



SPECIALIST PANELS UK LTD

Data sheet 6

EPS (Expanded Polystyrene) & XPS (Extruded Polystyrene) Cored Panels

Isowall EPS Cored Panels

EPS is generally used in panel applications due to its insulation properties and high strength to weight ratio.

Two grades of EPS are utilised in Isowall panels, Standard Density (SD) and High Density (HD), generally recommended for ceilings where its greater strength allows for increased spans.

Extruded Polystyrene (XPS) such as Styrofoam is used in applications where a higher strength to weight ratio is required. Styrofoam offers greater insulation properties as well as higher resistance to water absorption and water vapour permeability, reducing the risk of ice formation in cold store applications.

All polystyrene used by ourselves contains a flame retardant additive (FRA), which restricts the extent of burn when tested to BS 4735: 1974, and will self extinguish if the source of the fire is removed. It is also classified as 'P' (not easily ignitable) when tested to BS 476: Part 5: 1979.

NB This does not signify that the panels are anything other than combustible and advice should be sought on specific uses.

Isowall™ 



Typical Physical Properties	Unit	SD	HD	XPS
Nominal Density	kg/m ³	15	20	30
Thermal Conductivity (K Value)	w/mk @ 10°C	0.037	0.034	0.027
Maximum Continuous Service Temperature	°C	80	80	80
Compressive Strength @ 10% Compression	kPa	70	110	250
Design Compressive Stress @ 1% Nominal Compression	kPa	21	45	110
Cross Breaking Strength	kPa	140	170	250

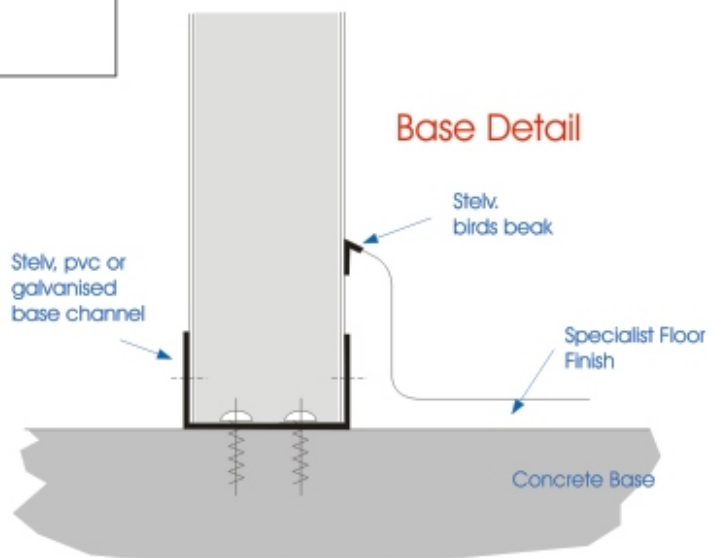
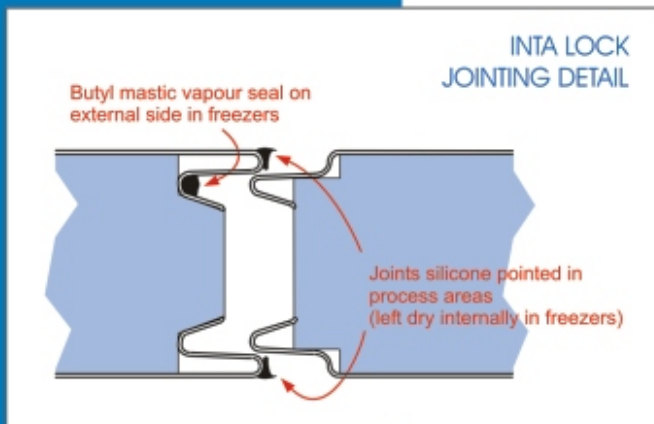
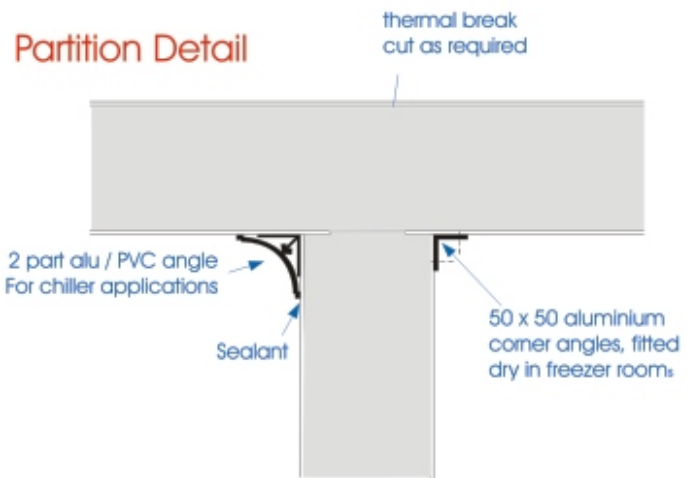
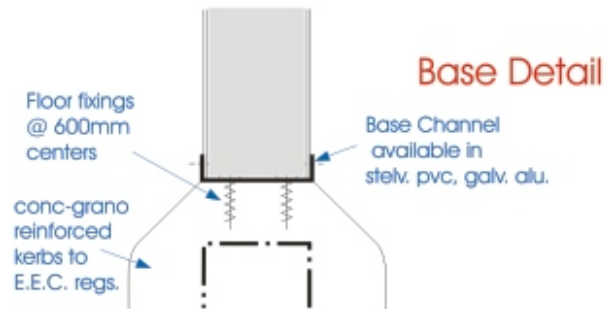
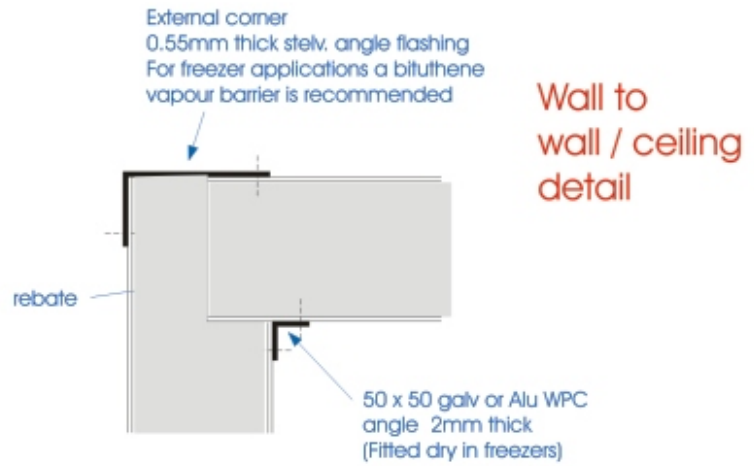
Thermal conductance / Heat transfer 'u' value in w/m²°C

THERMAL PROPERTIES	EPS - SD	EPS - HD	XPS
50 mm	0.74	0.68	0.54
75 mm	0.49	0.45	0.36
100 mm	0.37	0.34	0.27
125 mm	0.30	0.27	0.22
150 mm	0.25	0.23	0.18
175 mm	0.21	0.19	0.15
200 mm	0.19	0.17	0.14
225 mm	0.16	0.15	0.12
250 mm	0.15	0.14	0.11

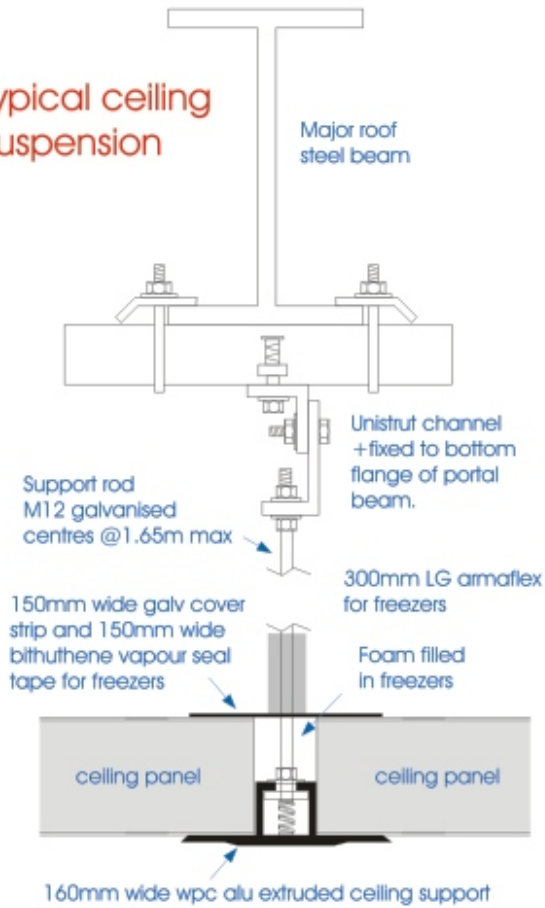
Construction Detail

The following drawings show a range of the most commonly used construction methods with examples of fixing and finishing ancillaries stocked by Insulation Industries Limited.

In addition to those shown, a full range of standard and specialist components are available.

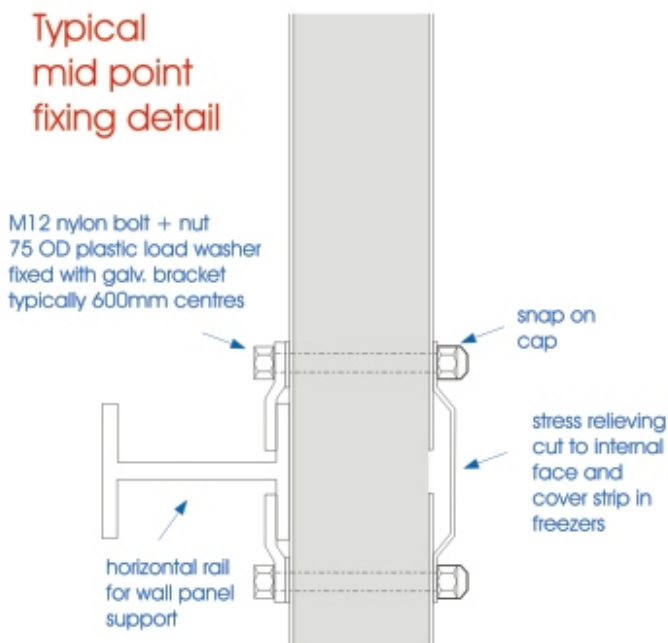


Typical ceiling Suspension

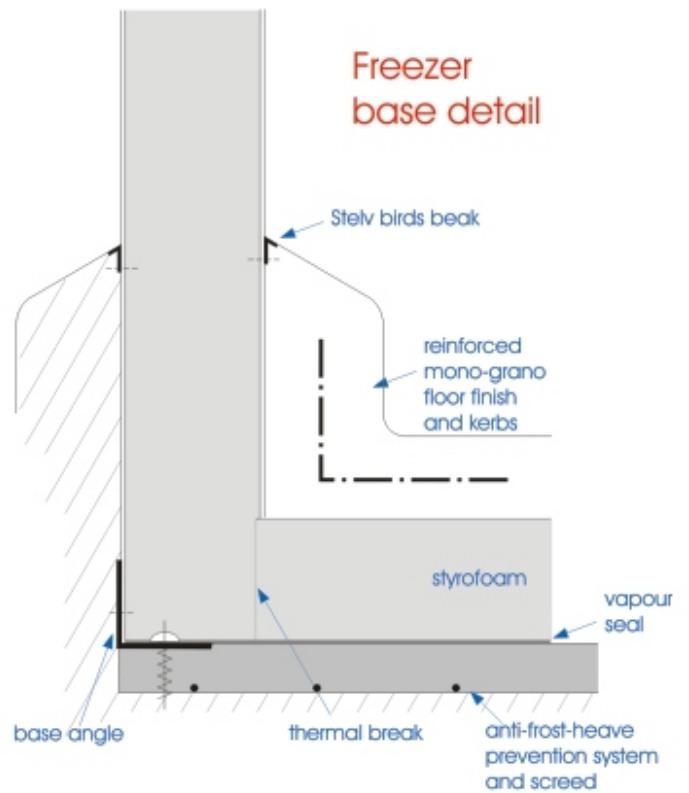


Alternative wall to wall detail

Typical mid point fixing detail



Freezer base detail



Load / Span Tables for EPS and XPS Isowall Panels

Panel Weight (Kg/m ²)	Core Thickness (mm)	Span (metres)											"Walk-on" max span (metres)
		2	3	4	5	6	7	8	9	10	11	12	
Polystyrene SD 15 kg/m³													
10.25	50	127	61	30	14	6							2.70
10.65	75	211	108	56	31	18	10	4					4.20
11.00	100	297	148	78	46	28	18	11	6				5.40
11.40	125	405	186	100	59	37	24	15	10	5			6.20
11.75	150	524	226	122	73	47	31	21	14	9	5		6.90
12.15	175		265	143	87	56	38	26	17	12	7	4	7.60
12.50	200		304	165	100	66	45	31	22	15	10	6	8.20
12.90	225			187	114	75	51	36	25	18	12	8	8.80
13.25	250			209	129	85	58	41	30	21	15	10	9.30
Polystyrene HD 20kg/m³													
10.50	50	195	87	42	20	7							3.20
11.00	75	345	187	87	48	26	13	6					4.70
11.50	100	497	244	133	82	50	30	17	9	3			6.10
12.00	125	659	304	166	100	66	47	31	20	10	4		7.20
12.50	150	862	370	200	120	80	55	40	30	21	11	5	8.30
13.00	175		432	240	150	92	70	50	40	28	20	12	9.30
13.50	200		494	273	185	111	82	61	45	32	25	20	10.00
14.00	225			308	190	130	90	66	50	38	30	23	10.60
14.50	250			340	210	142	100	74	57	43	34	26	11.20
Styrofoam 30kg/m³													
11.00	50	300	114	49	26	8							3.30
11.75	75	550	232	111	58	30	15	7					4.80
12.50	100	822	372	188	103	59	34	20	10	4			6.20
13.25	125	1152	503	276	157	94	58	36	22	12	6		7.30
14.00	150	1386	607	335	207	135	85	55	36	23	14	7	8.40
14.75	175		711	392	245	164	117	77	52	34	23	14	9.40
15.50	200		813	449	282	190	135	99	70	49	34	23	10.20
16.25	225			508	317	215	153	113	85	64	45	32	11.00
17.00	250			565	356	241	170	125	97	73	57	42	11.50



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The above table has been calculated using a face wrinkling safety factor of 2, a deflection of 1/240th of span and core shear safety factor of 5. Figures are rounded to the next lowest Kg/m².

