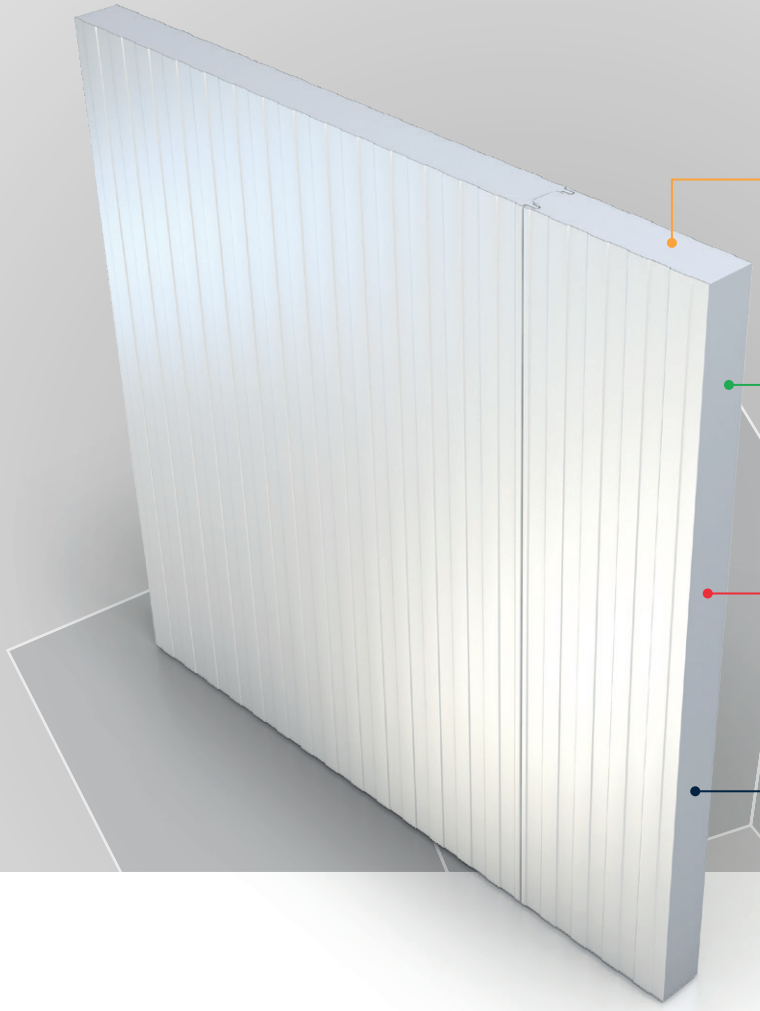
Insulated Panels
Controlled Environments
UK & Ireland

Protected by Kingspan QuadCore® Assured

QuadCore® Coldstore Panel Product Data Sheet

Insulated Panels for Temperature Controlled and Ambient Environments with a Temperature Range of -40°C to +60°C



1 Lifetime Thermal Performance

2 High Environmental Performance

3 Fire Performance

4 QuadCore® Assured Warranty

POWERED BY QuadCore® TECHNOLOGY

Kingspan®

Product Data

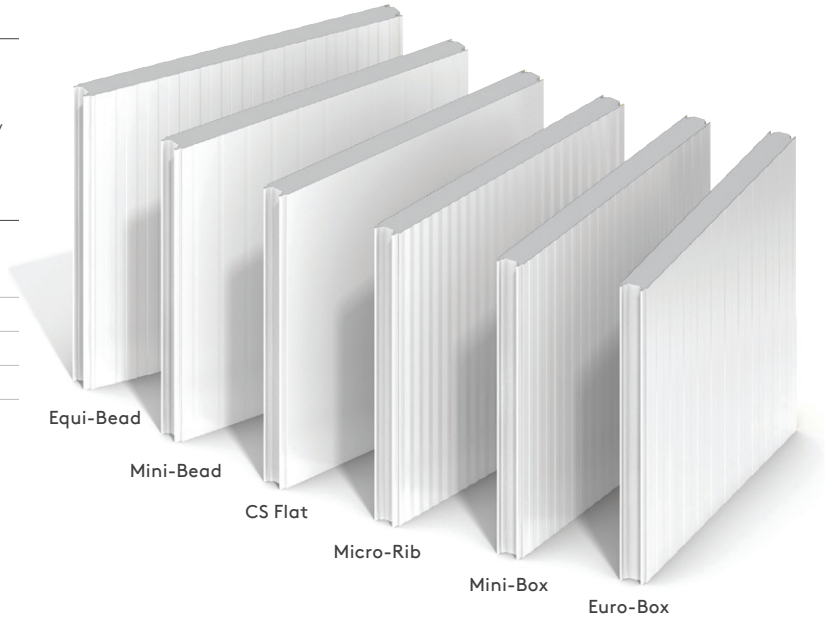
Application

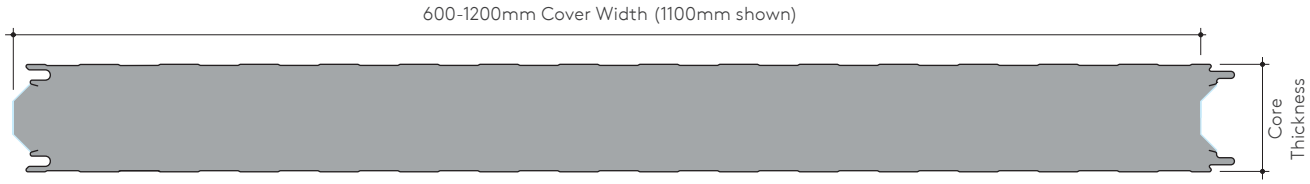
QuadCore® Coldstore Panels can be laid vertically or horizontally and are suitable for internal and external applications.

Available Lengths

Standard Lengths (m)	1.8 to 14.5
Longer Lengths (non-standard) (m)	14.5 to 21.0
Shorter Lengths (non-standard) (m)	Below 1.8

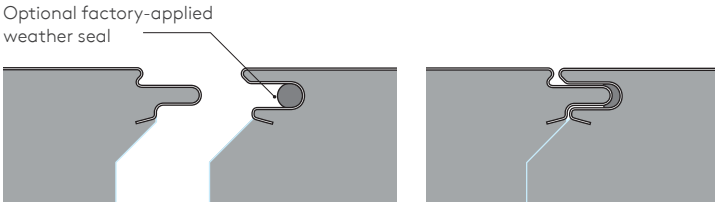
Note: Additional costs and transport restrictions may apply for non-standard lengths. All lengths may change for export (outside of the UK).





Panel Joint

QuadCore® Coldstore Panels feature a unique castellated and symmetrical tongue and groove joint which achieves excellent thermal and structural performance. A full foam-to-foam contact within the panel joint must be achieved during installation.



Dimensions, Weight and Thermal Performance

Core thickness (mm)	50	60	80	100	125	150	175	200	220
U-value (W/m^2K)	0.38	0.31	0.23	0.18	0.15	0.12	0.10	0.09	0.08
Weight (kg/m^2)	10.1	10.5	11.2	12.0	12.9	13.9	14.8	15.8	16.5

Notes: These values are in accordance with BS EN 14509, calculated using Finite Element Analysis, and take into account any thermal bridging through the longitudinal joint. Shaded area denotes typical thicknesses for temperature controlled applications. The U-values have been calculated using an aged thermal conductivity value of 0.018 W/mK.

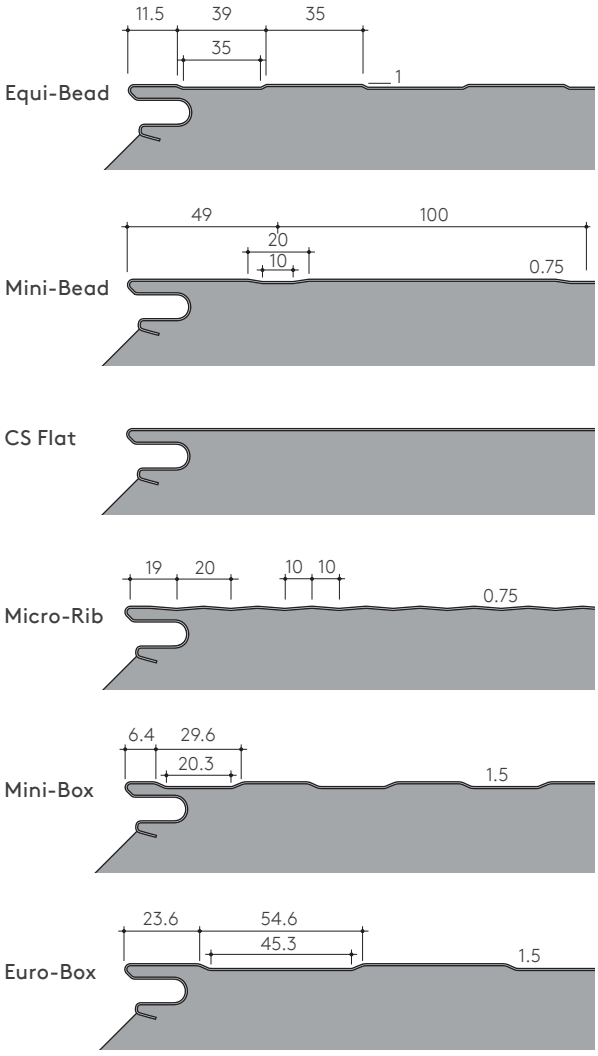
Insulation Core

QuadCore® Coldstore Panels are manufactured with a HCFC, CFC and HFC free QuadCore® insulation core.

POWERED BY QuadCore® TECHNOLOGY

Profiles

QuadCore® Coldstore Panels are available in a choice of six distinct profiles, offering a range of aesthetics to suit project-specific requirements.



Certification and Testing

Reaction to Fire

QuadCore® Coldstore Panels are classified B-s1,d0, when tested on the internal face of the product, according to the European Reaction to Fire classification system (Euroclasses) BS EN 13501–1: 2007 + A1: 2009 under the certified name KS1100 CS and BS EN 13501-1: 2018 under the certified name KS1100 CS when using the following internal liners:

- CLEAN*safe* 15, CLEAN*safe* 25, CLEAN*safe* 55, CLEAN*safe* 120 and AQUA*safe* 55.

Please contact Kingspan Tech-eXchange for information relating to the external face.

Roof Applications

QuadCore® Coldstore Panels are tested to:

- BROOF(t4) to BS EN 13501-5: 2016 under the certified name KS1100 CS QuadCore® for panel thicknesses 50 – 220mm and roof pitch 0 – 10°.

Please contact Kingspan Tech-eXchange for information relating to the specific arrangement required for BROOF(t4) classification.

Fire Resistance

Fire resistance classifications are subject to panel thickness, orientation, method of assembly, and steel coating. Please contact Kingspan Tech-eXchange for project specific details.

Insurer Approvals

QuadCore® Coldstore Panels are tested to:

- LPS 1181 Part 1: Issue 1.2 Requirements and tests for built-up cladding and sandwich panel systems for use as the external envelope of buildings certified to:
  - LPS 1181-1 Grade EXT-B under the certified name Kingspan IPN QuadCore® KS600-1200 AB (roof/ceiling panel) for thicknesses 50 – 200mm.
- LPS 1181 Part 2: Issue 2 Requirements and tests for sandwich panels and built-up systems for use as internal constructions in buildings certified to:
  - LPS 1181-2 Grade INT-3 under the certified name Kingspan IPN QuadCore® KS600-1200 CS (wall and ceiling panels) for thicknesses 80 – 200mm
  - LPS 1181-2 Grade INT-2 under the certified name Kingspan IPN QuadCore® KS600-1200 CS (wall panel) for thicknesses 100 – 200mm
  - LPS 1181-2 Grade INT-2 under the certified name Kingspan IPN QuadCore® KS600-1200 CS (ceiling panel) for thicknesses 125 – 200mm.

Product Data

- LPS 1208: Issue 2.2 LPCB test and performance requirements for walls, cavity barriers, floors and roofs certified to:
  - FR30 under the certified name Kingspan IPN QuadCore® KS600-1200 CS (wall panel) for thicknesses 100 – 220mm.
  - FR30 under the certified name Kingspan IPN QuadCore® KS600-1200 CS (ceiling panel) for thicknesses 100 – 220mm.
  - FR60 under the certified name Kingspan IPN QuadCore® KS600-1200 CS (wall panel) for thicknesses 175 – 220mm.
  - FR60 under the certified name Kingspan IPN QuadCore® KS600-1200 CS (ceiling panel) for thicknesses 175 – 220mm.

Please contact Kingspan Tech-eXchange for information relating to the specific arrangement required for LPS 1208 classification.

- FM 4880 approval standard for class 1 fire rating of building panels or interior finish materials under the certified name KS1100 CS and KS1200 CS for thicknesses 50 – 220mm.
- FM 4881 approval standard for class 1 exterior wall systems under the certified name KS1100 CS and KS1200 CS for thicknesses 50 – 220mm.
- FM 4882 approval standard for class 1 interior wall and ceiling materials or systems for smoke sensitive occupancies under the certified name KS1100 CS and KS1200 CS for thicknesses 50 – 220mm.

Insurer approvals are large scale testing regimes that provide objective third-party testing, which is underpinned by quarterly, bi-annual and annual factory surveillance audits (depending on the region) to verify compliance. Insurer approvals are subject to panel thickness, cover width, orientation, method of assembly, steel coating and manufacturing facility. Please contact Kingspan Tech-eXchange for further information.

FM APPROVED

LPS 1181-1: Issue 1.2
Cert: 186f & 260f
LPCB Ref: 279f/03

LPS 1181-2: Issue 2
Cert: 186d & 260d
LPCB Ref: 279e/02/04/06

LPS 1181-2: Issue 2
Cert: 186d & 260d
LPCB Ref: 279e/03/05

LPS 1181-2: Issue 2
Cert: 186d & 260d
LPCB Ref: 279e/01

LPS 1208: Issue 2.2
Cert: 186c & 260c
LPCB Ref: 279d/01/03/06/08/10

LPS 1208: Issue 2.2
Cert: 186c & 260c
LPCB Ref: 279d/05

LPS 1208: Issue 2.2
Cert: 186c & 260c
LPCB Ref: 279d/02/04/09

LPS 1208: Issue 2.2
Cert: 186c & 260c
LPCB Ref: 279d/07

Environmental

Kingspan Insulated Panels produced in the UK are certified to BES 6001 (Framework Standard for the Responsible Sourcing of Construction Products) 'Very Good'. QuadCore® Insulated Panel systems have Environmental Product Declarations in accordance with the requirements of EN 15804: 2012 + A1: 2013 for 100mm thickness.

All Kingspan Insulated Panels manufacturing facilities across the UK and Ireland are 100% Net Zero Energy. In addition, facilities located in Kingscourt, Holywell and Sherburn generate renewable energy onsite which contributes to that sites energy mix.

Kingspan Insulated Panels procure steel that is made from 15 – 25% recycled content. Kingspan insulated panels directly contribute to BREEAM® / LEED® credits.

Air Tightness

QuadCore® Coldstore Panels joints achieve an air tightness of 0.02m^3/hr/m at 50Pa in accordance with BS EN 14509 with joint sealed using gun grade sealant.

An air leakage rate from a completed building of 0.5m^3/hr/m^2 at 50Pa or less can be achieved.

For information on detailing required to achieve lower air tightness please contact Kingspan Tech-eXchange.

Water Tightness

QuadCore® Coldstore Panels are watertight to 1200Pa (Class A) according to BS EN 14509 when sealed within the external female joint using factory applied weather seal.

QuadCore® Coldstore Panels are watertight to 1050Pa (Class B) according to BS EN 14509 with joint sealed using gun grade sealant.

Acoustic

Sound Reduction Index (SRI)

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

QuadCore® Coldstore Panels have a single figure weighted sound reduction R_W = 24dB. Results are based on panels of similar profile and core material.

Materials

Substrate

Metallic protected steel to BS EN 10346: 2015.

Please contact Kingspan Tech-eXchange for information on other substrates.

Coatings – External Weather Sheet

- Kingspan XL Forté: Consists of a multi-layer organic coating, embossed with a traditional leather-grain finish.
- Kingspan Spectrum: Consists of a coated semi-gloss finish with slight granular effect.

For Reaction to Fire performance of external weather sheets please contact Kingspan Tech-eXchange.

Coatings – Internal Liner Sheet

- Kingspan CLEAN*safe* 15: The coating has been developed for use as the internal lining of insulated panels. Standard colour is "bright white" with an easily cleaned surface.
- Kingspan CLEAN*safe* 25: The coating has been developed for use as the internal lining of insulated panels in chilled storage environments.
- Kingspan CLEAN*safe* 55: The coating has been developed for use as the internal lining of insulated panels in humid and aggressive internal environments.
- Kingspan CLEAN*safe* 120: The coating has been developed for use as the internal lining of insulated panels where a high level of cleanliness and hygiene is required, and the panels are to be cleaned down on a regular basis.
- Kingspan AQUA*safe*: The coating has been developed for use as the internal lining of insulated panels to suit high humidity internal environments.
- Kingspan AQUA*safe* 55: The coating has been developed for use as the internal lining of insulated panels to swimming pool internal environments.

For Reaction to Fire performance of internal liners please see Certification and Testing section.

Heat Transmission

Thermal Conductivity (λ) 0.018 W/mK

Panel Thickness (mm)	50	60	80	100	125	150	175	200	220
U-value (W/m²K)	0.38	0.31	0.23	0.18	0.15	0.12	0.10	0.09	0.08
Temperature Difference (°C)									
10	3.60	3.00	2.25	1.80	1.44	1.20	1.03	0.90	0.82
15	5.40	4.50	3.38	2.70	2.16	1.80	1.54	1.35	1.23
20	7.20	6.00	4.50	3.60	2.88	2.40	2.06	1.80	1.64
25	**9.00**	7.50	5.63	4.50	3.60	3.00	2.57	2.25	2.05
30	10.80	**9.00**	6.75	5.40	4.32	3.60	3.09	2.70	2.45
35	12.60	10.50	7.88	6.30	5.04	4.20	3.60	3.15	2.86
40	14.40	12.00	**9.00**	7.20	5.76	4.80	4.11	3.60	3.27
45	16.20	13.50	10.13	8.10	6.48	5.40	4.63	4.05	3.68
50	18.00	15.00	11.25	9.00	7.20	6.00	5.14	4.50	4.09
55	19.80	16.50	12.38	**9.90**	7.92	6.60	5.66	4.95	4.50
60	21.60	18.00	13.50	10.0	8.64	7.20	6.17	5.40	4.91
65	23.40	19.50	14.63	11.70	**9.36**	7.80	6.69	5.85	5.32
70	25.20	21.00	15.75	12.60	10.08	8.40	7.20	6.30	5.73
75	27.00	22.50	16.88	13.50	10.80	9.00	7.71	6.75	6.14
80	28.80	24.00	18.00	14.40	11.52	**9.60**	**8.23**	**7.20**	6.55

Notes: The heat gain by conduction should be limited to 10W/m², for enhanced energy performance, the heat gain by conduction should be limited to 8W/m² (Guidelines for the Design, Specification, Construction, Maintenance and Fire Management of Insulated Envelopes for Temperature Controlled Environments). Shaded area denotes typical thicknesses for temperature controlled applications.

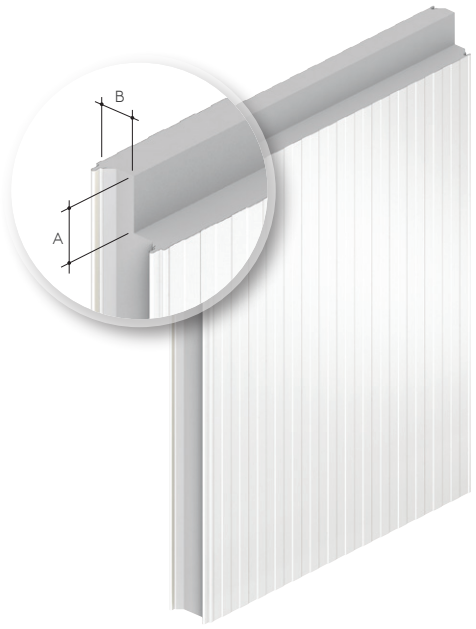
Product Data

Product Tolerances

Cut to Length (≤ 3m)	± 5mm
Cut to Length (> 3m)	± 10mm
Cover Width	± 2mm
Thickness (Core ≤ 100mm)	± 2mm
Thickness (Core > 100mm)	± 2%
Flatness (per metre)	± 1.5mm
End Square	± 3mm

Factory Engineered Options

QuadCore® Coldstore Panels can be manufactured with part or fully formed rebates and thermal breaks to the following dimensions:



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

Dim B: Unless otherwise stated, width will be half of the panel thickness (excluding 50mm and 60mm panel thicknesses).

Notes:

Rebates to internal face only.

Part refers to vertical cut only. Fully refers to vertical and horizontal cut but are subject to additional surcharge.

Seals

An optional factory applied weather seal (FAWS) can be supplied by Kingspan on request (this must be specified at order stage and is subject to additional charge).

Quality & Durability

QuadCore® Coldstore Panels are manufactured from the highest quality materials using state-of-the-art production equipment to rigorous quality control standards, complying with BS EN ISO 9001 standard, ensuring long-term reliability and service life. The panels are also being manufactured under Environmental Management System Certification BS EN ISO 14001, Energy Management System Certification BS EN ISO 50001 and Occupational Health and Safety Certification BS EN ISO 45001 and Compliance Management Systems BS EN ISO 37301. QuadCore® Coldstore Panels are CE marked to BS EN 14509: 2013.

CE

Warranty

QuadCore® Assured Panel Warranty

- 25 years insurance backed thermal performance
- 25 years insurance backed fire performance
- 25 years structural performance
- 25 years environmental performance
- Up to 40 years coating performance

QuadCore® Assured System Warranty

- 25 years thermal performance
- 25 years fire performance
- 25 years structural performance
- 25 years environmental performance
- Up to 40 years coating performance
- 25 years warranty on system accessories*

*Please contact Kingspan Tech-eXchange or refer to the 'QuadCore® Assured' brochure for a list of accessories covered by Kingspan.

Packing

QuadCore® Coldstore Panels are stacked horizontally with facing sheets upward. The top and sides are protected by either cardboard or polystyrene and spiral wrap stretch polyfilm. The number of panels in a pack will vary depending on thickness.

Core Thickness (mm)	50	60	80	100	125	150	175	200	220
Panels per Pack	25	21	16	13	10	8	7	6	5

Note: Applies to UK pack sizes. Please contact Kingspan Tech-eXchange for export information.

Sea Freight

Fully timber crated packs are available on projects requiring delivery by sea freight shipping, at additional costs. 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.

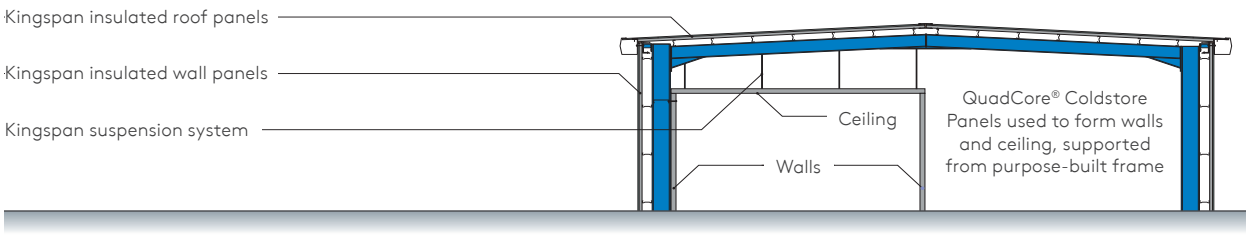
Site Installation Procedure

Site assembly instructions and construction details are available from Kingspan Tech-eXchange.

Construction Solutions

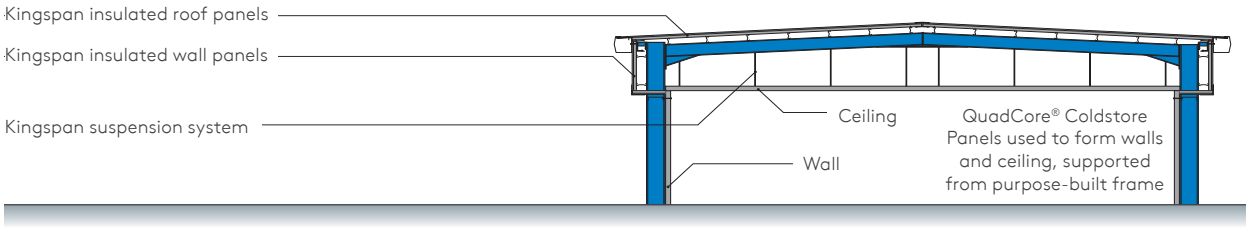
Internal Insulated System Self-Supporting

Main Structure: Portal or Truss Construction



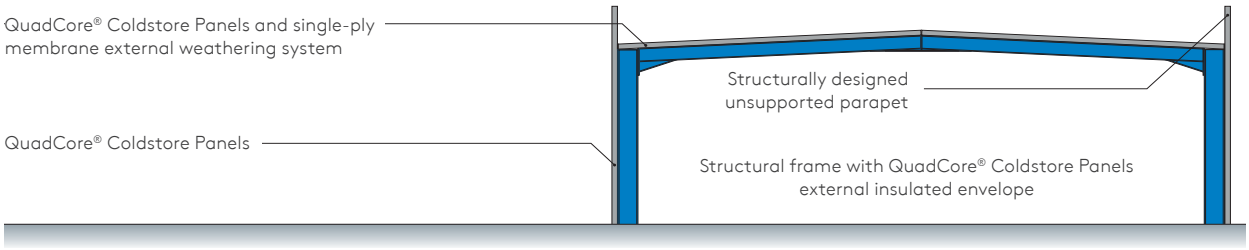
Internal Insulated System with Partial External Wall Cladding

Main Structure: Portal or Truss Construction



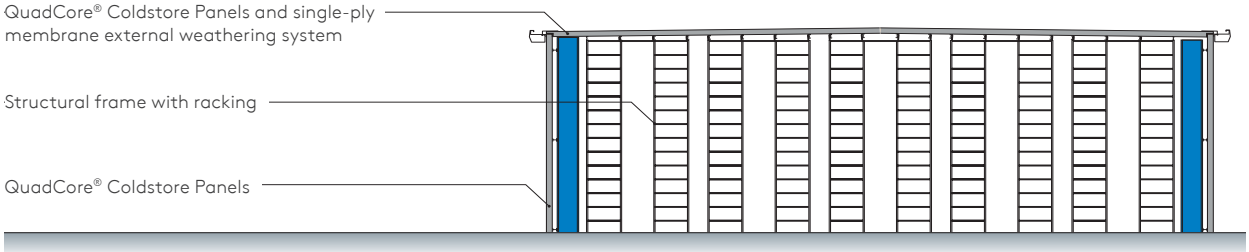
External Insulated System

Main Structure: Portal or Truss Construction



External Insulated System - Cladrack

Main Structure: Portal or Truss Construction



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 - a uniformly distributed load per square metre (kN/m^2), providing for situations where a blanket load is required over a large area, typically distributed over a whole panel or over the whole ceiling during maintenance.

Concentrated load - the load that acts as a point 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 items.

Structural elements - for ceilings, structural elements comprise of suspension systems and elements providing support to the panels, such as internal angles.

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

The load / span tables are designed for concentrated loads of 0.9kN, 1.2kN or 1.5kN.

The project engineer shall specifiy the imposed load requirements for the project based on the 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 load / span table that meets the specified access loads.

Once the appropriate load span table has been selected considering concentrated loads of 0.9kN, 1.2kN or 1.5kN, the ceiling spans are determined by a uniformly distributed load.

In the absence of any specified access load, 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 BS EN 1991-1-1: 2002.

The following assumptions have been made in the calculation of the load / span 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 Tech-eXchange 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.

The load / span tables apply to short term imposed loads on simply supported panels (supported at each end of the panel) generally used for ceilings.

If the requirement differs from the load tables given e.g. deflection, loads, temperatures or permanent loads (such as services) are required, please contact Kingspan Tech-eXchange.

All panel thicknesses have passed the requirements of 'BS EN 14509 A.9.1 - Test for resistance to point loads' for loads up to 1.6kN for their given maximum spans.*

* 220mm panel thickness tested to max span of 9.3 metres.

Load / Span Tables

Internal Wall & Partition: Ambient Internal Application

Load / span tables to be compared against characteristic/unfactored variable loads.

Span L in metres	Uniformly Distributed Loads (kN/m²)								
	Panel Thickness (mm)								
	50	60	80	100	125	150	175	200	220
3.0	1.50	1.80	2.41	3.02	3.36	3.36	3.36	2.61	2.61
3.5	1.12	1.49	1.95	2.35	2.80	2.88	2.88	2.24	2.24
4.0	0.83	1.12	1.49	1.80	2.15	2.45	2.52	1.96	1.96
4.5	0.63	0.85	1.18	1.42	1.70	1.94	2.14	1.74	1.74
5.0	0.48	0.67	0.95	1.15	1.37	1.57	1.73	1.56	1.56
5.5	0.38	0.53	0.79	0.95	1.13	1.30	1.43	1.42	1.42
6.0	0.30	0.42	0.66	0.80	0.95	1.09	1.20	1.30	1.30
6.5	0.25	0.34	0.56	0.68	0.81	0.93	1.03	1.11	1.16
7.0	0.20	0.28	0.48	0.59	0.70	0.80	0.89	0.96	1.00
7.5	0.17	0.24	0.40	0.51	0.61	0.70	0.77	0.83	0.87
8.0	0.14	0.20	0.34	0.45	0.54	0.61	0.68	0.73	0.77
8.5	0.12	0.17	0.29	0.40	0.48	0.54	0.60	0.65	0.68
9.0	0.10	0.14	0.25	0.36	0.42	0.48	0.54	0.58	0.61
9.5	0.09	0.12	0.21	0.32	0.38	0.43	0.48	0.52	0.54
10.0	0.08	0.11	0.18	0.28	0.34	0.39	0.43	0.47	0.49
10.5	0.07	0.09	0.16	0.25	0.31	0.36	0.39	0.43	0.45
11.0	0.06	0.08	0.14	0.22	0.28	0.32	0.36	0.39	0.41
11.5	0.05	0.07	0.13	0.19	0.26	0.30	0.33	0.35	0.37
12.0	0.04	0.06	0.11	0.17	0.24	0.27	0.30	0.33	0.34
12.5	0.04	0.06	0.10	0.15	0.22	0.25	0.28	0.30	0.31
13.0	0.04	0.05	0.09	0.14	0.20	0.23	0.26	0.28	0.29
13.5	0.03	0.05	0.08	0.12	0.19	0.22	0.24	0.26	0.27
14.0	0.03	0.04	0.07	0.11	0.17	0.20	0.22	0.24	0.25
14.5	0.03	0.04	0.06	0.10	0.15	0.19	0.21	0.22	0.23
15.0	0.02	0.03	0.06	0.09	0.14	0.17	0.19	0.21	0.22
	Max. Height Unsupported (m)								
	6.00	6.80	8.30	9.70	10.60	11.40	12.00	12.40	12.80

Notes:

1 Values have been calculated using the method described in BS EN 14509: 2013.
2 Maximum external temperature of +25°C and minimum internal temperature of +20°C.
3 The following deflection limits have been used:
   a. Short term pressure loading $^{L}/_{100}$
   b. Short term suction loading $^{L}/_{100}$
4 All panel thicknesses have been calculated with a minimum end support width of 50mm. Larger support widths are possible.
5 The fastener calculation should be carried out in accordance with the appropriate standards.
6 For intermediate values linear interpolation may be used.
7 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.
8 The allowable steelwork tolerance between bearing planes of adjacent supports is ±5mm.
9 The bottom shaded row denotes the maximum allowable span based on an imposed load of 0.3kN/m² in the absence of specified loads.
10 Load / span tables for CS Flat profiles are available from Kingspan Tech-eXchange.
11 For span condition other than single span, please contact Kingspan Tech-eXchange.

Load / Span Tables

Internal Wall & Partition: Chilled Storage Internal Applications 0°C to +5°C

Load / span tables to be compared against characteristic/unfactored variable loads.

Span L in metres	Uniformly Distributed Loads (kN/m²)								
	Panel Thickness (mm)								
	50	60	80	100	125	150	175	200	220
3.0	1.50	1.80	2.41	3.02	3.36	3.36	3.36	2.61	2.61
3.5	1.12	1.49	1.95	2.35	2.80	2.88	2.88	2.24	2.24
4.0	0.83	1.12	1.49	1.80	2.15	2.45	2.52	1.96	1.96
4.5	0.63	0.85	1.18	1.42	1.70	1.94	2.14	1.74	1.74
5.0	0.48	0.67	0.95	1.15	1.37	1.57	1.73	1.56	1.56
5.5	0.38	0.53	0.79	0.95	1.13	1.30	1.43	1.42	1.42
6.0	0.30	0.42	0.66	0.80	0.95	1.09	1.20	1.30	1.30
6.5	0.23	0.34	0.56	0.68	0.81	0.93	1.03	1.11	1.16
7.0	0.18	0.28	0.48	0.59	0.70	0.80	0.89	0.96	1.00
7.5	0.15	0.23	0.40	0.51	0.61	0.70	0.77	0.83	0.87
8.0	0.12	0.18	0.34	0.45	0.54	0.61	0.68	0.73	0.77
8.5	0.09	0.15	0.29	0.40	0.48	0.54	0.60	0.65	0.68
9.0	0.07	0.13	0.24	0.36	0.42	0.48	0.54	0.58	0.61
9.5	0.05	0.11	0.21	0.32	0.38	0.43	0.48	0.52	0.54
10.0	0.04	0.09	0.18	0.28	0.34	0.39	0.43	0.47	0.49
10.5	0.03	0.07	0.15	0.25	0.31	0.36	0.39	0.43	0.45
11.0	0.02	0.06	0.13	0.22	0.28	0.32	0.36	0.39	0.41
11.5	0.01	0.04	0.11	0.19	0.26	0.30	0.33	0.35	0.37
12.0	0.01	0.03	0.10	0.17	0.24	0.27	0.30	0.33	0.34
12.5	0.00	0.03	0.09	0.15	0.22	0.25	0.28	0.30	0.31
13.0	0.00	0.02	0.07	0.13	0.20	0.23	0.26	0.28	0.29
13.5	-	0.02	0.06	0.11	0.19	0.22	0.24	0.26	0.27
14.0	-	0.01	0.05	0.10	0.17	0.20	0.22	0.24	0.25
14.5	-	0.01	0.05	0.09	0.15	0.19	0.21	0.22	0.23
15.0	-	0.00	0.04	0.08	0.14	0.17	0.19	0.21	0.22
	Max. Height Unsupported (m)								
	5.90	6.80	8.30	9.70	10.60	11.40	12.00	12.40	12.80

Notes:

1 Values have been calculated using the method described in BS EN 14509: 2013.
2 Maximum external temperature of +25°C and minimum internal temperature of 0°C.
3 The following deflection limits have been used:
   a. Short term pressure loading $^{L}/_{100}$
   b. Short term suction loading $^{L}/_{100}$
4 All panel thicknesses have been calculated with a minimum end support width of 50mm. Larger support widths are possible.
5 The fastener calculation should be carried out in accordance with the appropriate standards.
6 For intermediate values linear interpolation may be used.
7 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.
8 The allowable steelwork tolerance between bearing planes of adjacent supports is ±5mm.
9 The bottom shaded row denotes the maximum allowable span based on an imposed load of 0.3kN/m² in the absence of specified loads.
10 Load / span tables for CS Flat profiles are available from Kingspan Tech-eXchange.
11 For span condition other than single span, please contact Kingspan Tech-eXchange.

Load / Span Tables

Internal Wall & Partition: Cold Storage Internal Applications below 0°C

Load / span tables to be compared against characteristic/unfactored variable loads.

Span L in metres	Uniformly Distributed Loads (kN/m²)								
	Panel Thickness (mm)								
	50	60	80	100	125	150	175	200	220
3.0	1.44	1.80	2.41	3.02	3.36	3.36	3.36	2.61	2.61
3.5	0.97	1.41	1.95	2.35	2.80	2.88	2.88	2.24	2.24
4.0	0.61	0.99	1.49	1.80	2.15	2.45	2.52	1.96	1.96
4.5	0.35	0.71	1.18	1.42	1.70	1.94	2.14	1.74	1.74
5.0	0.18	0.45	0.95	1.15	1.37	1.57	1.73	1.56	1.56
5.5	0.07	0.28	0.76	0.95	1.13	1.30	1.43	1.42	1.42
6.0	0.00	0.16	0.59	0.80	0.95	1.09	1.20	1.30	1.30
6.5	-	0.08	0.42	0.68	0.81	0.93	1.03	1.11	1.16
7.0	-	0.02	0.29	0.59	0.70	0.80	0.89	0.96	1.00
7.5	-	-	0.20	0.50	0.61	0.70	0.77	0.83	0.87
8.0	-	-	0.13	0.38	0.54	0.61	0.68	0.73	0.77
8.5	-	-	0.08	0.28	0.48	0.54	0.60	0.65	0.68
9.0	-	-	0.04	0.21	0.42	0.48	0.54	0.58	0.61
9.5	-	-	0.01	0.15	0.38	0.43	0.48	0.52	0.54
10.0	-	-	-	0.11	0.32	0.39	0.43	0.47	0.49
10.5	-	-	-	0.07	0.25	0.36	0.39	0.43	0.45
11.0	-	-	-	0.04	0.20	0.32	0.36	0.39	0.41
11.5	-	-	-	0.02	0.15	0.30	0.33	0.35	0.37
12.0	-	-	-	0.00	0.12	0.27	0.30	0.33	0.34
12.5	-	-	-	-	0.09	0.23	0.28	0.30	0.31
13.0	-	-	-	-	0.06	0.18	0.26	0.28	0.29
13.5	-	-	-	-	0.04	0.15	0.24	0.26	0.27
14.0	-	-	-	-	0.03	0.12	0.22	0.24	0.25
14.5	-	-	-	-	0.01	0.10	0.20	0.22	0.23
15.0	-	-	-	-	0.00	0.08	0.17	0.21	0.22
	Max. Height Unsupported (m)								
	4.60	5.40	6.90	8.40	10.10	11.40	12.00	12.40	12.80

Notes:

1 Values have been calculated using the method described in BS EN 14509: 2013.
2 Maximum external temperature of +25°C and minimum internal temperature of -30°C.
3 The following deflection limits have been used:
   a. Short term pressure loading $^{L}/_{100}$
   b. Short term suction loading $^{L}/_{100}$
4 All panel thicknesses have been calculated with a minimum end support width of 50mm. Larger support widths are possible.
5 The fastener calculation should be carried out in accordance with the appropriate standards.
6 For intermediate values linear interpolation may be used.
7 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.
8 The allowable steelwork tolerance between bearing planes of adjacent supports is ±5mm.
9 The bottom shaded row denotes the maximum allowable span based on an imposed load of 0.3kN/m² in the absence of specified loads.
10 Load / span tables for CS Flat profiles are available from Kingspan Tech-eXchange.
11 For span condition other than single span, please contact Kingspan Tech-eXchange.

Load / Span Tables

Internal Ceiling: Cold Storage, Chilled Storage and Ambient Internal Applications

0.9kN (concentrated load) in combination with imposed uniformly distributed load (kN/m²)

Load / span tables to be compared against characteristic/unfactored variable loads.

Span L in metres	Uniformly Distributed Loads (kN/m²)								
	Panel Thickness (mm)								
	50	60	80	100	125	150	175	200	220
2.0	1.46	1.90	2.80	3.68	3.68	3.67	3.66	2.67	2.67
2.5	0.88	1.27	1.94	2.64	2.91	2.90	2.90	2.10	2.10
3.0	0.50	0.83	1.38	1.93	2.40	2.39	2.39	1.72	1.72
3.5	0.17	0.53	1.00	1.43	2.01	2.03	2.02	1.45	1.45
4.0	-	0.26	0.73	1.08	1.55	1.76	1.75	1.25	1.24
4.5	-	0.05	0.50	0.82	1.20	1.54	1.53	1.09	1.08
5.0	-	-	0.33	0.62	0.94	1.28	1.36	0.96	0.96
5.5	-	-	0.16	0.46	0.74	1.03	1.23	0.86	0.85
6.0	-	-	0.02	0.32	0.58	0.82	1.09	0.77	0.77
6.5	-	-	-	0.20	0.45	0.66	0.89	0.70	0.70
7.0	-	-	-	0.07	0.34	0.53	0.73	0.64	0.63
7.5	-	-	-	-	0.24	0.43	0.60	0.58	0.58
8.0	-	-	-	-	0.15	0.34	0.49	0.54	0.53
8.5	-	-	-	-	0.05	0.25	0.40	0.48	0.49
9.0	-	-	-	-	-	0.18	0.32	0.39	0.45
9.5	-	-	-	-	-	0.09	0.25	0.33	0.41
10.0	-	-	-	-	-	0.01	0.18	0.26	0.34
10.5	-	-	-	-	-	-	0.11	0.20	0.28
11.0	-	-	-	-	-	-	0.04	0.14	0.22
11.5	-	-	-	-	-	-	-	0.07	0.17
12.0	-	-	-	-	-	-	-	0.01	0.11
	Max. Allowable Single Span (m)								
	3.30	4.00	5.20	6.30	7.40	8.40	9.40	10.00	10.70

Notes:

1 Values have been calculated using the method described in BS EN 14509: 2013.

2 The following deflection limits have been used:
   a. Short term loading $^{L}/_{200}$
   b. Long term loading $^{L}/_{100}$

3 All panel thicknesses have been calculated with a minimum end support width of 40mm. Larger support widths are possible.

4 The fastener calculation should be carried out in accordance with the appropriate standards.

5 For intermediate values linear interpolation may be used.

6 The allowable steelwork tolerance between bearing planes of adjacent supports is ±5mm.

7 Ceiling supports and / or suspensions calculations should be carried out in accordance with the appropriate standards.

8 The bottom shaded row denotes the maximum allowable span based on a concetrated load of 0.9kN with an imposed load of 0.25kN/m², in the absence of specified loads.

9 Load / span tables for CS Flat profiles are available from Kingspan Tech-eXchange.

10 For span condition other than single span, please contact Kingspan Tech-eXchange.

11 Load / span tables valid for internal temperatures of Cold Storage, Chilled Storage and Ambient internal application. Please contact Kingspan Tech-eXchange for a warm room application.

Load / Span Tables

Internal Ceiling: Cold Storage, Chilled Storage and Ambient Internal Applications

1.2kN (concentrated load) in combination with imposed uniformly distributed load (kN/m²)

Load / span tables to be compared against characteristic/unfactored variable loads.

Span L in metres	Uniformly Distributed Loads (kN/m²)								
	Panel Thickness (mm)								
	50	60	80	100	125	150	175	200	220
2.0	1.29	1.86	2.80	3.50	3.50	3.49	3.48	2.49	2.49
2.5	0.66	1.17	1.94	2.64	2.77	2.76	2.75	1.96	1.95
3.0	0.21	0.72	1.38	1.93	2.28	2.27	2.27	1.60	1.60
3.5	-	0.32	0.96	1.43	1.93	1.93	1.92	1.35	1.34
4.0	-	0.04	0.65	1.08	1.55	1.67	1.66	1.16	1.15
4.5	-	-	0.41	0.80	1.20	1.46	1.45	1.01	1.00
5.0	-	-	0.17	0.57	0.94	1.28	1.29	0.89	0.89
5.5	-	-	0.00	0.40	0.74	1.03	1.16	0.80	0.79
6.0	-	-	-	0.22	0.56	0.82	1.05	0.71	0.71
6.5	-	-	-	0.07	0.41	0.66	0.89	0.65	0.64
7.0	-	-	-	-	0.30	0.53	0.73	0.59	0.58
7.5	-	-	-	-	0.15	0.40	0.60	0.54	0.53
8.0	-	-	-	-	0.04	0.30	0.49	0.49	0.49
8.5	-	-	-	-	-	0.20	0.38	0.45	0.45
9.0	-	-	-	-	-	0.09	0.29	0.39	0.41
9.5	-	-	-	-	-	0.00	0.21	0.30	0.38
10.0	-	-	-	-	-	-	0.11	0.23	0.33
10.5	-	-	-	-	-	-	0.03	0.15	0.26
11.0	-	-	-	-	-	-	-	0.07	0.19
11.5	-	-	-	-	-	-	-	-	0.11
12.0	-	-	-	-	-	-	-	-	0.04
	Max. Allowable Single Span (m)								
	2.90	3.60	4.80	5.90	7.10	8.20	9.20	9.80	10.50

Notes:

1 Values have been calculated using the method described in BS EN 14509: 2013.

2 The following deflection limits have been used:
   a. Short term loading $^{L}/_{200}$
   b. Long term loading $^{L}/_{100}$

3 All panel thicknesses have been calculated with a minimum end support width of 40mm. Larger support widths are possible.

4 The fastener calculation should be carried out in accordance with the appropriate standards.

5 For intermediate values linear interpolation may be used.

6 The allowable steelwork tolerance between bearing planes of adjacent supports is ±5mm.

7 Ceiling supports and / or suspensions calculations should be carried out in accordance with the appropriate standards.

8 The bottom shaded row denotes the maximum allowable span based on a concetrated load of 1.2kN with an imposed load of 0.25kN/m², in the absence of specified loads.

9 Load / span tables for CS Flat profiles are available from Kingspan Tech-eXchange.

10 For span condition other than single span, please contact Kingspan Tech-eXchange.

11 Load / span tables valid for internal temperatures of Cold Storage, Chilled Storage and Ambient internal application. Please contact Kingspan Tech-eXchange for a warm room application.

Load / Span Tables

Internal Ceiling: Cold Storage, Chilled Storage and Ambient Internal Applications

1.5kN (concentrated load) in combination with imposed uniformly distributed load (kN/m²)

Load / span tables to be compared against characteristic/unfactored variable loads.

Span L in metres	Uniformly Distributed Loads (kN/m²)								
	Panel Thickness (mm)								
	50	60	80	100	125	150	175	200	220
2.0	0.93	1.69	2.80	3.32	3.32	3.31	3.30	2.31	2.31
2.5	0.29	0.98	1.92	2.63	2.62	2.62	2.61	1.82	1.81
3.0	-	0.42	1.29	1.93	2.16	2.15	2.15	1.48	1.48
3.5	-	0.06	0.87	1.43	1.83	1.82	1.82	1.25	1.24
4.0	-	-	0.51	1.03	1.55	1.58	1.57	1.07	1.06
4.5	-	-	0.21	0.73	1.20	1.38	1.37	0.93	0.92
5.0	-	-	-	0.50	0.93	1.23	1.22	0.82	0.81
5.5	-	-	-	0.26	0.69	1.03	1.09	0.73	0.72
6.0	-	-	-	0.07	0.51	0.82	0.99	0.65	0.65
6.5	-	-	-	-	0.34	0.64	0.89	0.59	0.58
7.0	-	-	-	-	0.17	0.49	0.73	0.54	0.53
7.5	-	-	-	-	0.04	0.36	0.58	0.49	0.48
8.0	-	-	-	-	-	0.22	0.45	0.45	0.44
8.5	-	-	-	-	-	0.10	0.35	0.41	0.40
9.0	-	-	-	-	-	-	0.24	0.35	0.37
9.5	-	-	-	-	-	-	0.12	0.27	0.34
10.0	-	-	-	-	-	-	0.03	0.16	0.30
10.5	-	-	-	-	-	-	-	0.07	0.21
11.0	-	-	-	-	-	-	-	-	0.12
11.5	-	-	-	-	-	-	-	-	0.04
12.0	-	-	-	-	-	-	-	-	-
	Max. Allowable Single Span (m)								
	2.50	3.20	4.40	5.50	6.70	7.80	8.90	9.50	10.30

Notes:

1 Values have been calculated using the method described in BS EN 14509: 2013.

2 The following deflection limits have been used:
   a. Short term loading $^{L}/_{200}$
   b. Long term loading $^{L}/_{100}$

3 All panel thicknesses have been calculated with a minimum end support width of 40mm. Larger support widths are possible.

4 The fastener calculation should be carried out in accordance with the appropriate standards.

5 For intermediate values linear interpolation may be used.

6 The allowable steelwork tolerance between bearing planes of adjacent supports is ±5mm.

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8 The bottom shaded row denotes the maximum allowable span based on a concetrated load of 1.5kN with an imposed load of 0.25kN/m², in the absence of specified loads.

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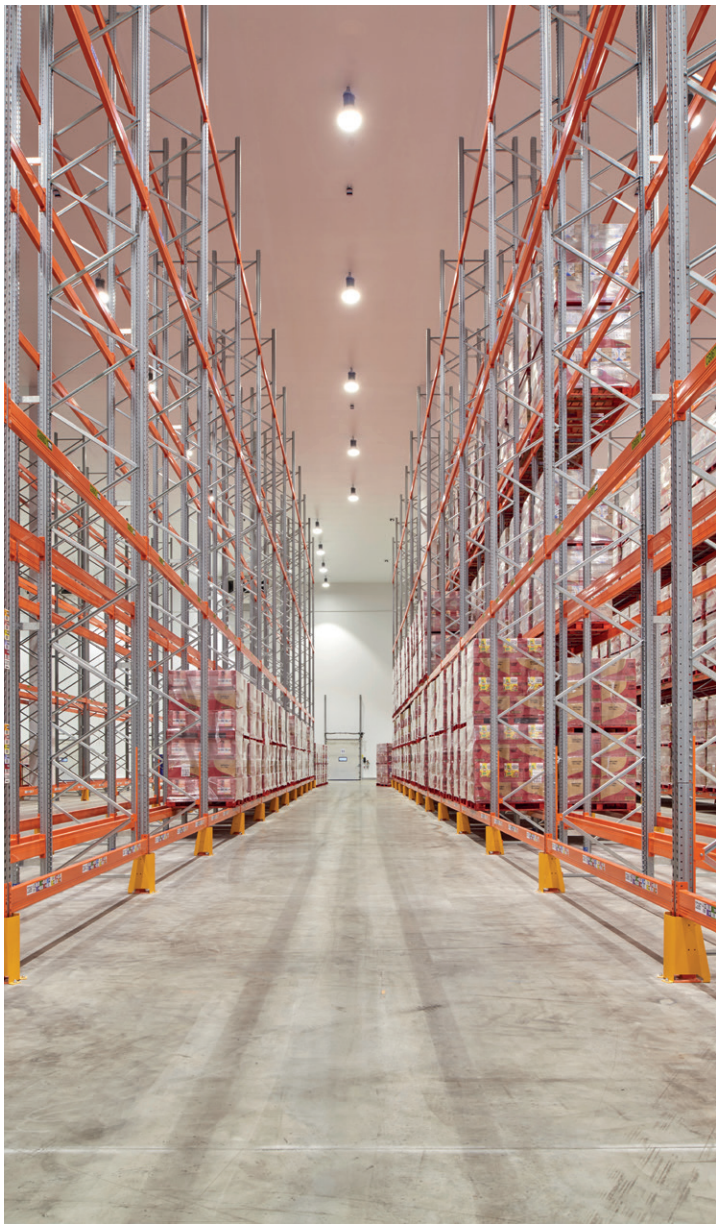


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