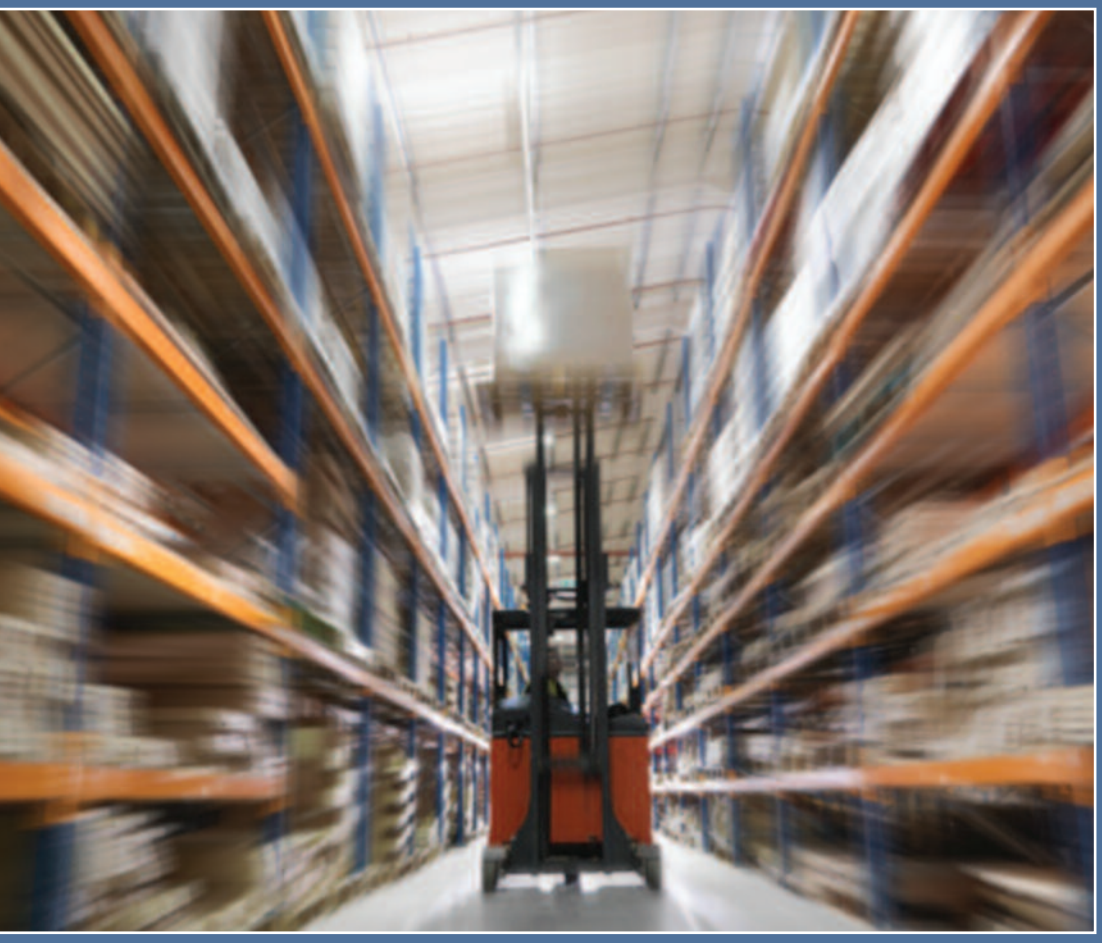
Kingspan

CI/SfB (4-) Rh2
November 2011

ChillZone

Insulated Panels for Controlled Environments in the temperature range of 0°C to +5°C



AgriZone
+20ºC to +80ºC *30-95% RH*

FireZone
+20ºC to +80ºC *30-95% RH*

CleanZone
+18ºC to +24ºC *40-60% RH*

FoodZone
+10ºC to +18ºC

LeisureZone
-2ºC to +14ºC

ChillZone
0ºC to +5ºC

ModularZone
-40ºC to +60ºC

ColdZone
-40ºC to 0ºC

Working with Kingspan

Kingspan Insulated Panels are the largest division of the Kingspan Group, and within our core area of business, we have established an enviable position as a global leader in the design and manufacture of high quality FIREsafe insulated roof and wall systems for the construction industry. Through-wall solutions, structural products, controlled environments and fall protection systems are also part of our extensive product portfolio.

Kingspan controlled environment insulated panel systems, are designed for use within temperature controlled and hygiene safe environments such as, food processing, deep freeze, cold/chill store and clean rooms for bio-technology and pharmaceutical industries.

These firesafe, hygienic and fibre-free insulated panel systems are suitable for internal and external walls, roofs and ceilings, including internal 'box within a box' applications, and a fabric first approach using high performance insulated and air tight panel systems.

All Kingspan controlled environment insulated panel systems are factory manufactured to provide superior build quality with rapid and safer on-site assembly, thereby allowing earlier project handover and income stream.

ChillZone

A ChillZone by definition is a "temperature controlled" environment used for short-term storage of perishable products in order to maintain their quality and safety so as not to result in a risk to health.

Schedule 4 (Temperature Control Requirements) of the 2006 Food Hygiene Regulations requires that In England, Wales and Northern Ireland, foods which are likely to support the growth of pathogenic micro-organisms or the formulation of toxins, be held at 0°C to +5°C unless the products require different temperatures.

ChillZones are also used to remove heat from products to reduce the load on refrigeration systems.

Examples of various food types stored in a ChillZone include:

- Dairy Products – milk, ripened soft or semi-hard cheeses, dairy-based deserts, mousses and products containing whipped cream.
- Cooked Products – meat, fish, egg, milk, cereals, vegetables
- Smoked or cured ready-to-eat meat or fish – sliced hams, salamis, bacon
- Prepared ready-to-eat foods – prepared vegetables, salads, fruit salads.
- Uncooked or partly cooked pastry or dough products – pizzas, sausage rolls, fresh pasta.
- Raw materials (meat, pork), ingredients, intermediate products and finished products.

These examples are for general guidance only.

System Benefits

Kingspan controlled environment insulated panel systems are available in a wide range of profiles, thicknesses, colours and coatings. These quality products are factory manufactured and delivered to site ready for immediate and rapid assembly and offer a number of vital benefits.

CE

Performance

EI

Fire

Enhanced castellated joint provides guaranteed fire performance and reduced secondary support requirements

TS

Structural

Panel joint has efficient shear and tensile strength providing increased load transfer and reduced movement

Airtightness

Panel joint air tightness of 0.02m³/hr/m² @50Pa when installed to Kingspan recommendations

Thermal Bridging

Enhanced castellated joint provides guaranteed thermal performance

IP

Water Tightness

Panel joint water tightness of 1050Pa (class B) when installed to Kingspan recommendations

Sustainability

Low GWP

ECOsafe environmentally sustainable PIR insulation core with zero ozone depletion potential

Cradle to Grave

Anticipated to achieve an A+/A rating according to the BRE Green Guide to Specification

End of Life

Suitable for processing through conventional shredder plants once end of useful life is reached

Kingspan **enviro***care*® Technical Services for controlled environments offer technical advice and support throughout the design and construction process. From the undertaking of Energy Performance Calculations to the creation of project specific NBS specifications, Kingspan is committed to help you reduce energy cost by offering low carbon solutions.

enviro*care*®
CONTROLLED ENVIRONMENTS TECHNICAL SERVICES
0800 970 9181

Kingspan's Field Service Engineers offer free contractor training on the installation of Kingspan controlled environment systems at our specially designed Kingspan energi centre in Holywell, North Wales and at Kingscourt, Ireland. They also offer a site inspection service throughout the construction stage and can also offer advice on mechanical handling solutions.

GUARANTEE TOTAL PANEL ASSURANCE

Kingspan controlled environment systems are available with the Kingspan Total Guarantee offering up to 25 years thermal and structural performance guarantee.

Case Study

Project
Mathieson Bakery, Falkirk

Location
Larbert, Falkirk

Application
Chill Rooms & Processing Areas

Client
Mathieson Bakery

Contractor
Interserve

Volume
Approx. 4700m^3

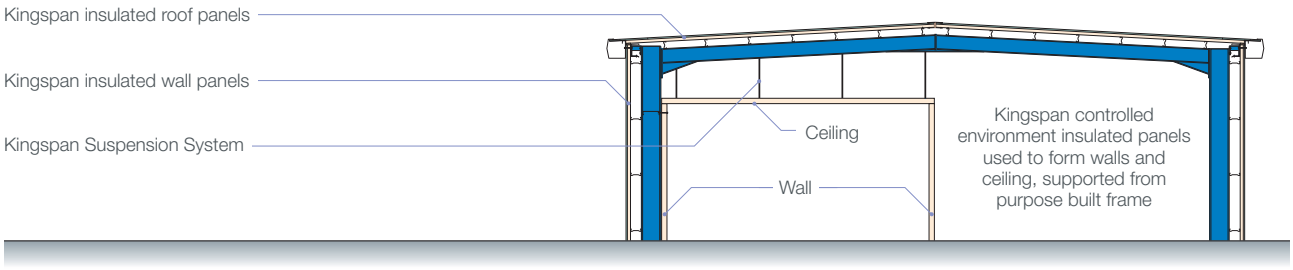
Application

Construction Solutions

Internal Insulated System Self-Supporting

Application: Coldstore/Chillstore/Food Processing or Preparation

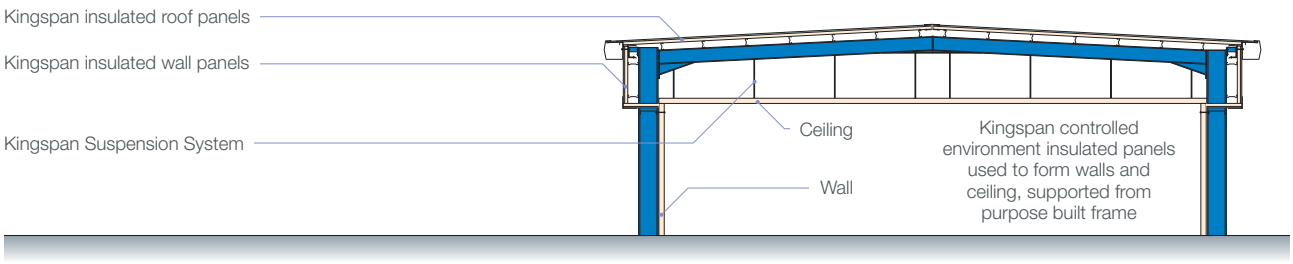
Main Structure: Portal or Truss Construction



Internal Insulated System with Partial External Wall Cladding

Application: Coldstore/Chillstore/Food Processing or Preparation

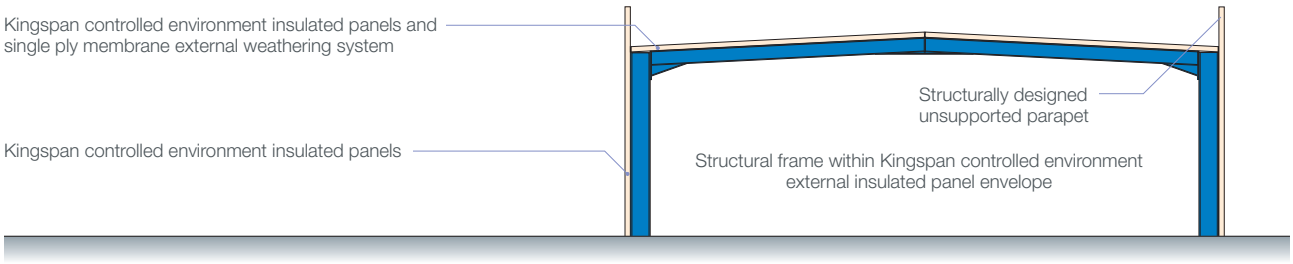
Main Structure: Portal or Truss Construction



External Insulated System

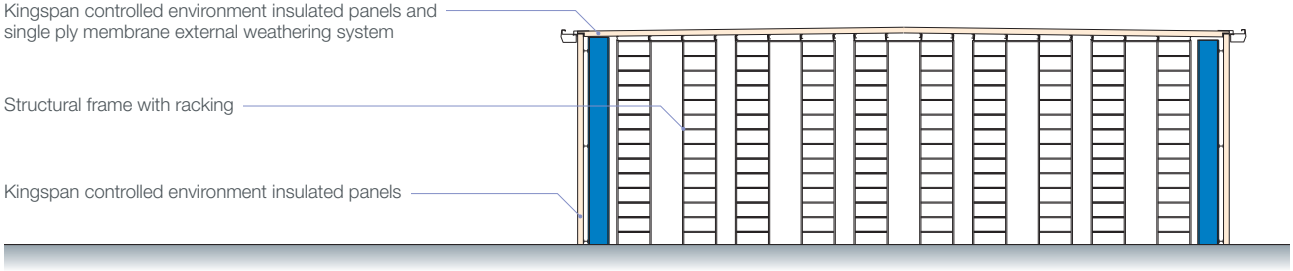
Application: Coldstore/Chillstore/Food Processing or Preparation

Main Structure: Portal or Truss Construction



External Insulated System – Cladrack

Application: Coldstore/Chillstore

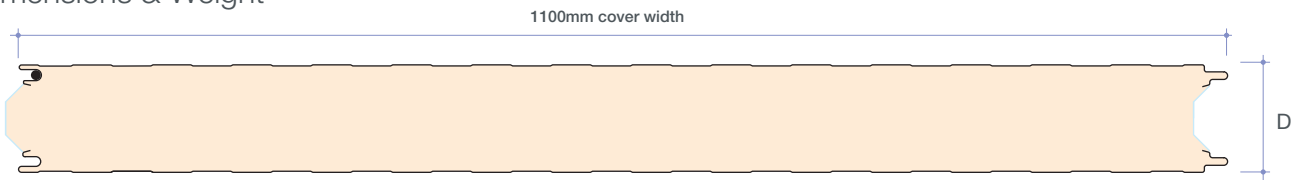


Product Data

Application

KS1100 CS is a controlled environment insulated wall and ceiling panel system which can be laid vertically or horizontally.
It is suitable for internal and external wall and roof applications. Contact Kingspan **enviro***care*® Technical Services for more information.

Dimensions & Weight

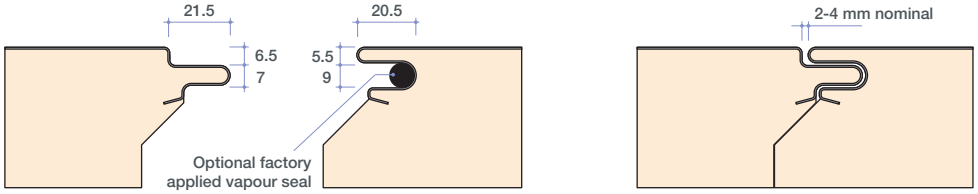


D = Core Thickness (mm)	50	60	80	100	125	150	175	200	220
Weight kg/m² (0.5/0.5)	10.6	11.0	11.8	12.6	13.6	14.6	15.6	16.6	17.4

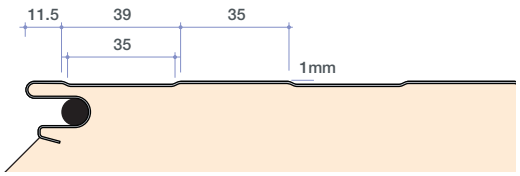
Typical thicknesses for ChillZone (0º to +5º) applications.

Profiles

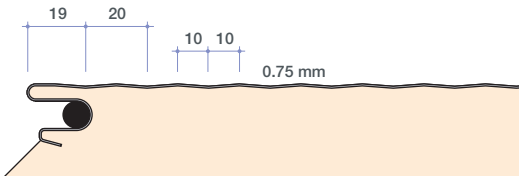
KS1100 CS has a unique castellated and symmetrical tongue and groove joint.



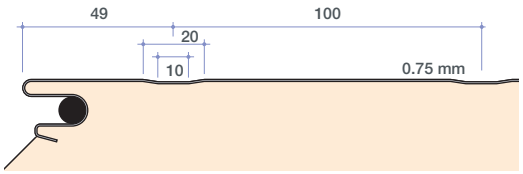
KS1100 CS Equi-Bead



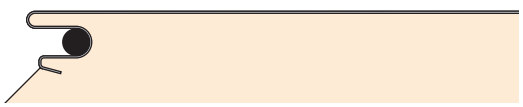
KS1100 CS Micro-Rib



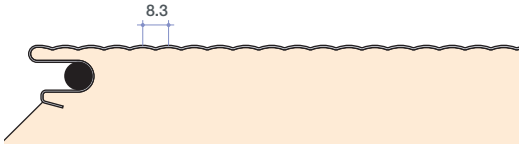
KS1100 CS Mini-Bead



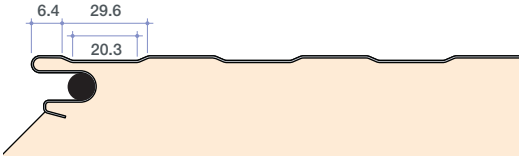
KS1100 CS Flat (plain surface)



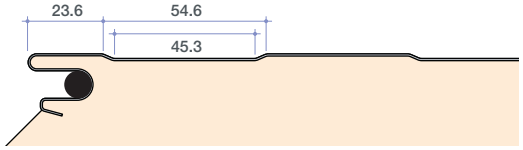
KS1100 CS Mini Micro-Rib



KS1100 CS Mini-Box



KS1100 CS Euro-Box



For combinations, please contact Kingspan **enviro***care*® Technical Services.

Product Tolerances (According to BS EN: 14509)

Length (L ≤ 3m)	±5mm
Length (L > 3m)	±10mm
Width (W)	±2mm
Thickness (D ≤ 100mm)	±2mm
Thickness (D > 100mm)	±2%
Flatness (per metre)	±1.5mm
End Squareness	±3mm
Factory Engineered Options (A & B)	±5mm

Factory Engineered Options

Insulated wall panels can be manufactured with part or fully formed rebates and thermal breaks to the following dimensions:-

Dim A: To suit ceiling panel thickness
(50, 60, 80, 100, 125, 150, 175, 200 and 220mm).

Dim B: Unless otherwise stated, depth will be a min of 50mm.

Note: Rebates to internal face only.
Part refers to vertical cut only. Fully refers to vertical & horizontal cut but are subject to additional surcharge.

Available Lengths

Standard lengths are from 1.2m to 16m. Maximum panel length is 19.5m. Panel lengths 13.5m to 19.5m are subject to additional transport surcharge.

Performance

Thermal Insulation

KS1100 CS insulated panel systems have a thermal transmittance (U-value) of:

Panel Thickness (mm)	U-value (W/m²K)
50	0.39
60	0.31
80	0.25
100	0.20
125	0.16
150	0.13
175	0.11
200	0.10
220	0.09

The above U-values have been calculated using Finite Elemental Analysis and take into account any thermal bridging through the joint.
Shaded area denotes typical thicknesses for ChillZone (0° to +5°) applications.

Fire Performance

Certification

- LPCB certified to LPS 1208: FR30 & FR60 – Wall & Ceilings.
- FM Approved to FMRC 4880 Class 1 Fire Classification (No height restriction – i.e. – Unlimited Height).

Performance

- Fire Resistance: EI30 & EI60. Vertical and horizontal options available.
- Reaction to Fire: B-S_2,d0 according to EN13501.
- Surface Spread of Flame: The steel outer and inner facings have Class 1 surface spread of flame to BS 476-7: 1997 (Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products) and are Class 0, as defined by Building Regulations.

LPS 1208: Issue 2
Cert No. 260b

Note: Certificates and specifications are available on request from Kingspan **enviro***care*® Technical Services.

Product Data

Acoustics
KS1100 CS insulated panel systems have a predicted single figure weighted sound reduction Rw = 24dB.

Sound Reduction Index (SRI)

Frequency (Hz)	SRI (dB)
63	20
125	15
250	17
500	23
1000	18
2000	25
4000	40
8000	46

Biological
KS1100 CS insulated panel systems are resistant to attack from mould, fungi, mildew and vermin. No urea formaldehyde is used in the manufacture of the panels. KS1100 CS insulated panel systems can incorporate project specific hygiene safe, wash and clean down facings.

Insulation Core

The core of KS1100 CS is an ECOsafe, environmentally sustainable closed cell PIR insulation which is non-deleterious with Zero Ozone Depletion Potential (Zero ODP).

Panel Joint

The panel side joint is a unique castellated and symmetrical tongue and groove joint which achieves excellent thermal and structural performance. The panel side joint can accommodate vapour, hygiene and fire rated seals.

Sustainability

- GWP: Low GWP with zero ozone depletion potential.
- Cradle to Grave: A+ rating according to the BRE Green Guide to Specification.
- End of Life: Fully recyclable through conventional shredder plants.
- Responsible Sourcing: Kingspan manufacturing plants are BS EN ISO 14001: 2004 (Environmental management systems) accredited.

Air Tightness (according to BSEN14509)

KS1100 CS insulated panels achieved air tightness 0.02m^3/hr/m^2 @ 50Pa.

Water Tightness (according to BSEN14509)

KS1100 CS insulated panels are watertighht to 1050Pa (class B).

Quality and Health & Safety

KS1100 CS insulated panel systems are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards, approved to BS EN ISO 9001: 2008 (Quality management systems. Requirements) and BS OHSAS 18001: 2007 (Occupational health and safety management systems. Requirements) accredited.

Guarantees

KS1100 CS insulated panel systems are available with the Kingspan Total Panel Guarantee offering up to 25 years thermal and structural performance guarantee.

Packing

Standard Packing
KS1100 CS insulated panel systems are stacked horizontally with facing sheets upward. The entire pack is wrapped in polythene. The number of panels in each pack depends on panel length, weight and thickness. Typical pack height is 1200mm. Maximum pack weight 1500kg.

Core Thickness (mm)	50	60	80	100	125	150	175	200	220
Panels per pack	22	18	13	11	8	7	6	5	4

Sea Freight
Fully timber crated packs are available on projects requiring delivery by sea freight shipping, at additional cost. Alternatively, steel containers can be used. Special loading charges apply.

Delivery

All deliveries (unless indicated otherwise) are by road transport to project site. Off loading is the responsibility of the client.

Substrate

- Standard: Hot dipped S220GD + ZA zinc/aluminium coated metal to BS EN 10326: 2004 (Continuously hot-dip coated strip and sheet of structural steels. Technical delivery conditions).
- Thickness: Exterior 0.5mm nominal
  Interior 0.5mm nominal

Coatings

Kingspan Cleansafe 15

Polyester Coating 15 µm

- Colour: White
- Thickness: 0.5mm nominal (incl. coating)
  0.7mm nominal on request
- Without protection film
- Application: See Kingspan Coating Selector & Maintenance Guide

Typical Recommended Coating

Kingspan Cleansafe 25

Foodsafe Polyester Coating 25 µm

- Colour: White 9010 (RAL)
- Thickness: 0.5mm nominal (incl. coating)
- With protection film
- Application: See Kingspan Coating Selector & Maintenance Guide

Kingspan Cleansafe 55

PET film 55 µm

- Colour: White 9016 (RAL)
- Thickness: 0.5mm nominal (incl. coating)
- With protection film
- Application: See Kingspan Coating Selector & Maintenance Guide

Kingspan Cleansafe 120

Foodsafe PVC Laminate 120 µm

- Colour: White 9003 (RAL)
- Thickness: 0.5mm nominal (incl. coating)
- With protection film
- Application: See Kingspan Coating Selector & Maintenance Guide

External Weather Coatings

- Kingspan XL Forte™ and Kingspan Spectrum™ are available, please contact Kingspan **enviro***care*® Technical Services.

Stainless Steel

Kingspan Cleansafe 304

Mill Finish Stainless Steel – grade 304

- Finish: 2B
- Thickness : 0.5mm nominal
- With protection film
- Application: See Kingspan Coating Selector & Maintenance Guide

Heat Transmission

Thermal Conductivity (λ) 0.0195 W/mK

Panel Thickness (mm)	50	60	80	100	125	150	175	200	220
U-value	0.39	0.31	0.25	0.20	0.16	0.13	0.11	0.10	0.09
Temp. Difference (ºC)									
10	3.90	3.25	2.44	1.95	1.56	1.30	1.11	0.09	0.89
15	5.85	4.88	3.66	2.93	2.34	1.95	1.67	1.46	1.33
20	7.80	6.50	4.88	3.90	3.12	2.60	2.23	1.95	1.77
25	**9.75**	8.13	6.09	4.88	3.90	3.25	2.79	2.44	2.22
30	11.70	**9.75**	7.31	5.85	4.68	3.90	3.34	2.93	2.66
35	13.65	11.38	8.53	6.83	5.46	4.55	3.90	3.41	3.10
40	15.60	13.00	**9.75**	7.80	6.24	5.0	4.46	3.90	3.55
45	17.55	14.63	10.97	8.78	7.02	5.85	5.01	4.39	3.99
50	19.50	16.25	12.19	**9.75**	7.80	6.50	5.57	4.88	4.43
55	21.45	17.88	13.41	10.73	8.58	7.15	6.13	5.36	4.88
60	23.40	19.50	14.63	11.70	**9.36**	7.80	6.69	5.85	5.32
65	25.35	21.13	15.84	12.68	10.14	8.45	7.24	6.34	5.76
70	27.30	22.75	17.06	13.65	10.92	**9.10**	7.80	6.83	6.20
75	29.25	24.38	18.28	14.63	11.70	9.75	8.36	7.31	6.65
80	31.20	26.00	19.50	15.60	12.48	10.40	**8.91**	**7.80**	7.09

The heat gain by conduction should be limited to 10W/m². (See Code of Practice for the Design of Coldstore Envelopes).
For enhanced energy performance, the heat gain by conduction should be limited to 8 W/m².
Shaded area denotes typical thicknesses for ChillZone (0º to +5º) applications.

Product Data

Internal Ceilings Design

Definitions:

Dead Load – the load due to the self-weight of permanent services.

Imposed load – the load assumed to be produced by the intended occupancy or use, including distributed, concentrated loads but excluding wind loads.

Uniformly distributed load – are a uniformly distributed service load per square metre (kN/m^2), and provide for situations such as stacking of materials used during maintenance.

Concentrated loads – are loads that act at points on the ceiling over an area of 125mm x 125mm such as the action of walking on the upper surface of the ceiling panels by the full weight of a person plus any carried item.

Structural elements – For ceilings, structural elements comprise of suspension systems and elements providing support such as internal angles.

This section and accompanying tables are to be used for the design of insulated ceiling panels that are classified as "ceilings accessible for installation, occasional inspection & maintenance, minor repairs and cleaning" only.

These tables are designed for concentrated loads of 0.9kN, 1.2kN or 1.5kN.

The Project Engineer shall specify the imposed load requirements for the project based on knowledge of the planned use and each identified design situation sufficient to facilitate all the necessary analysis of the effects on the ceiling panels and associated structural elements.

The designer shall select the appropriate table that meets the specified imposed loads.

The maximum ceiling spans are governed by a uniformly distributed service load.

In the absence of any specified imposed loads, a conservative recommendation would be that the ceiling panels and associated structural elements are designed for a concentrated load of 0.9kN and a uniformly distributed service load of 0.25kN/m^2 in accordance with EC1: 1991 – 1 1.

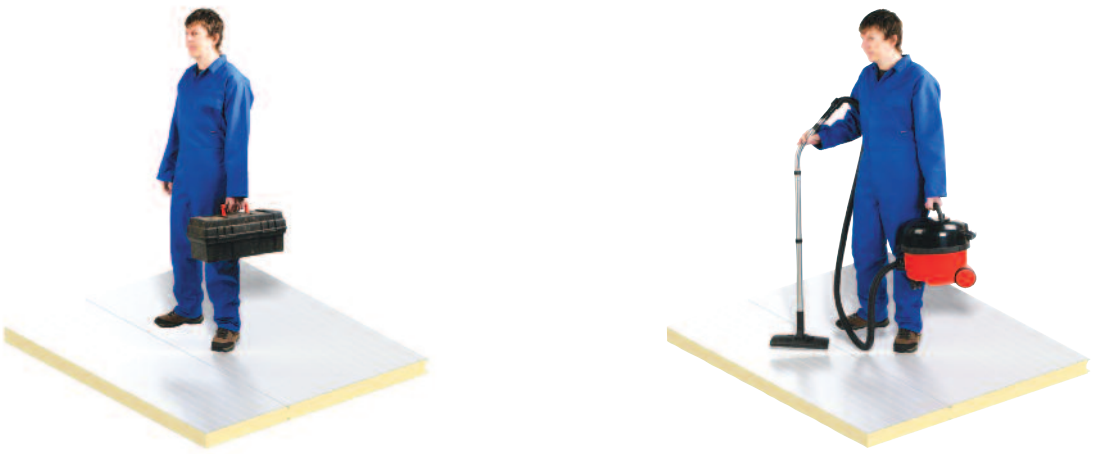
The following assumptions have been made in the calculation of the tables and designers should ensure that these assumptions are valid for their project requirements.

They are only for ceilings without openings or access hatches. Where openings occur, please contact Kingspan **enviro***care*® technical services for further guidance.

The spans are designed assuming one concentrated load at a time per 1100mm wide panel per span placed mid span unless where it has been designed for specific usages and the imposed loads should be replaced by the specified loads.

These tables apply to short term imposed loads on simply supported panels (supported at each end of the panel) generally used for ceilings. For continuous loads, these must be considered separately.

If different loading parameters (deflection, loads, temperatures) are appropriate for the project, please contact Kingspan **enviro***care*® technical services.



Typical representation of types of concentrated loads.

Structural Load / Span Tables – Internal Applications 0ºC to +5ºC

Internal Wall & Partition

Uniformly Distributed Loads (kN/m²)

Span L	Panel Thickness (mm)								
In Metres	50	60	80	100	125	150	175	200	220
3000	1.89	2.28	3.09	3.91	4.07	3.67	3.30	2.93	2.63
3500	1.39	1.68	2.27	2.87	3.49	3.14	2.83	2.51	2.26
4000	1.06	1.28	1.74	2.20	2.80	2.75	2.48	2.20	1.98
4500	0.84	1.01	1.37	1.74	2.21	2.44	2.20	1.96	1.76
5000	0.68	0.82	1.11	1.41	1.79	2.19	1.98	1.76	1.58
5500	0.54	0.68	0.92	1.16	1.48	1.81	1.80	1.60	1.44
6000	0.44	0.57	0.77	0.98	1.25	1.52	1.65	1.47	1.32
6500	0.36	0.48	0.66	0.83	1.06	1.30	1.52	1.35	1.22
7000	0.30	0.40	0.57	0.72	0.92	1.12	1.33	1.26	1.13
7500	0.25	0.34	0.49	0.63	0.80	0.97	1.16	1.17	1.05
8000		0.29	0.43	0.55	0.70	0.86	1.02	1.10	0.99
8500		0.24	0.38	0.49	0.62	0.76	0.90	1.04	0.93
9000			0.34	0.44	0.55	0.68	0.80	0.93	0.88
9500			0.29	0.39	0.50	0.61	0.72	0.84	0.83
10000			0.26	0.35	0.45	0.55	0.65	0.76	0.79
10500				0.32	0.41	0.50	0.59	0.69	0.75
11000				0.29	0.37	0.45	0.54	0.62	0.70
11500				0.26	0.34	0.41	0.49	0.57	0.64
12000					0.31	0.38	0.45	0.53	0.59
12500					0.29	0.35	0.42	0.48	0.54
13000					0.27	0.32	0.38	0.45	0.50
13500						0.30	0.36	0.42	0.46
14000						0.28	0.33	0.39	0.43
14500						0.26	0.31	0.36	0.40
15000							0.29	0.34	0.37
15500							0.27	0.31	0.35
16000								0.30	0.33
16500								0.28	0.31
17000								0.26	0.29
									0.28
Max Height (m) Unsupported	6.90	7.80	9.40	10.80	12.20	13.50	14.70	15.80	16.70

1. Load span tables are unfactored and based on the KS1100 CS panels with 0.5mm metal internal and 0.5mm metal external facings.
2. Values have been calculated using the method described in BS EN 14509 2006 – Self-supporting double skin metal faced insulating panels.
3. Minimum support width of 50mm.
4. Maximum Deflection: L/100
5. Temperature: External 20ºC and internal +2ºC. Tables also include the condition in which the temperature difference is zero for installation phase.
6. The ability of the panel to resist the imposed load, is dependent on the end support connection i.e. support bearing width, number of fasteners used and the support thickness as well as the type of fastener.
7. Shaded area denotes maximum allowable span based on an imposed load of 0.3kN/m² in the absence of specified loads.

Table 1 - Internal Ceiling - 0.9kN

Maximum Uniformly Distributed Loads (kN/m²)

Span L	Panel Thickness (mm)								
In Metres	50	60	80	100	125	150	175	200	220
3000	0.79	1.12	1.82	2.53	3.40	3.33	2.95	2.57	2.27
3500	0.50	0.75	1.29	1.86	2.56	2.83	2.50	2.18	1.92
4000	0.26	0.51	0.93	1.38	1.96	2.45	2.17	1.89	1.65
4500		0.33	0.67	1.03	1.51	1.99	1.91	1.66	1.45
5000		0.15	0.48	0.78	1.17	1.58	1.70	1.47	1.29
5500			0.34	0.59	0.92	1.26	1.53	1.32	1.15
6000			0.23	0.44	0.72	1.01	1.30	1.20	1.04
6500			0.11	0.33	0.56	0.81	1.07	1.09	0.95
7000				0.24	0.44	0.65	0.87	1.00	0.86
7500				0.15	0.34	0.52	0.71	0.91	0.79
8000					0.26	0.42	0.59	0.76	0.73
8500					0.19	0.33	0.48	0.63	0.68
9000					0.12	0.26	0.39	0.52	0.63
9500						0.20	0.31	0.43	0.53
10000						0.15	0.25	0.36	0.44
10500							0.20	0.29	0.37
11000							0.15	0.24	0.31
11500								0.19	0.25
12000								0.15	0.20
12500									0.16
13000									
13500									
14000									
14500									
Maximum Allowable Span (m)	4.00	4.70	5.90	6.90	8.00	9.00	10.00	10.80	11.40

1. Load span tables are based on the KS1100 CS panels with 0.5mm metal internal and 0.5mm metal external facings. Equi-Bead external profile only.
2. Values have been calculated using the method described in BS EN 14509 2006 – Self-supporting double skin metal faced insulating panels.
3. Minimum support width of 40mm.
4. Maximum Deflection: Short-term is L/100 & Long-term is L/200.
5. Temperature: External 20ºC and internal +2ºC. Tables also include the condition in which the temperature difference is zero for installation phase.
6. The ability of the panel to resist the imposed load, is dependent on the end support connection i.e. support bearing width, number of fasteners used and the support thickness as well as the type of fastener.
7. Shaded area denotes maximum allowable span based on an imposed load of 0.25kN/m² in the absence of specified loads.

Product Data

Structural Load / Span Tables – Internal Applications 0ºC to +5ºC

Table 2 – Internal Ceiling – 1.2kN

Maximum Uniformly Distributed Loads (kN/m²)

Span L	Panel Thickness (mm)								
In Metres	50	60	80	100	125	150	175	200	220
3000	0.67	1.02	1.71	2.42	3.29	3.27	2.89	2.51	2.21
3500	0.29	0.67	1.20	1.76	2.47	2.78	2.45	2.13	1.86
4000		0.37	0.85	1.30	1.88	2.41	2.12	1.84	1.61
4500		0.14	0.60	0.96	1.44	1.92	1.87	1.62	1.41
5000			0.42	0.72	1.11	1.51	1.67	1.44	1.25
5500			0.23	0.53	0.86	1.20	1.50	1.29	1.12
6000				0.39	0.66	0.96	1.25	1.17	1.01
6500				0.26	0.51	0.76	1.02	1.06	0.92
7000				0.14	0.39	0.61	0.83	0.97	0.84
7500					0.30	0.48	0.67	0.87	0.77
8000					0.20	0.38	0.55	0.72	0.71
8500					0.11	0.30	0.44	0.59	0.66
9000						0.23	0.36	0.49	0.60
9500						0.14	0.28	0.40	0.50
10000							0.22	0.33	0.41
10500							0.15	0.26	0.34
11000								0.21	0.28
11500								0.15	0.22
12000									0.18
12500									
13000									
13500									
14000									
14500									
Maximum Allowable Span (m)	3.50	4.20	5.40	6.50	7.70	8.80	9.70	10.60	11.20

1. Load span tables are based on the KS1100 CS panels with 0.5mm metal internal and 0.5mm metal external facings. Equi-Bead external profile only.
2. Values have been calculated using the method described in BS EN 14509 2006 – Self-supporting double skin metal faced insulating panels.
3. Minimum support width of 40mm.
4. Maximum Deflection: Short-term is L/100 & Long-term is L/200.
5. Temperature: External 20ºC and internal +2ºC. Tables also include the condition in which the temperature difference is zero for installation phase.
6. The ability of the panel to resist the imposed load, is dependent on the end support connection i.e. support bearing width, number of fasteners used and the support thickness as well as the type of fastener.
7. Shaded area denotes maximum allowable span based on an imposed load of 0.25kN/m² in the absence of specified loads.

Table 3 – Internal Ceiling – 1.5kN

Maximum Uniformly Distributed Loads (kN/m²)

Span L	Panel Thickness (mm)								
In Metres	50	60	80	100	125	150	175	200	220
3000	0.38	0.91	1.60	2.31	3.18	3.21	2.83	2.45	2.15
3500	0.05	0.46	1.11	1.67	2.38	2.72	2.40	2.08	1.81
4000		0.16	0.77	1.22	1.80	2.36	2.08	1.80	1.56
4500			0.50	0.89	1.37	1.85	1.83	1.58	1.37
5000			0.26	0.65	1.05	1.45	1.63	1.40	1.21
5500			0.08	0.48	0.80	1.14	1.47	1.26	1.09
6000				0.28	0.61	0.90	1.20	1.14	0.98
6500				0.13	0.47	0.71	0.97	1.04	0.89
7000					0.34	0.56	0.78	0.95	0.81
7500					0.20	0.44	0.63	0.83	0.75
8000					0.10	0.34	0.51	0.68	0.69
8500						0.23	0.41	0.56	0.64
9000						0.13	0.32	0.46	0.57
9500							0.24	0.37	0.47
10000							0.15	0.30	0.38
10500								0.23	0.31
11000								0.15	0.25
11500									0.18
12000									
12500									
13000									
13500									
14000									
14500									
Maximum Allowable Span (m)	3.10	3.80	5.00	6.00	7.30	8.40	9.40	10.30	11.00

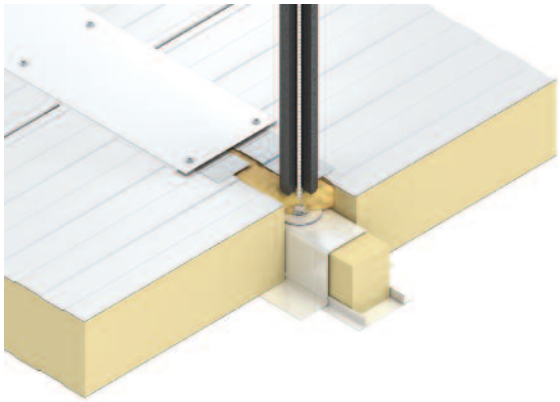
1. Load span tables are based on the KS1100 CS panels with 0.5mm metal internal and 0.5mm metal external facings. Equi-Bead external profile only.
2. Values have been calculated using the method described in BS EN 14509 2006 – Self-supporting double skin metal faced insulating panels.
3. Minimum support width of 40mm.
4. Maximum Deflection: Short-term is L/100 & Long-term is L/200.
5. Temperature: External 20ºC and internal +2ºC. Tables also include the condition in which the temperature difference is zero for installation phase.
6. The ability of the panel to resist the imposed load, is dependent on the end support connection i.e. support bearing width, number of fasteners used and the support thickness as well as the type of fastener.
7. Shaded area denotes maximum allowable span based on an imposed load of 0.25kN/m² in the absence of specified loads.

Construction Details

ChillZone Wall Panel Joint

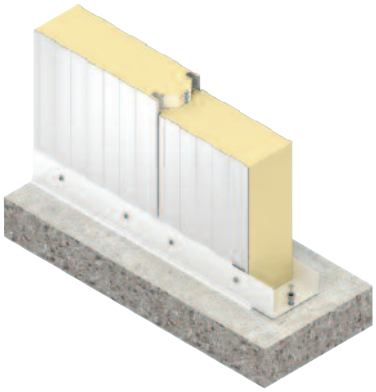
ChillZone Ceiling Panel Joint

ChillZone Ceiling Support

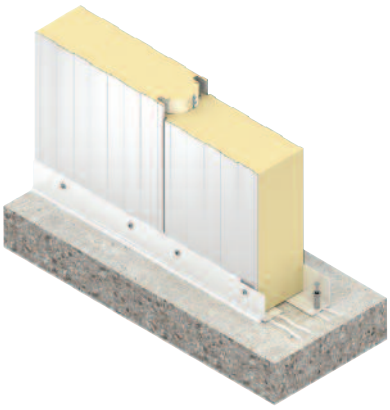


ChillZone Head

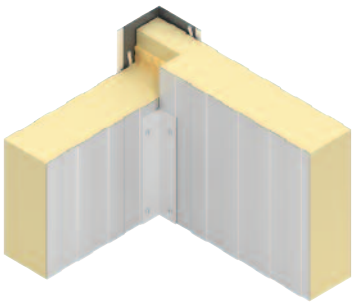
ChillZone Base – Option A



ChillZone Base – Option B



ChillZone Corner



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