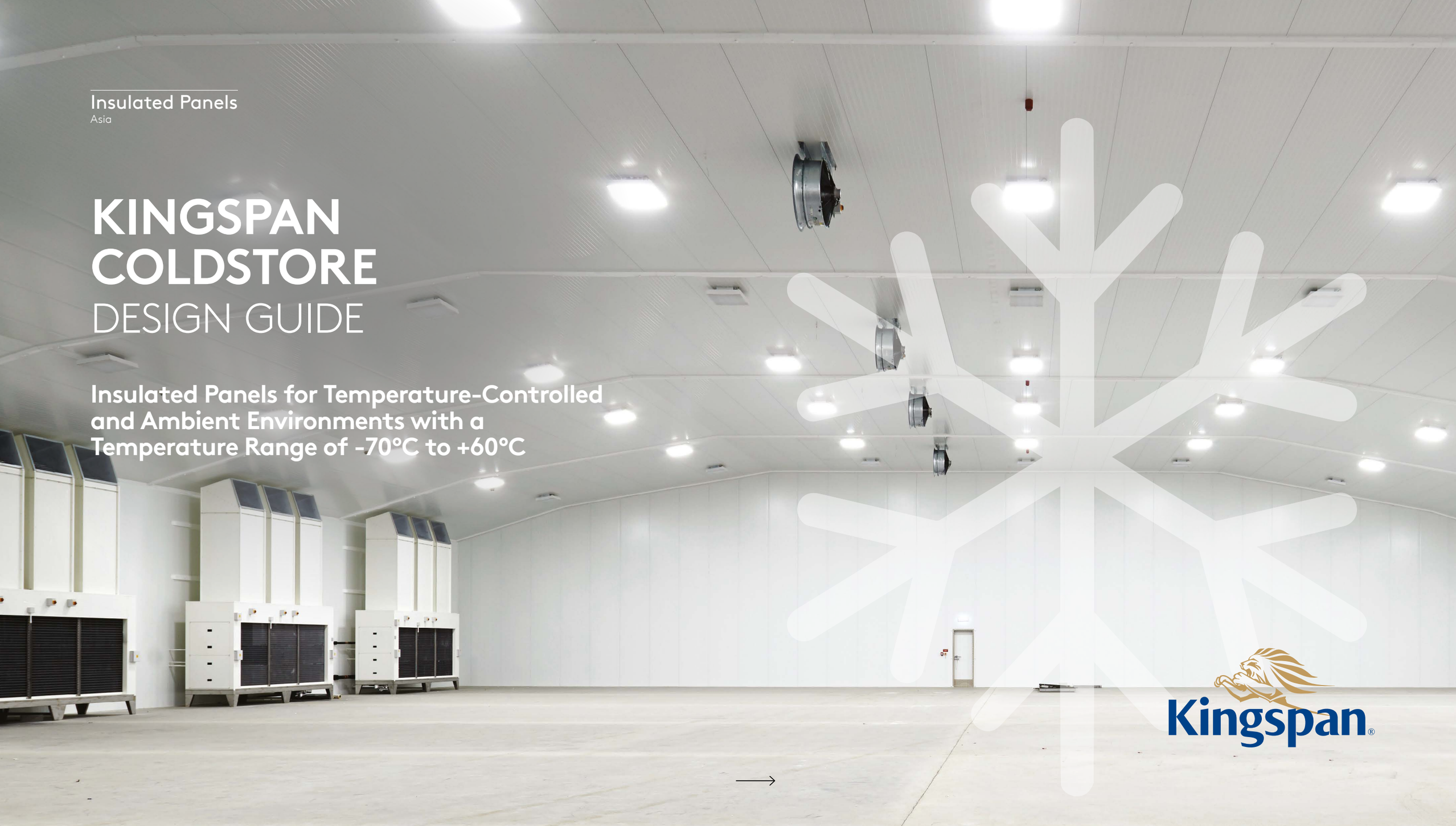
Insulated Panels
Asia

KINGSPAN COLDSTORE DESIGN GUIDE

Insulated Panels for Temperature-Controlled and Ambient Environments with a Temperature Range of -70°C to +60°C



Kingspan®

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INTRODUCTION

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INTRODUCTION

Coldstore buildings demand precise control of temperature, airtightness and hygiene, making the performance of the building envelope critical to long-term reliability and operational efficiency.

This guide provides a concise, technically approved framework for designing and specifying high-performance temperature-controlled environments using Kingspan's QuadCore® Coldstore solutions.

Typical Coldstore Applications

Insulated panel systems are used across a range of temperature-controlled environments where control of heat transfer, moisture and air movement is essential to maintaining stable internal conditions.

Typical applications include chilled storage, freezer storage, food processing and ambient hygienic spaces.

Across these applications, maintaining continuity of insulation, correctly detailing vapour barriers and ensuring appropriate treatment at junctions and penetrations are essential to prevent condensation, ice formation and frost heave in floor constructions.

INTRODUCTION

About the guide

The purpose of this guide is to provide a clear, technically approved reference for the design and specification of temperature-controlled environments using insulated panel systems.

It brings together validated performance data, design principles and construction requirements to support effective design and consistent project delivery.

The guide is intended for architects, designers, contractors and operators requiring dependable information on thermal performance, vapour control, structural behaviour and hygiene considerations for coldstore building envelopes.

About Kingspan Coldstore Solutions

Kingspan Insulated Panels has extensive experience in developing insulated panel systems for temperature-controlled environments such as coldstores, chilled storage, food processing areas and cleanrooms.

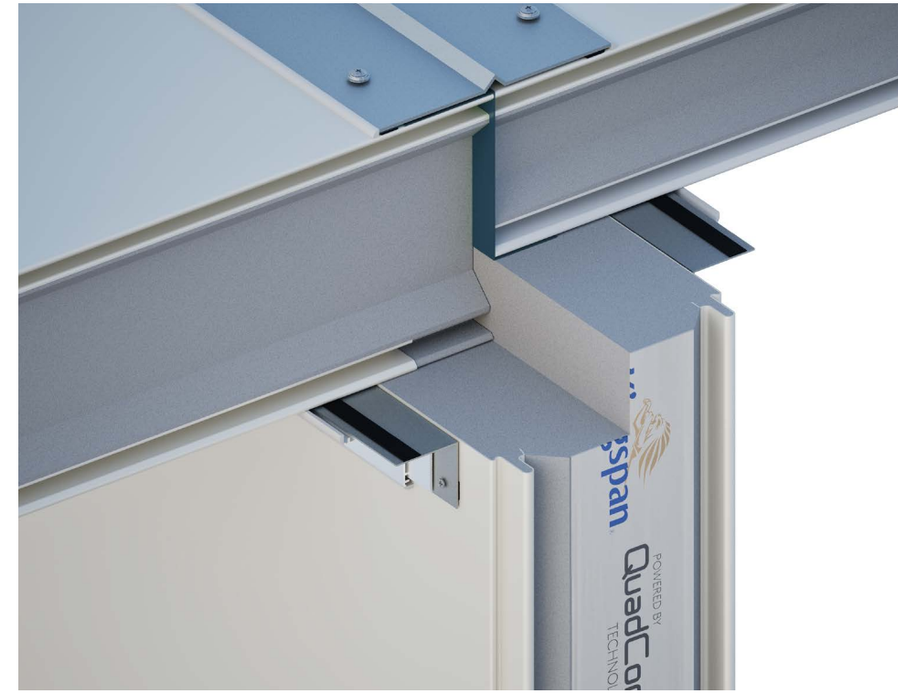
The insulated metal panels are independently tested by third-party laboratories for building code compliance and are designed to deliver reliable thermal performance, airtightness and hygiene suitability across a wide range of applications.

Panels are evaluated by independent testing bodies for compliance with relevant building standards.

- Systems are engineered to achieve stable thermal and moisture control performance in controlled environments
- Product testing covers fire performance, thermal behaviour and material suitability

Benefits

- QuadCore® insulation – 25 year thermal performance warranty
- Thermal envelope with 0.018 W/mK thermal conductivity that minimises the panel thickness and contributes to energy cost savings
- Suitable for coldstores, chilled storage, food processing areas and cleanroom applications and temperature range of -70°C to +60°C
- Castellated and symmetrical tongue and groove joint specifically designed for temperature controlled environments and allows the installation of vapour seal to suit the application
- Internal ceiling design that allows walk-on loads
- Lightweight insulated panel
- FM Approval available



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PRINCIPLES OF TEMPERATURE CONTROLLED BUILDING DESIGN

Common Internal Design Temperature Ranges Include:



- Chilled storage: approximately +0°C to +5°C
- Cold/freezer storage: below 0°C
- Food processing: approximately +10°C to +18°C

QuadCore® Coldstore Panels are approved for operation between **–70°C and +60°C,** making them suitable for deep freeze, chilled and ambient hygienic environments.

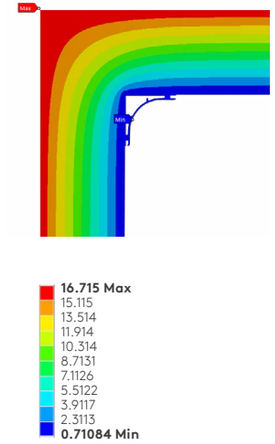
Continuity of Thermal Insulation

Continuity of thermal insulation must be maintained at all junctions within the building envelope. Any gaps should be fully filled using canister-applied insulation to prevent thermal bridging.

At floor level, maintaining insulation continuity is particularly important in coldstore applications. Insulated floor construction helps to mitigate the risk of frost heave, which can damage the top wearing slab. A heater mat should be considered as part of the insulated floor build-up to support overall thermal performance.

In chilled storage applications, the junction between the wall panel and concrete floor must maintain an effective vapour seal. In these conditions, additional floor insulation is not typically required, as the floor mass provides sufficient thermal insulation.





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15.115
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11.914
10.314
8.7131
7.1126
5.5122
3.9117
2.3113
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PRINCIPLES OF TEMPERATURE CONTROLLED BUILDING DESIGN

Continuity of Vapour Barrier

Continuity of the vapour barrier must be maintained throughout the building envelope, including wall, roof/ceiling and floor constructions.

The performance of panel joints and junctions is critical for maintaining the continuity of the thermal envelope and vapour barrier.

Symmetrical tongue-and-groove panel joints are designed to facilitate the installation of an effective vapour seal, while also allowing the application of a hygiene seal to visible joint gaps where required.

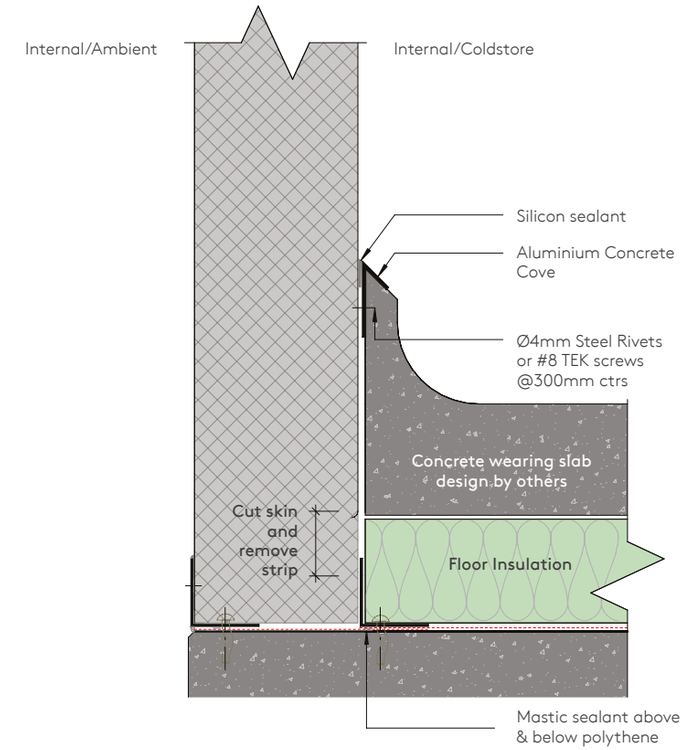
Air Flow Management

Air flow management is a critical consideration in temperature-controlled environments.

In internal panel installations, small voids can form between walls or above ceiling panels. These voids may contain stagnant air which, if not replaced with fresh air, can result in a drop in temperature. In chilled storage and coldstore applications, this may lead to a risk of condensation or ice formation.

Small voids between chilled storage or coldstore areas should therefore incorporate appropriate ventilation or the use of heaters to maintain stable conditions.

Wall to insulated floor joint



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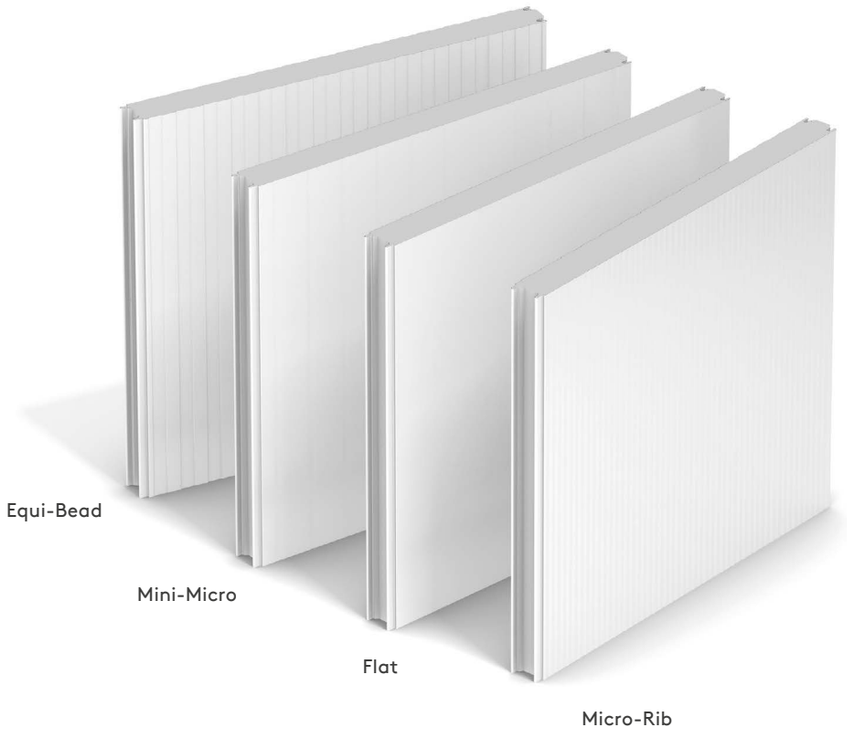
QUADCORE® KSP COLDSTORE PANEL KSP1100CS OVERVIEW

Product Overview

High performance solution for coldstore buildings. The QuadCore® insulation core ensures high energy efficiency and thermal performance. The panel's through-fix design and four profiles (Equi-Bead, Mini-Micro, Micro-Rib, Flat) offer versatile aesthetics. Installable horizontally and vertically, it's suitable for internal and external use. Ideal for temperature controlled environments like food processing, freezers and clean rooms with temperatures ranging from -70°C to ambient.



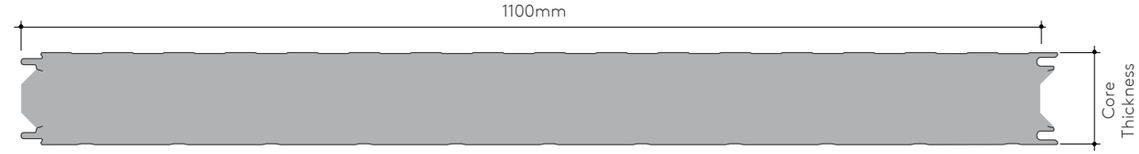
Application

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

Available Lengths

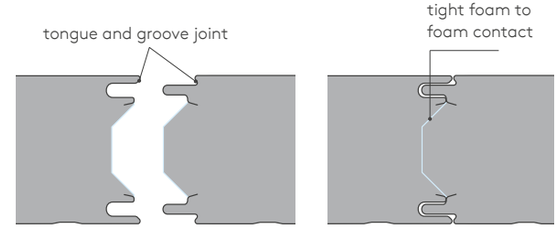
Standard Width (m)		1.1
Standard Lengths (m)		2.4 to 11.9
Non-Standard Length Options	Longer Lengths (m)	11.9 to 20.0
	Shorter Lengths (m) (subject to additional surcharge)	< 2.4

Note: Additional costs and transport restrictions may apply for non-standard lengths.



Panel Joint

QuadCore® KSP Coldstore Panel feature a unique castellated and symmetrical tongue and groove joint, ensuring excellent thermal and structural performance. Achieving full foam-to-foam contact within the panel joint during installation is essential to minimize air leakage.



QUADCORE® KSP COLDSTORE PANEL KSP1100CS OVERVIEW

Insulation Core

QuadCore® Technology insulation core with a Thermal Conductivity (λD) of 0.018 W/mK according to EN 14509:2013. Free from HCFC, CFC and HFC refrigerants.

POWERED BY QuadCore® TECHNOLOGY

Profiles

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

Certification and Testing

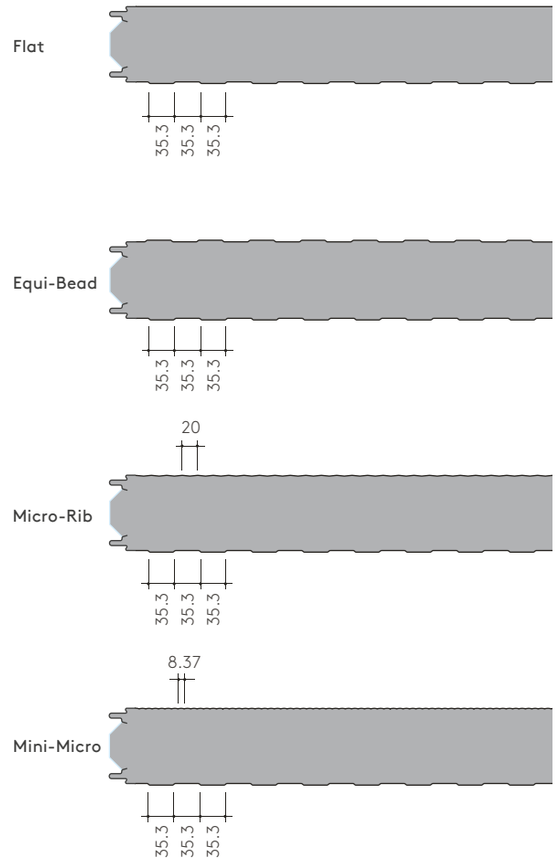
Reaction to Fire: QuadCore® KSP Coldstore Panels are classified B-s1,d0 when tested on the internal face of the product, according to the European Reaction to Fire classification system (Euroclasses) BS EN 13501–1: 2018, when using the internal liner of CLEAN*safe* 25.

Certification

Fire classification Class O when tested to BS 476 Part 6 & 7.

Certification:

- Singapore - CoC for Fire Resistance Rated and Non Fire Rated Application.
- Malaysia - Sirim Certified, CIDB Registered, Bomba Approval.
- Vietnam - Fire Resistance Certified under TCVN 9311-8.
- Australia - NCC Compliant.



Reaction to Fire

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

Insurer Approvals

QuadCore® KSP Coldstore Panels are tested to:

- FM 4880 approval standard for class 1 fire rating of building panels or interior finish materials under certified name KSP1100CS for thickness up to 200mm.
- FM 4881 approval standard for class 1 exterior wall systems under certified name KSP1100CS for thickness up to 200mm.
- FM 4882 approval standard for class 1 interior wall and ceiling materials or systems for smoke sensitive occupancies under certified name KSP1100CS for thickness up to 200mm.

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.

FM APPROVED

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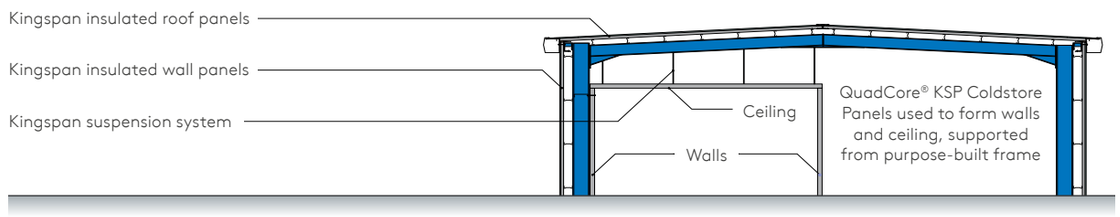
CONSTRUCTION SOLUTIONS

Internal Insulated System

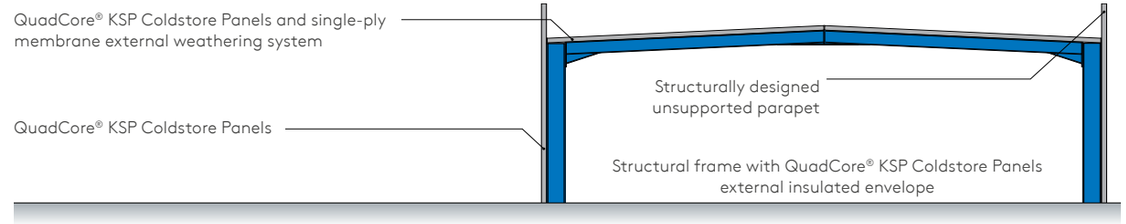
Main Structure: Portal or Truss Construction



External Insulated System

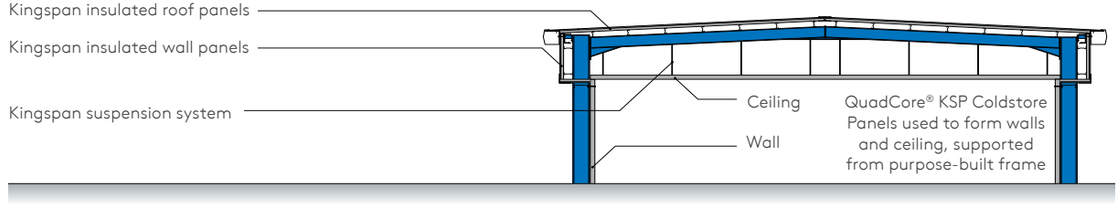
- **Complete external envelope using Coldstore panels + membrane roof**

Main Structure: Portal or Truss Construction



Internal Insulated System with Partial External Wall Cladding

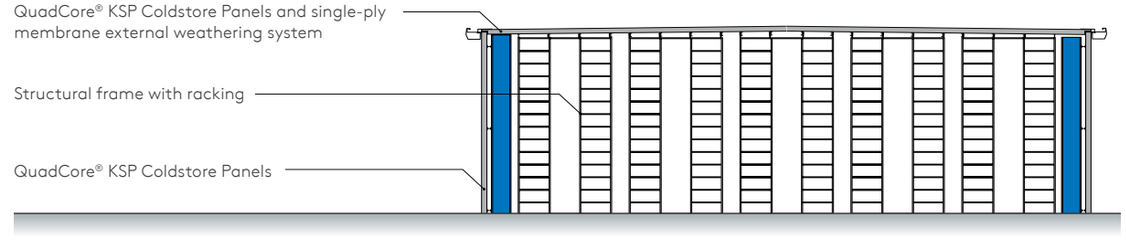
Main Structure: Portal or Truss Construction



Cladrack Integration

- **Panels integrated with racking structure, relevant for high bay automated coldstores**

Main Structure: Portal or Truss Construction



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STRUCTURAL SUPPORT REQUIREMENTS

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STRUCTURAL SUPPORT REQUIREMENTS

Internal Wall Panel Applicable Loads

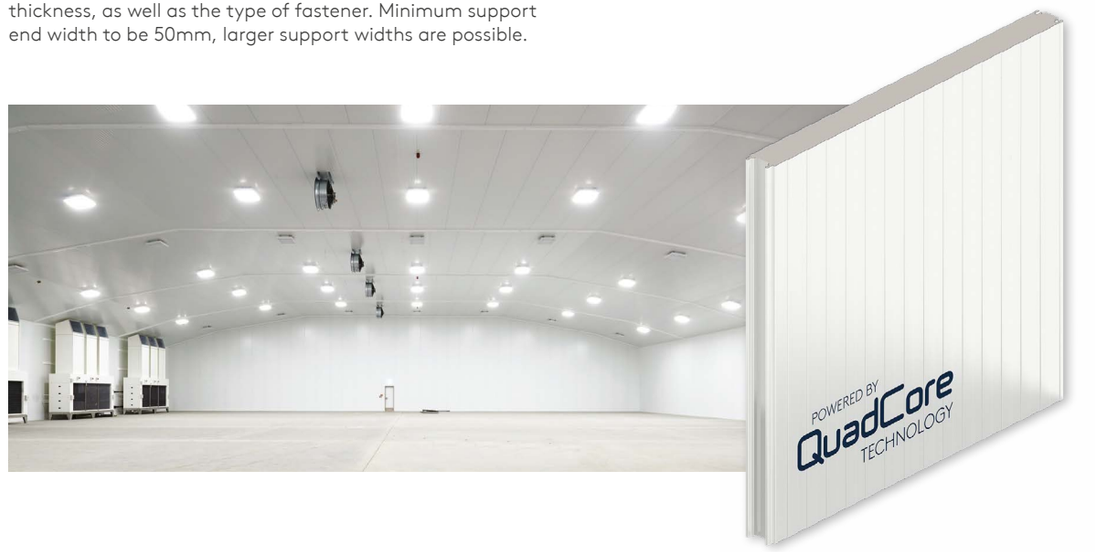
Internal wall panels are typically not exposed to external weather conditions and are designed to resist internal loads of 0.30 kN/m² in the absence of specified loads. Local standards should be verified to confirm whether different load criteria apply.

Load span tables in the relevant data sheets should be consulted to determine the maximum clear spans that internal wall panels can achieve.

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. Minimum support end width to be 50mm, larger support widths are possible.

Panel spans should be reviewed considering the specific temperature conditions on both sides of the wall. A greater temperature difference between the two sides may result in thermal bow, which can reduce the achievable panel span.

Thermal bow occurs when one face of the panel is exposed to a lower temperature, causing the steel face to contract, while the opposite face, exposed to a higher temperature, expands. This results in the panel bowing towards the warm side of the wall.



Internal Ceiling Panel Applicable Loads

Internal ceiling panels are classified as 'ceilings accessible for installation, occasional inspection and maintenance, minor repairs and cleaning' only.

In the absence of any specified access load, a conservative recommendation is that ceiling panels and associated structural elements are designed for a concentrated load of 0.9 kN and a uniformly distributed load of 0.25 kN/m² in accordance with BS EN 1991-1-1: 2002, or in line with relevant local standards. These are short-term loads representing an operative carrying a toolbox. A single person above a single ceiling panel is permitted at any one time.

Walk-on ceilings should accommodate insulated ceiling panels supported at both ends, including panel ends located above vertical wall panels. This reduces the risk of ceiling panel collapse in the event of wall panel failure, for example due to impact damage in areas where forklift traffic is present.

The same approach also reduces the risk of collapse in the event of a fire. Support members or the ceiling suspension system should support the ceiling panel from the lower face, allowing for potential deformation while maintaining support through a catenary action.

Ceiling panel spans should be reviewed considering the specific temperature conditions below and above the ceiling. In temperature-controlled environments, including chilled storage and coldstore applications, lower temperatures occur below the ceiling, causing the internal steel face to contract. As a result, thermal bow occurs towards the warm side, which is above the ceiling.

Ceiling panel spans should therefore be assessed under the worst-case condition, where temperatures on both sides of the panel are equal, as may occur during the installation phase.



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TECHNICAL PERFORMANCE

Heat Transmission Table

Thermal Conductivity (λ) 0.018 W/mK

Insulation requirements for Cold Storage or Chilled Storage applications can be determined using heat transmission table. The insulated envelope limits the flow of heat which is generally from outside to inside and should be limited to 10 W/m², for enhanced energy performance, the heat gain by conduction should be limited to 8 W/m². Lower heat gains will reduce energy consumption in temperature controlled environment buildings which translates to lower operating costs allowing the building users to reduce their overall running costs.

Panel Thickness (mm)	50	75	100	125	150	175	200	220
U-value (W/m²K)	0.36	0.24	0.18	0.14	0.12	0.10	0.09	0.08
Temperature Difference (°C)								
10	3.60	2.40	1.80	1.44	1.20	1.03	0.90	0.82
15	5.40	3.60	2.70	2.16	1.80	1.54	1.35	1.23
20	7.20	4.80	3.60	2.88	2.40	2.06	1.80	1.64
25	9.00	6.00	4.50	3.60	3.00	2.57	2.25	2.05
30	10.80	7.20	5.40	4.32	3.60	3.09	2.70	2.45
35	12.60	8.40	6.30	5.04	4.20	3.60	3.15	2.86
40	14.40	9.60	7.20	5.76	4.80	4.11	3.60	3.27
45	16.20	10.80	8.10	6.48	5.40	4.63	4.05	3.68
50	18.00	12.20	9.00	7.20	6.00	5.14	4.50	4.09
55	19.80	13.20	9.90	7.92	6.60	5.66	4.95	4.50
60	21.60	14.40	10.0	8.64	7.20	6.17	5.40	4.91
65	23.40	15.60	11.70	9.36	7.80	6.69	5.85	5.32
70	25.20	16.80	12.60	10.08	8.40	7.20	6.30	5.73
75	27.00	18.00	13.50	10.80	9.00	7.71	6.75	6.14
80	28.80	19.20	14.40	11.52	9.60	8.23	7.20	6.55
85				12.24	10.20	8.74	7.65	6.95
90				12.96	10.80	9.26	8.10	7.36
95				13.68	11.40	9.77	8.55	7.77
100					12.00	10.29	9.00	8.18

Heat gain by conduction should be limited to 10 W/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.
Not recommended (> 10 W/m²).
The heat gain by conduction should be limited to 10 W/m², for enhanced energy performance, the heat gain by conduction should be limited to 8 W/m². (Guidelines for the Design, Specification, Construction, Maintenance and Fire Management of Insulated Envelopes for Temperature Controlled Environments).

Calculating Panel Thickness

To determine the minimum panel thickness required for a given temperature condition, the following formula is used:

$$d = \frac{\lambda \times \Delta t}{q}$$

d = panel thickness (m)

λ = thermal conductivity of insulation (Quadcore thermal conductivity 0.018 W/m²K)

Δt = temperature difference between internal and external face (°C)

q = heat flow, set at 10 W/m² or for enhanced performance at 8 W/m²

For example:
A freezer unit within a building with an internal operating temperature of -30°C and external ambient temperature of 20°C, would require the insulated panel thicknesses below:

$$d = \frac{0.018 \times 50}{8} = 0.1125m = 112.5mm$$

Minimum panel thickness required would be Quadcore Coldstore 125mm which is greater than the 112.5mm.

Product Tolerances

Cut to Length	± 5mm
Cover Width	± 2mm
Thickness (Core ≤ 100 mm)	± 2mm
Thickness (Core > 100 mm)	± 2%

All product tolerances are in compliance with EN14509.

Dimensions, Weight and Thermal Performance

Core 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
Weight (kg/m²)	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.

TECHNICAL PERFORMANCE

Coatings

Kingspan coatings were designed to suit different project environments. We offer and aid in choosing the right coatings to meet the appropriate classification of corrosive environment and type of activities:

- **Kingspan CLEAN*Safe* 25:** 25 micron thick coating with premium chemically inert polyester paint (Silicone Modified Polyester - SMP) applied to pre-treated metal specifically developed for moderate aggressive environments. It provides enhanced weather, chemical resistance and improved colour retention compared with regular polyester coating (RMP).
- **Kingspan CLEAN*Safe* 25 Anti-Bacterial:** Formulated with special coating technology featuring antibacterial, resistant to staining and mold growth. This 25 micron thick coating is ideal for special controlled environment which requires high hygiene standard. This is a perfect choice for hospital and food processing applications.
- **Kingspan CLEAN*Safe* 25 Anti-Static:** This 25 micron thick coating is technically designed for high-tech manufacturing industrie where the manufacturing processes and environments are designed to reduce or eliminate static electricity with surface resistivity value: $10^5 \sim 10^8$ Ohm/cm^2.
- **Kingspan CLEAN*Safe* 120:** Consists of formulated protective layers designed to withstand exposure to harsh chemicals, acids, alkalis and solvents. This 120 micron thick coating provides an essential barrier that prevents corrosion, degradation and damage to surfaces in demanding environments such as food processing, laboratories, and chemical storage facilities.
- **Kingspan PVDF:** Technically advanced PVDF (Polyvinylidene Fluoride) coatings featuring colour purity, strength, resistance and stability. The coating has excellent balance of weather resistance, abrasion resistance, flexibility and chemical resistance. It is highly recommended to use for external panel face where colour fading is a concern on aggressive environmental area. Standard thickness: 25 micron (other thickness upon request).
- **Kingspan CLEAN*Safe* INOX 304:** is a chemically inert, gap-free austenitic stainless steel, specifically designed for conditioned environments and environments with a high corrosion factor.

Please consult our Technical Services for guidance in selection of the correct coating for your specific applications.

Airtightness

QuadCore® Coldstore Panels joints achieve an air tightness of 0.1m^3/hr/m at 50Pa in accordance with BS EN 14509 under negative pressure conditions.

Watertightness

QuadCore® Coldstore Panels are watertight to 1500Pa (Class A) according to BS EN 14509.

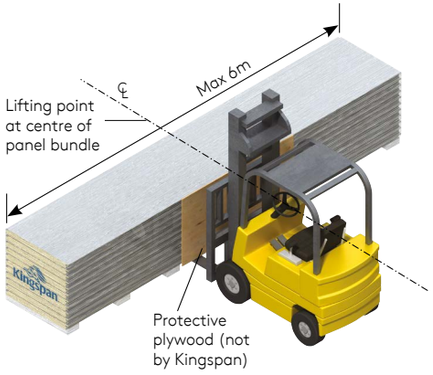
TECHNICAL PERFORMANCE

Panel Handling

Appropriate personal protective equipment (PPE) should be worn at all times to minimise the risk of cuts and abrasions to both installers and panels.

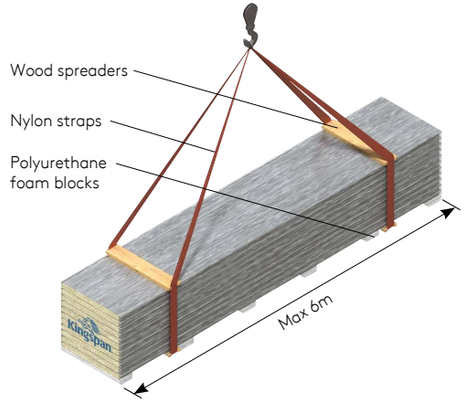
Individual panels should be lifted directly from the pack and must not be dragged across other panels. The weight of individual panels for lifting can be determined from the information provided on the packing slip. For larger panels, appropriate material handling or installation equipment should be used to assist with lifting panels into position.

Protecting Film
When panels are supplied with a plastic protective film this should be removed during site installation.

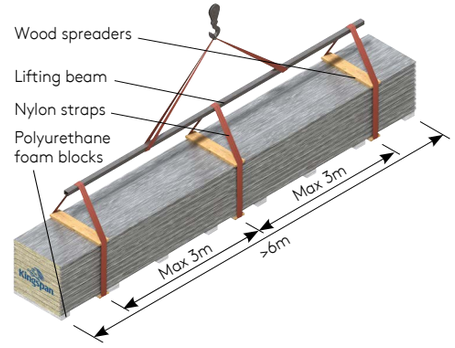


The recommended loading and unloading method for bundles up to 6m in length is to use a single forklift with widely spaced forks positioned beneath the centre of the bundle, as shown.

For illustration purposes only



The recommended lifting method for bundles up to 6m in length is to use a crane with nylon straps and wood spreaders, as shown.



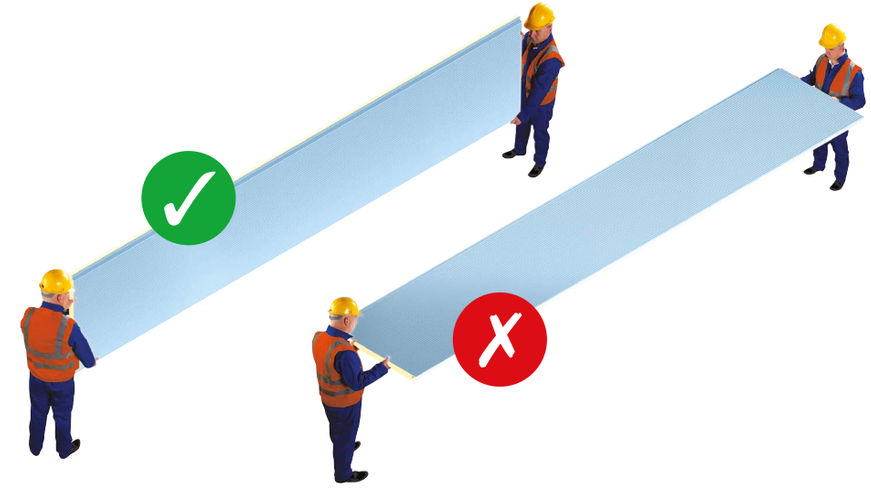
The recommended lifting method for bundles over 6m in length is to use a crane with three points of support.

To prevent damage from nylon straps, wood spreaders should be used at the top and bottom at the lifting locations, as shown.

Caution
IIndividual panels should never be moved in a flat position, as excessive flexing may occur.

Excessive flexing can rupture the panel core, permanently distort the facings and may lead to thermal blistering.

When moving a panel, it should first be turned onto its edge and then supported at each end by sufficient personnel to ensure safe handling.



07

CONSTRUCTION DETAILS

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CONSTRUCTION DETAILS

Panel Joint Construction

Panel joints and all junctions require an effective vapour barrier sealant. A primary vapour seal, for example butyl rubber sealant, should be applied to the female joint, with a secondary vapour seal applied to the visible joint gap. Both should be applied on the warm side of the panel.

This approach allows any moisture trapped during the construction phase to be drawn out by the refrigeration system.

Vapour sealing of temperature-controlled buildings must be carried out to a high standard and should be checked and regularly inspected during and after installation.

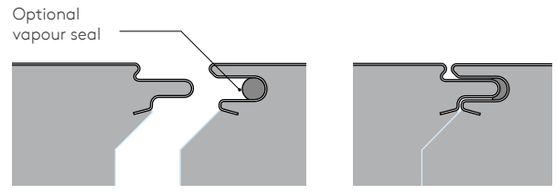
Effective vapour barriers are essential due to differences in air moisture content and pressure between the internal and external environments. As pressure within the coldstore is generally lower than that of the surrounding environment, water vapour in the surrounding atmosphere will continuously seek to penetrate into the panel joints.

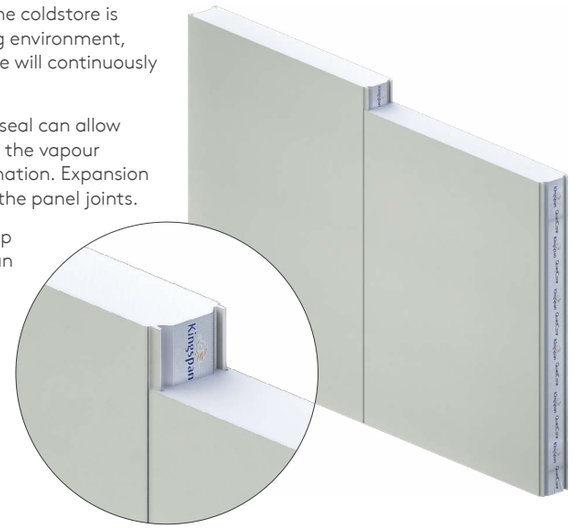
An incorrectly applied or ineffective vapour seal can allow water vapour to penetrate discontinuities in the vapour barrier, resulting in condensation or ice formation. Expansion caused by freezing may lead to damage of the panel joints.

In food processing applications, the joint gap on the process side should be sealed using an appropriate sealant, with specification determined by the hygiene requirements of the space.

Panel Joint

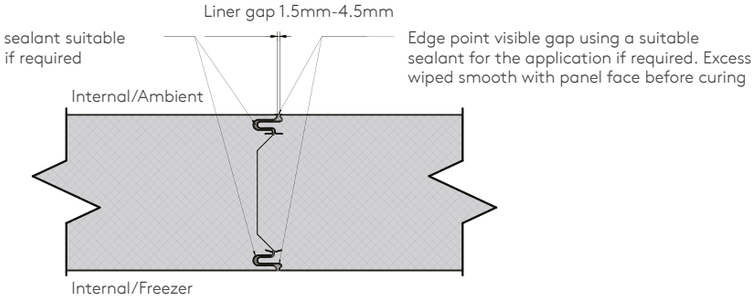
QuadCore® Coldstore Panels feature a unique castellated and symmetrical tongue and groove joint which achieves excellent thermal and structural performance. A full foam-to-foam contact within the panel joint must be achieved during installation.





CONSTRUCTION DETAILS

PANEL JOINT SEALANT

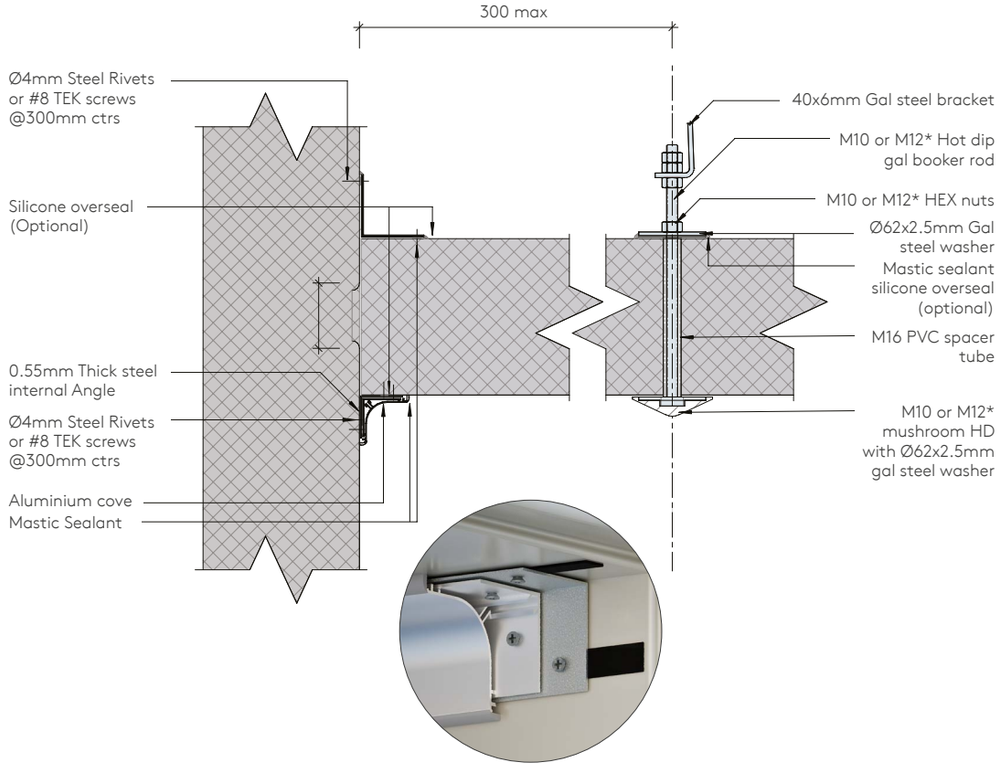


Notes: Engineering assement is required to ensure structural adequacy of a particular installation



CONSTRUCTION DETAILS

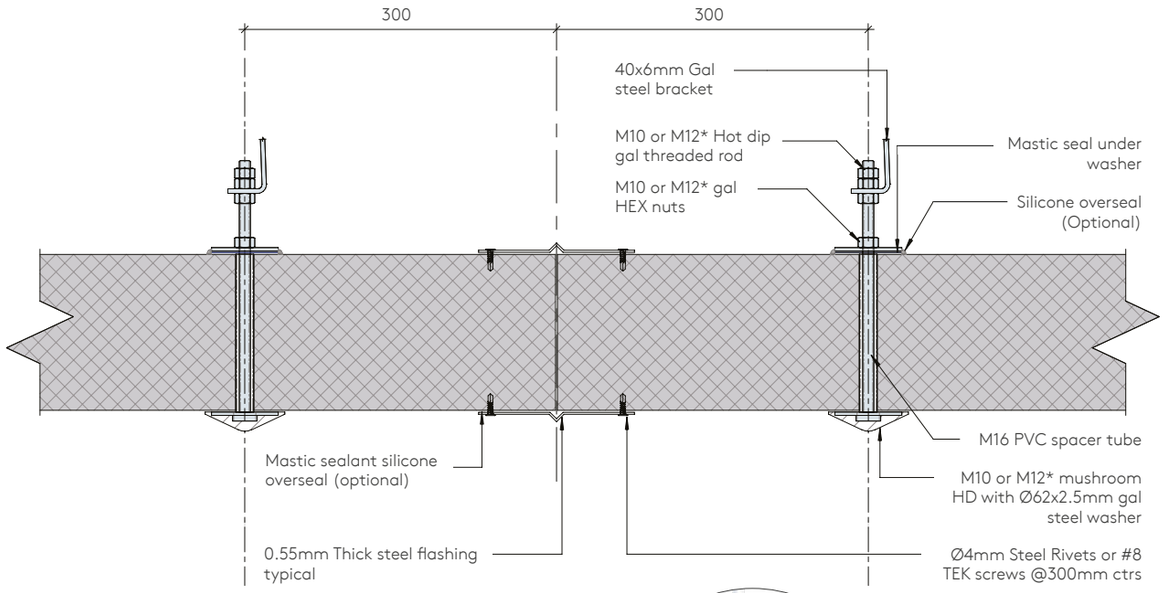
CEILING SUSPENSION



*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

END CEILING SUSPENSION - OPTION 1

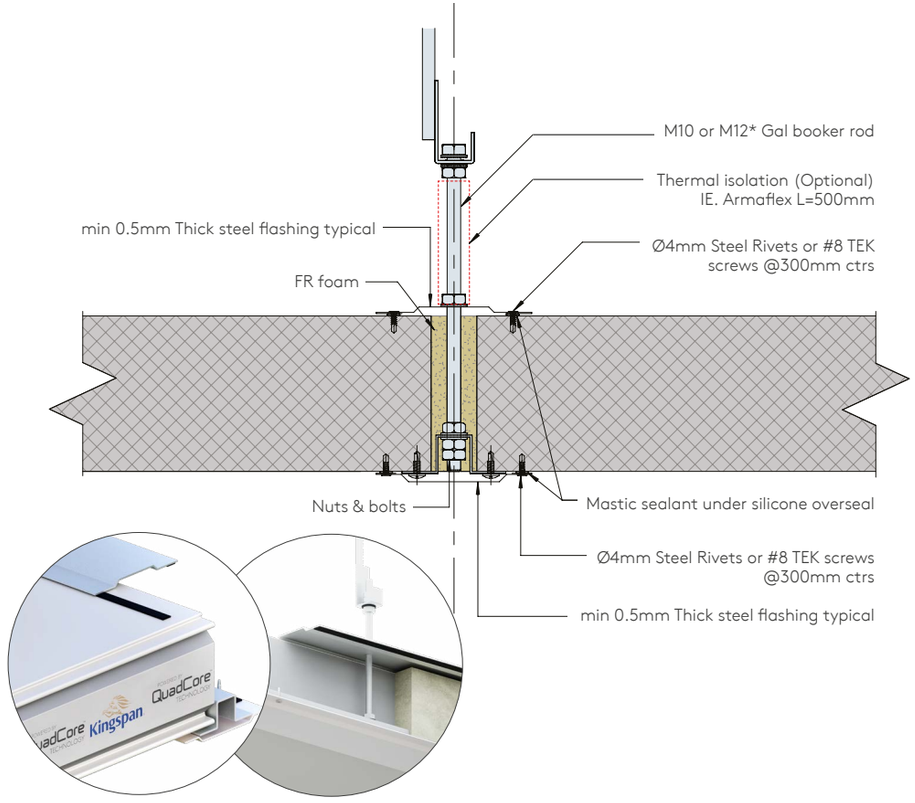




*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

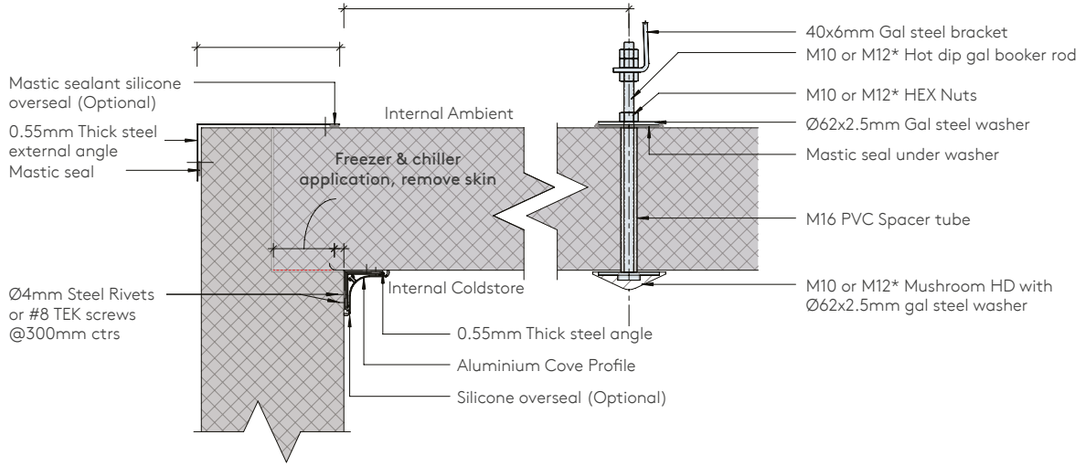
END CEILING SUSPENSION - OPTION 2



*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

WALL TO CEILING JOINT

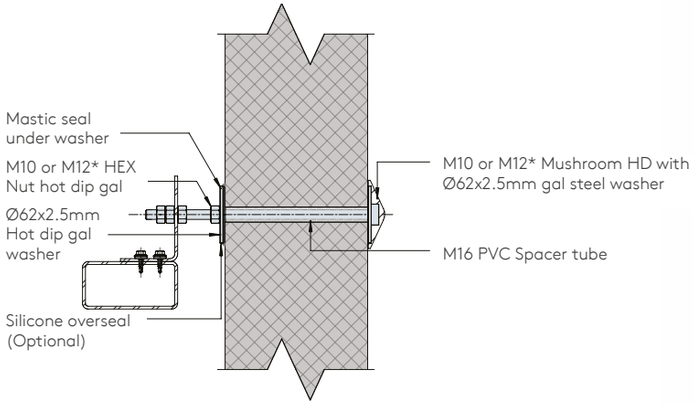




*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

SUPPORT DETAIL FOR EXTERNAL WALLS





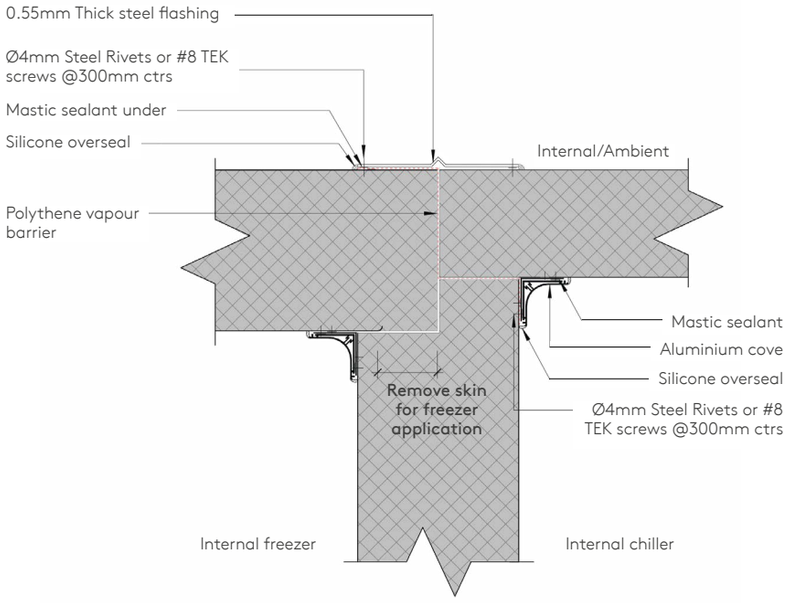




*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

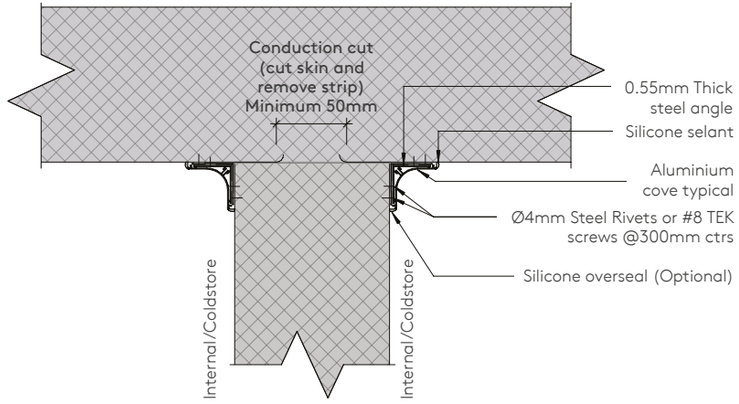
DUAL TEMPERATURE CEILING DETAIL - PARTITION WALL



*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

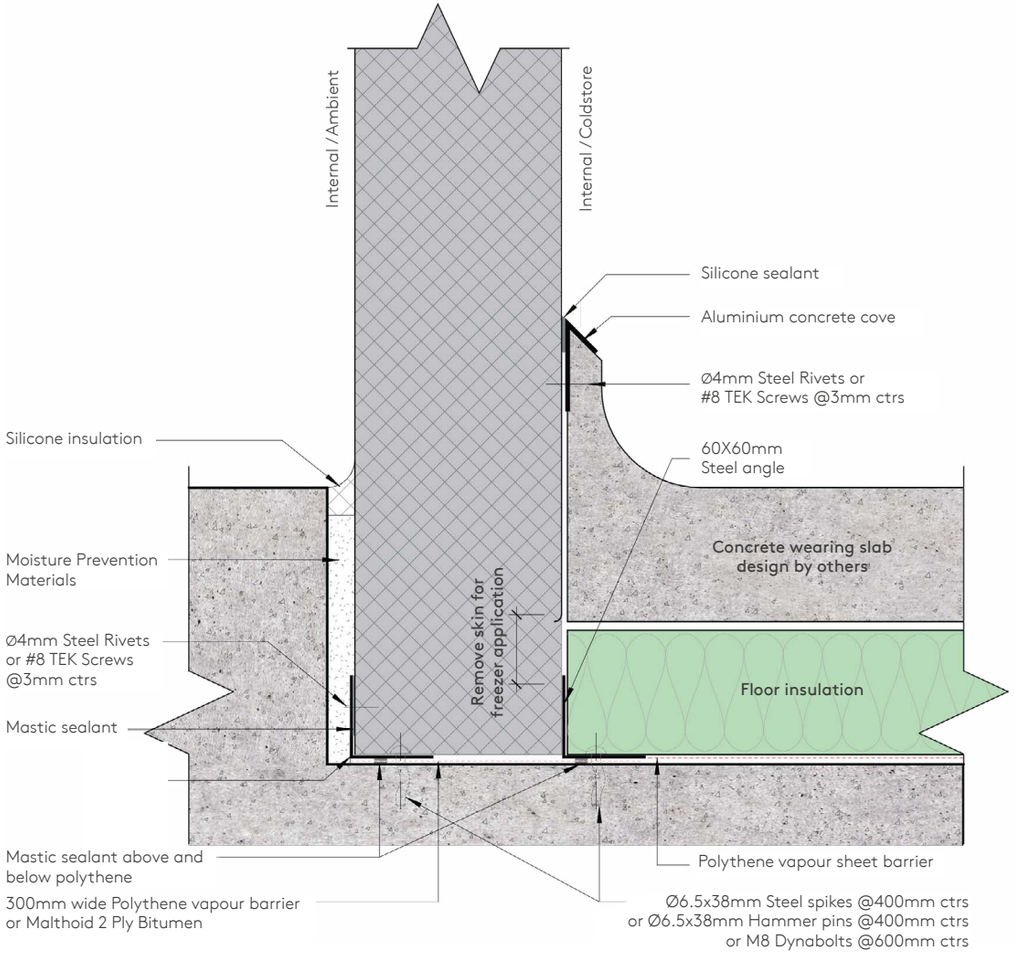
PARTITION TO WALL/CEILING JOINT



*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

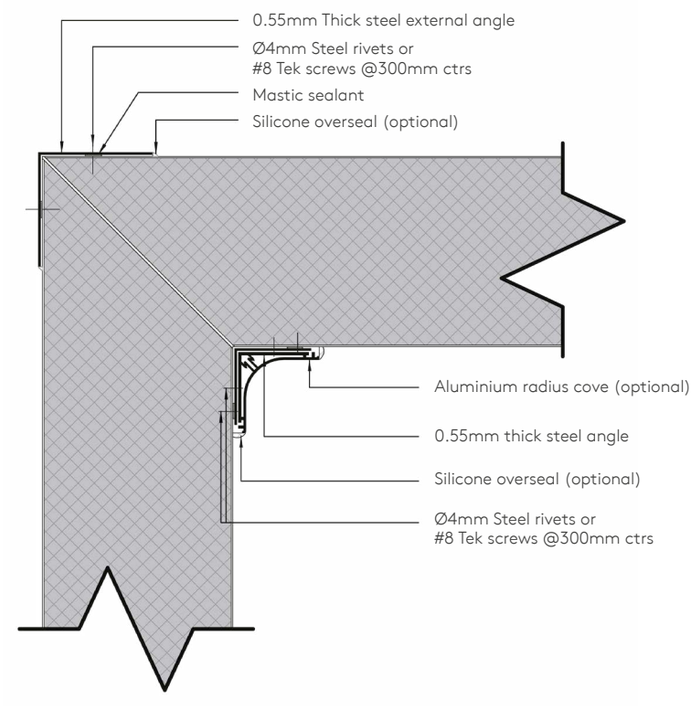
CONSTRUCTION DETAILS

WALL TO INSULATED FLOOR JOINT



CONSTRUCTION DETAILS

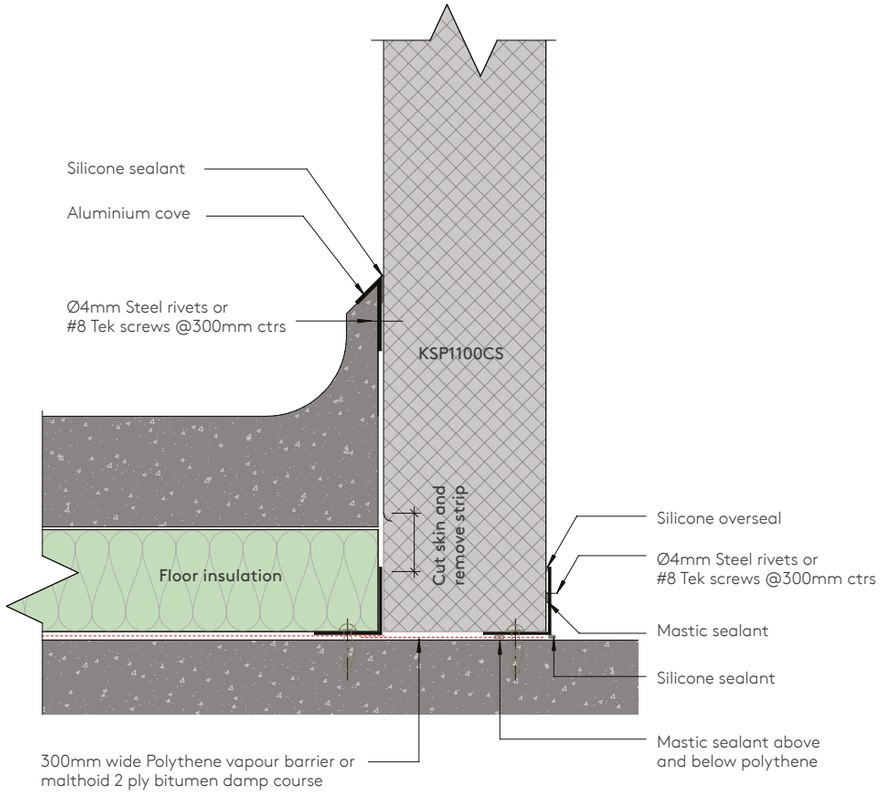
WALL CORNER DETAIL



*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

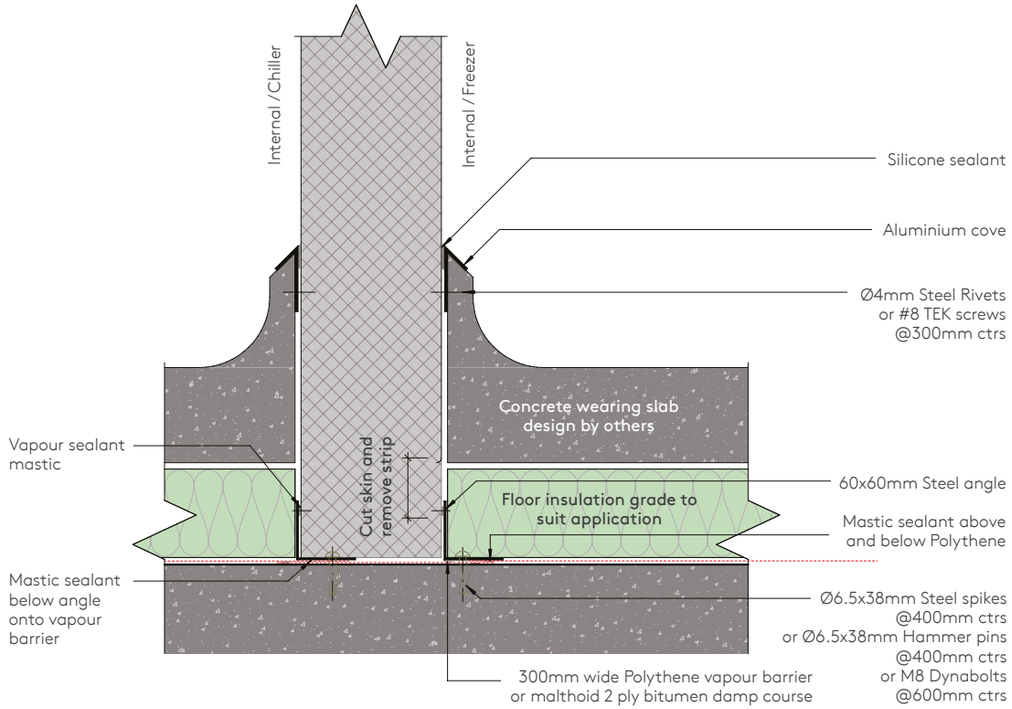
WALL TO INSULATED FLOOR JOINT



*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

CONSTRUCTION DETAILS

PARTITION WALL TO FLOOR JOINT - INSULATED FLOOR



*Not by Kingspan as per suspension kit supplied requirements
Ceiling support system to be appropriate for supporting all design loads

08

BENEFITS & TECHNICAL SERVICES

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BENEFITS & TECHNICAL SERVICES

Why Kingspan Coldstore?

This section summarises the key technical and practical advantages of Kingspan Coldstore solutions as outlined throughout this Design Guide. It brings together the core performance characteristics, design considerations, and technical support elements that enable architects, designers and contractors to specify and deliver reliable temperature controlled environments. Kingspan Coldstore systems combine high-performance insulated panel technology with proven reliability in temperature-controlled applications.

The main benefits, reflected across Sections 1–7 of this guide, include:



Thermal Performance

QuadCore® insulation delivers a thermal conductivity of 0.018 W/m·K, supporting low U-values and reduced heat gain in chilled and frozen environments.

Suitable for operating temperatures from –70°C to +60°C, covering deep freeze, chilled, food processing and ambient hygienic applications.



Fire Performance & Insurer Confidence

QuadCore® KSP 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: 2018, when using the internal liner of CLEAN*safe*® 25.



Application Versatility

Panels can be installed horizontally or vertically for both internal and external use.

Suitable for coldstores, chill stores, food processing areas, cleanrooms and ambient hygiene controlled spaces.



Airtightness & Moisture Control

Precision engineered tongue and groove joints provide full foam to foam contact, helping reduce thermal bridging and air leakage.



Hygiene Appropriate Liners

CLEAN*safe*® coatings support varying hygiene and wash down requirements, from chilled storage through to high intensity food processing areas.



Established Industry Presence

Kingspan insulated panels are widely used across food logistics, processing facilities, pharmaceutical environments and controlled atmosphere buildings.

BENEFITS & TECHNICAL SERVICES

Customer Challenges Addressed

Throughout Sections 2–7, the guide highlights key challenges in coldstore building envelopes. Kingspan systems and design principles help address these by supporting:

Condensation & Ice Prevention

- Airtight joints and correct vapour seal detailing reduce moisture ingress and subsequent ice formation.

Thermal Continuity

- Continuous insulation and correct junction detailing help limit thermal bridges and localised cold spots.

Operational Energy Reduction

- High thermal performance supports lower long term energy consumption compared with traditional PUR/PIR systems.

Hygiene Control

- Range of coatings allows alignment with hygiene requirements across processing, storage and preparation zones.

These factors support more stable internal conditions, improved reliability and reduced maintenance issues across the lifespan of the facility.

Kingspan Technical Services

Kingspan provides a suite of technical support services that assist project teams from concept stage through installation. These services ensure that coldstore designs follow best practice and align with the performance characteristics described in Sections 3–8.

Specification & Design Support

- Guidance on panel selection, joint design, vapour barriers and junction detailing.

Digital Design Tools

- BIM/Revit content to support coordination of wall, ceiling and roof interfaces.
- Access to standard construction details for coldstore assemblies.

Technical Calculations

- FastTrack calculations, including:
  - U-values
  - Condensation risk analysis
  - Wind & snow loading
  - Fastener design & spacing

  These help validate compliance with thermal, structural and moisture control requirements.

Construction Support & Guidance

- Review of key installation details such as panel joints, vapour seals, suspended ceilings and floor interfaces.
- Access to technical bulletins and updated installation advice.

BENEFITS & TECHNICAL SERVICES

Summary: Working with Kingspan

Choosing Kingspan Coldstore systems provides a combination of:

- Proven product performance (thermal, fire, airtightness, hygiene)
- Design versatility for a wide range of temperature controlled applications
- Clear, validated technical data to support design decisions
- Practical support that reduces design stage uncertainty and on site installation risks
- Consistent long term performance to help maintain operational efficiency

This combination enables architects, designers and contractors to deliver coldstore facilities that perform reliably, meet regulatory expectations and support efficient, long term operation.



09

CASE STUDIES PROJECTS

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- COFIDEC Cold Storage 42
- Chocolate Dobla 43
- Nestlé Bong Sen Factory 43



CASE STUDIES

JONES FOOD COMPANY, JFC2 VERTICAL FARM

QuadCore® Coldstore Panels for sealed, temperature controlled food production

The Challenge:

Vertical farming relies on precise control of temperature, humidity and air quality to maximise crop yields. For the JFC2 facility, this needed to be achieved within a re purposed industrial building, creating multiple sealed, hygienic chambers while limiting additional structural load.

The Solution:

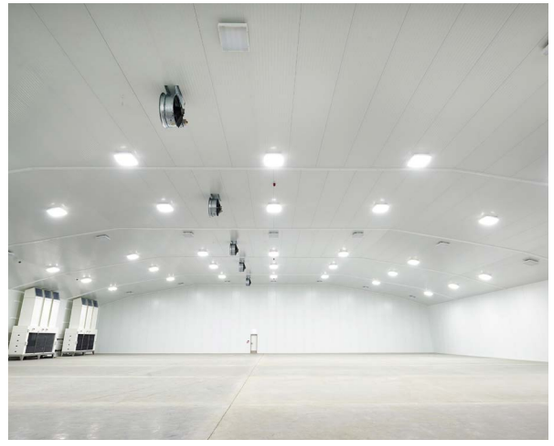
QuadCore® Coldstore Panels were used to form the internal envelope of the growing environments, providing a lightweight, high performance system capable of maintaining tightly controlled internal conditions.

Why QuadCore®:

- High thermal performance supporting stable growing conditions
- Lightweight panel system, enabling long ceiling spans with minimal dead load
- Airtight joints helping to limit moisture ingress and condensation risk
- Hygienic internal finish, suited to food production environments

Outcome:

The QuadCore® system enabled the creation of sealed, temperature controlled growing chambers within the existing structure, supporting efficient installation, long term operational reliability and the performance demands of advanced vertical farming.





LOCATION:	Gloucestershire, UK
APPLICATION:	Vertical farming / food production
SYSTEM:	QuadCore® Coldstore Panels (internal walls and ceilings)



CASE STUDIES

MANFREIGHT DISTRIBUTION CENTRE, BELFAST HARBOUR

QuadCore® Coldstore LEC Panels for sustainable temperature controlled logistics

The Challenge:

Manfreight required a purpose built chilled distribution facility capable of maintaining reliable, consistent internal temperatures for a wide range of temperature sensitive goods. As a large scale logistics operation, the coldstore environment needed to support operational efficiency while contributing to the project's overall sustainability objectives.

The Solution:

QuadCore® Coldstore LEC panels were specified to form the internal coldstore envelope, supporting temperature control, hygiene and long term energy performance. Installed by Powertech Refrigeration, the system provides the insulated walls and ceilings required for the facility's chilled storage areas.

Why QuadCore®:

- High performance insulation core, supporting stable chilled conditions
- Innovative jointing system, contributing to airtight coldstore construction
- Reduced embodied carbon, with QuadCore® LEC delivering around 21% lower embodied carbon than standard QuadCore® panels
- CLEAN*safe*® internal coating, providing a smooth, easy to clean surface suitable for food grade environments

Outcome:

The QuadCore® Coldstore LEC panel system forms a key component of the chilled environments within the 50,000 ft² Manfreight Distribution Centre, supporting consistent temperature control, hygiene requirements and the project's achievement of BREEAM 'Excellent' status.





LOCATION:	Belfast Harbour, Northern Ireland
APPLICATION:	Chilled distribution and storage
SYSTEM:	QuadCore® Coldstore LEC Panels



PROJECTS



PROJECT: Phan Duy Cold Storage
SECTOR: Cold storage
LOCATION: Long An province, Vietnam









PROJECT: Project D
SECTOR: Clean room
LOCATION: Singapore

PROJECTS



PROJECT: HP Seafood Cold Storage
SECTOR: Cold storage
LOCATION: Long An province, Vietnam







PROJECT: COFIDEC Cold Storage
SECTOR: Cold Storage
LOCATION: Ho Chi Minh City, Vietnam

PROJECTS









PROJECT:	Chocolate Dobla Factory
SECTOR:	Food production
LOCATION:	Ba Ria - Vung Tau province, Vietnam





PROJECT:	Nestlé Bong Sen Factory
SECTOR:	Production
LOCATION:	Hung Yen province, Vietnam

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