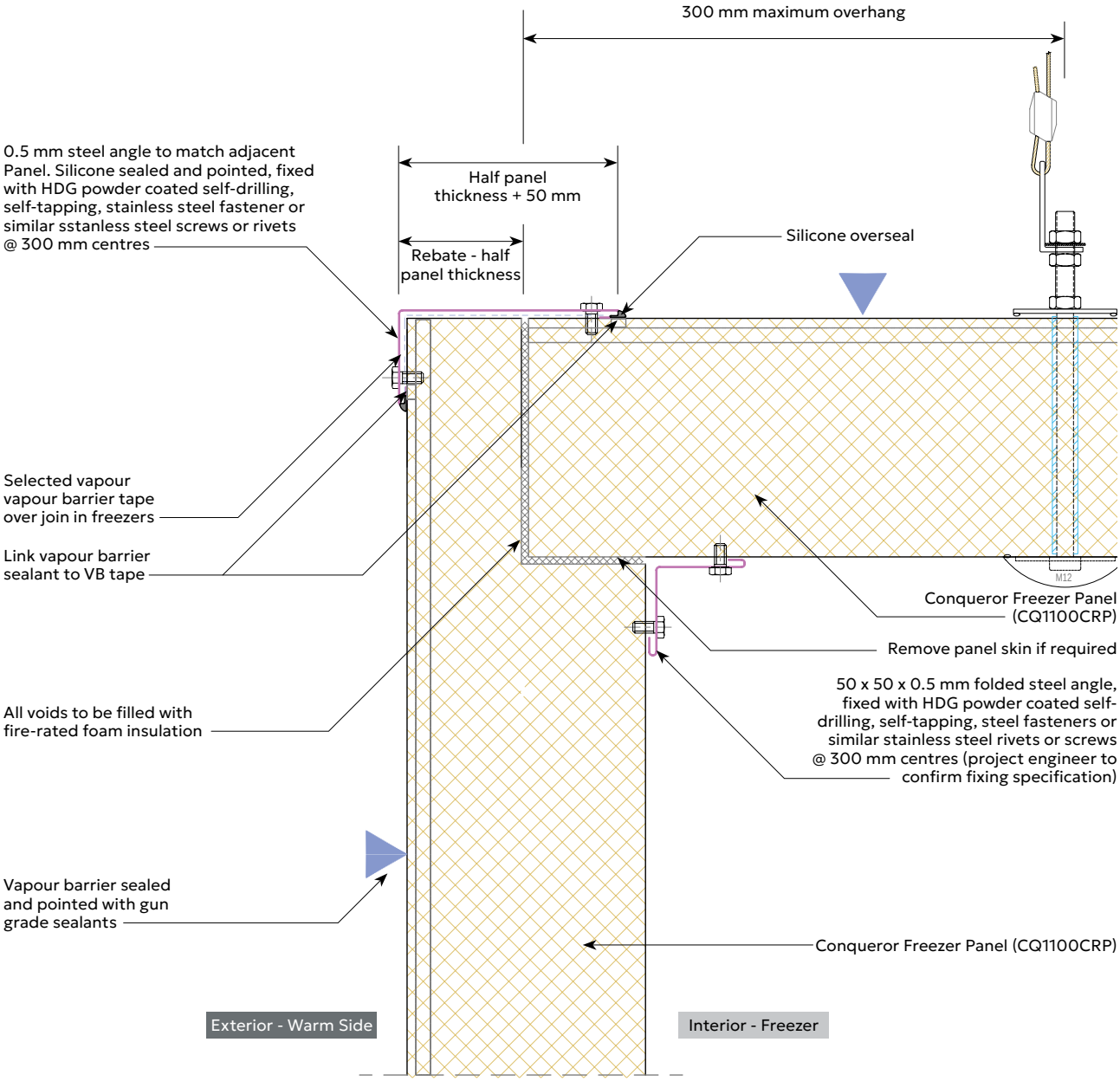
Note:
Use stainless steel for fixings if required for reduced thermal conductivity.



Freezer Panel Details

Freezer Barge Detail

Note:
It is recommended that panels either side of a corner have a minimum width of 500 mm for strength.



CONQUEROR
INSULATED PANELS

P O Box 1354, Christchurch 8140
T: 0800 799 923
E: info@conqueror.co.nz
www.conqueror.co.nz

NEW ZEALAND MADE ®

Issue 4 | Q4 2025

To ensure you are viewing the most recent and accurate product information, please visit:
https://conqueror.co.nz/pages/cool-room-panels