Insulated Panel Systems
North America

Protected by Kingspan WARRANTY

Data Center Solutions
Insulated Wall and Roof Panel Systems Guide

POWERED BY QuadCore® TECHNOLOGY

Kingspan®

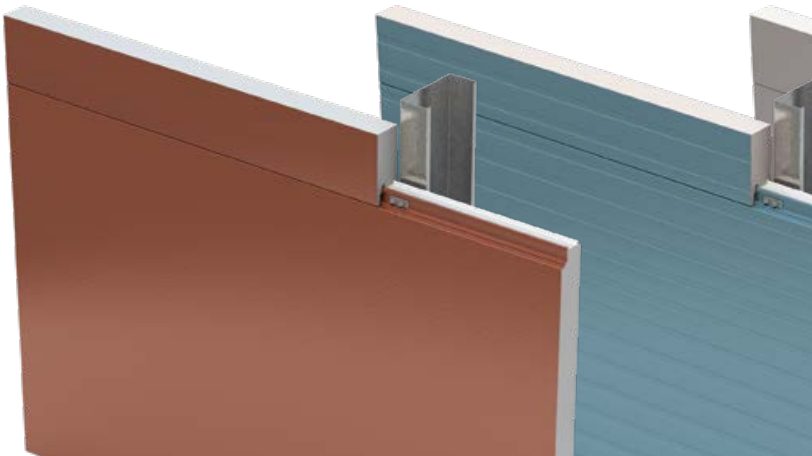
Speed is King...

when it comes to data centers

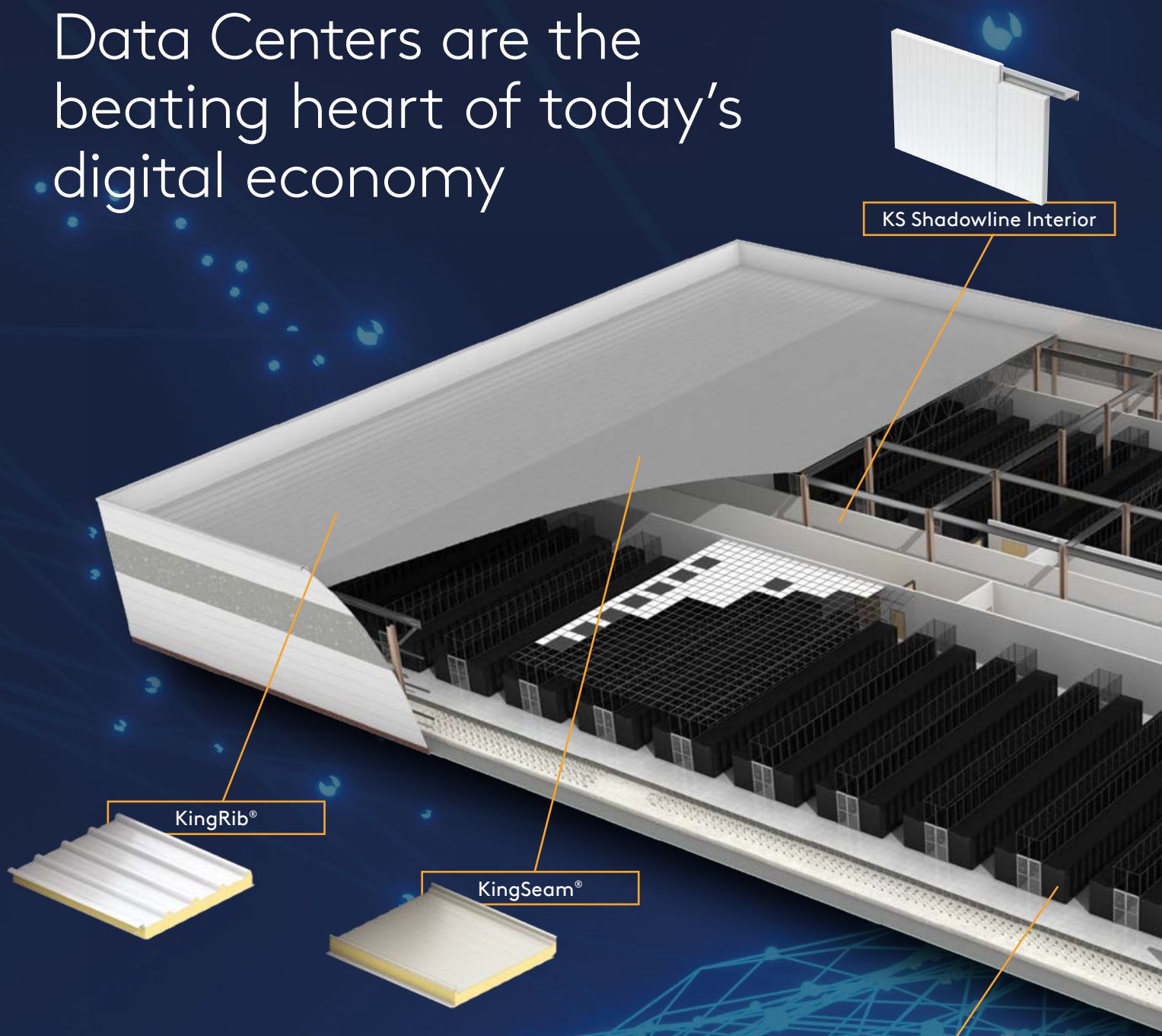
Consumers and businesses rely on the capability of data centers to provide information nearly instantaneously. Similarly, data center buildings need to be constructed rapidly to keep up with the relentless pace of modern computing.

Kingspan's insulated metal panels (IMPs) can be installed in as little as half the time as traditional multi-part wall systems. Because of their all-in-one performance attributes combining air, water, vapor and thermal barriers, Kingspan panels not only reduce the construction timeline, but minimize labor costs and reduce the opportunities for onsite installation errors. Faster construction times mean facilities can become operational sooner, leading to quicker revenue generation and a faster return on investment.

High-performance buildings require materials that can deliver exceptional air tightness, stable temperature management, and strong fire resistance. This is particularly important in environments such as data centers where precise climate control is essential. Kingspan IMPs with QuadCore® Technology deliver highly efficient R-values and superb fire protection. Additionally, Kingspan panels are rigorously tested to ensure that they remain both airtight and weathertight over the life of a building. By maintaining optimal conditions, these panels help protect sensitive equipment from damage due to temperature fluctuations and humidity.



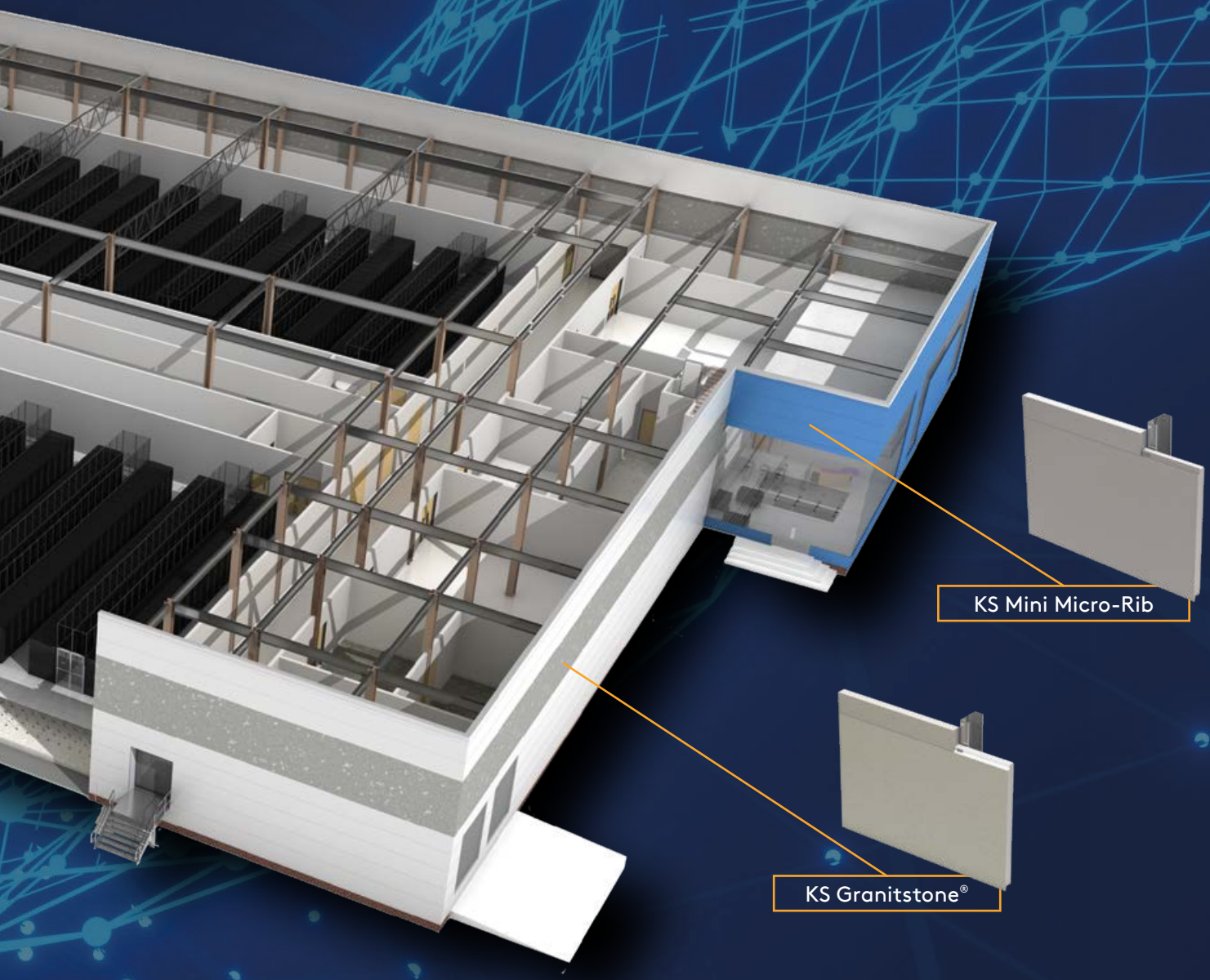
Data Centers are the beating heart of today's digital economy



The rise of cloud computing and AI, along with the ever-growing need for more data storage, is driving the demand for new and more sophisticated data centers. Because so much of what constitutes the modern world is reliant on the rapid processing and accessibility of data, these centers are now considered critical infrastructure.

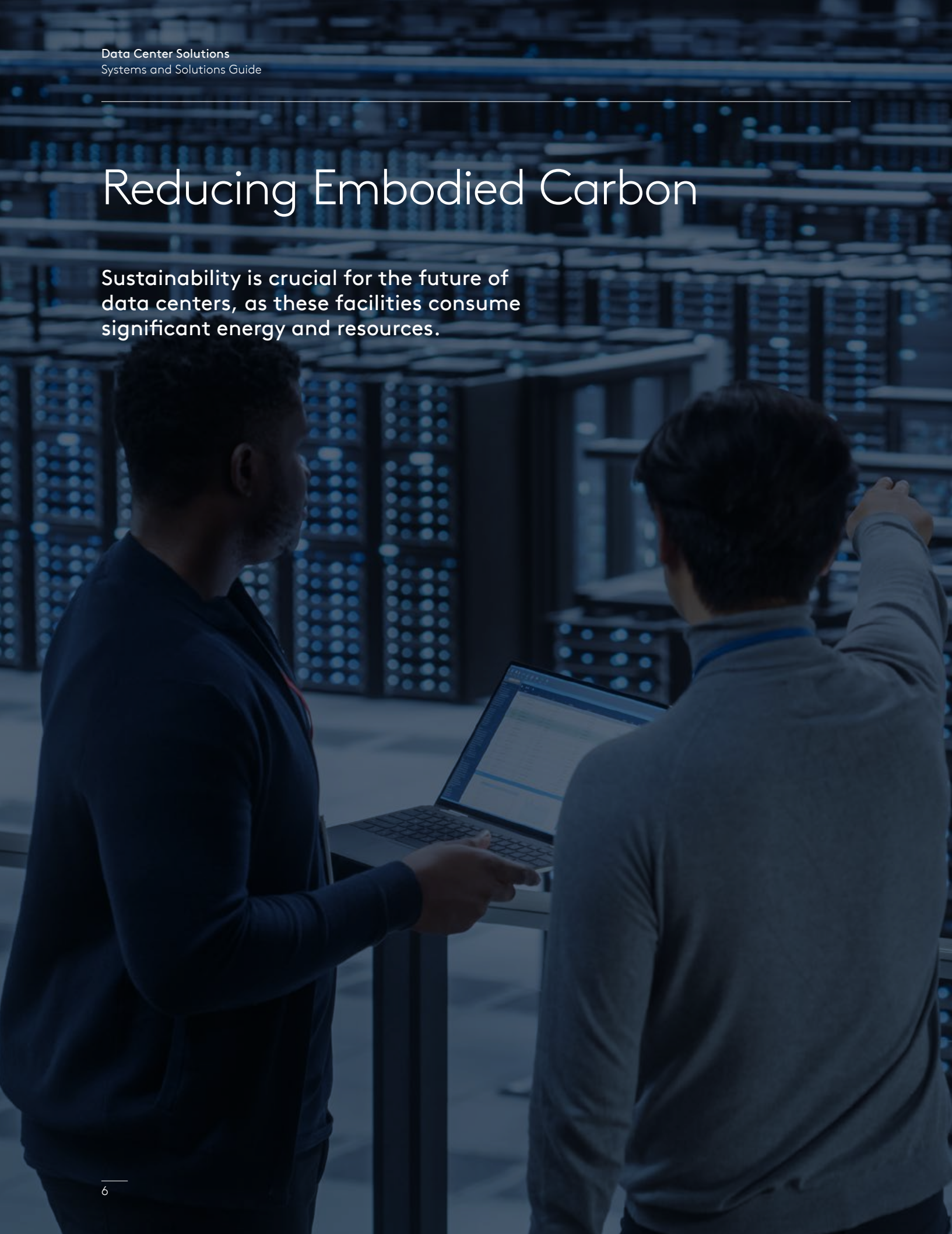
New data center builds are essential to the growth of the industry, but they face myriad challenges. Because these buildings have such incredible energy requirements, sustainability has become of paramount importance to their design, construction, and operation.

Today's data centers must prioritize minimizing environmental impacts while delivering reliable and efficient solutions to the data problems of tomorrow.



Reducing Embodied Carbon

Sustainability is crucial for the future of data centers, as these facilities consume significant energy and resources.

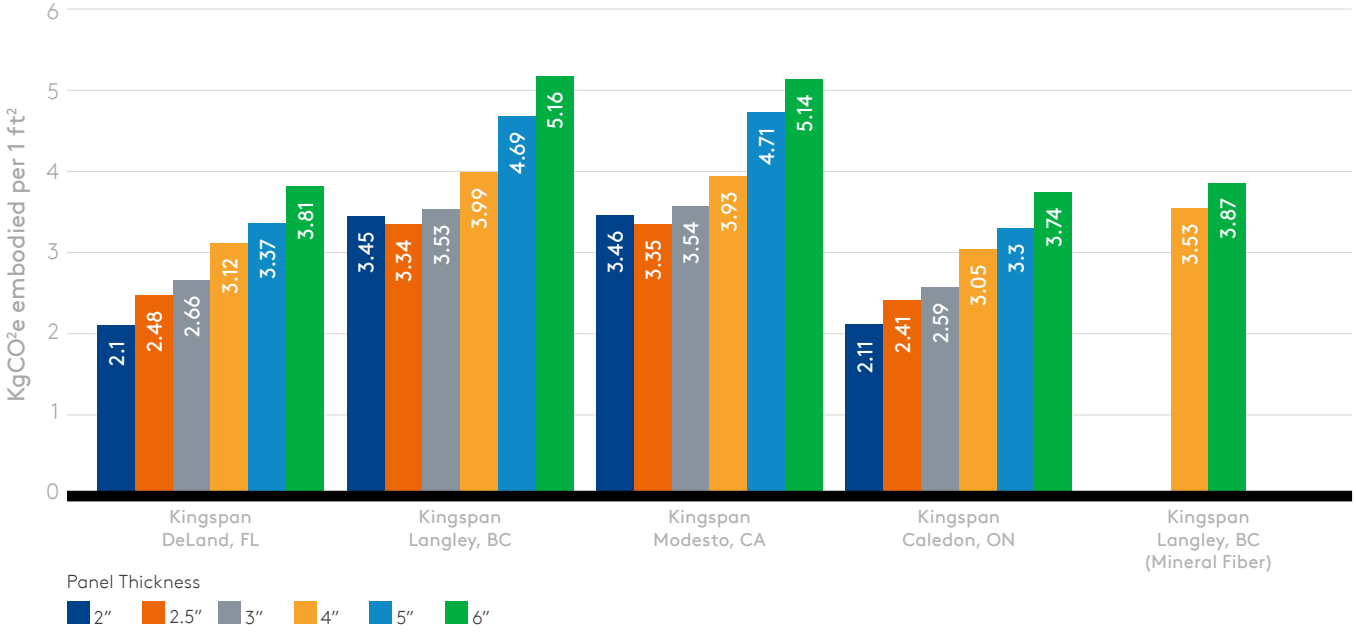


While minimizing operational carbon is key, so is minimizing embodied carbon of the structure itself. Kingspan's IMPs are designed to address this need by offering the lowest embodied carbon compared to other IMPs on the market. Compared to conventional concrete wall assemblies, Kingspan's QuadCore® powered IMPs have been demonstrated to have 28% lower embodied carbon in a Whole Building Life Cycle Assessment (WBLCA) study. As the industry continues to grow, integrating low-carbon solutions like Kingspan's IMPs will be vital for creating a digital infrastructure with a lighter carbon footprint.

Read our white paper : "Reducing the Embodied Carbon of Walls in Industrial Buildings" to learn more by scanning the QR code below.

Embodied Carbon

$KgCO_2$ / ft^2 Thickness



Making Strides Towards Our Sustainability Targets

At Kingspan, our mission is to accelerate a net-zero emissions future-built environment with people and planet at its heart. Planet Passionate is our ambitious Group-wide environmental sustainability program that sets several aggressive targets across four focus areas: **carbon**, **energy**, **circularity** and **water**.

Planet Passionate touches every aspect of Kingspan's business, from our material suppliers and employees to our customers and the communities in which we work. We're committed to working together to address the material impacts we have on our environment and community by setting robust, specific targets like those outlined below and pursuing an accelerated pace for progress.

Our 2030 Targets

CARBON

Reduce Our Carbon Footprint

- 65% reduction in scope 1 & 2 GHG emissions[1,2] from 2020
- 15% reduction in carbon intensity of key raw materials from 2020
- ≥90% zero emissions company cars[3] (annual replacement %)

ENERGY

Increase the Use of Renewable Energy

- 60% renewable energy consumption
- ISO 50001 certification for large sites[4]
- Solar PV systems on all wholly owned sites

[1] Excluding biogenic emissions. Scope 2 GHG emissions calculated using market-based methodology.
[2] GHG emissions were recalculated due to acquisitions that occurred in 2021 through to 30th September 2025.
[3] Kingspan defines a "zero emissions car" as a vehicle with zero tailpipe emissions. The boundary does not include the energy used to power the vehicle or the embodied emissions from manufacturing.
[4] Large sites: Sites with ≥5GWh annual energy use during the prior year 2024.
[5] 90% reduction of waste to landfill in Kingspan manufacturing, R&D and assembly facilities from 2020 base year.

Learn More at
Kingspan's Sustainability
Resource Center

planetpassionate.kingspan.com

CIRCULARITY

Increase Recycling and
Lower Waste

- Zero waste to landfill[5]
- 1.5 million tons recycled and renewable raw materials used annually
- Facilitate 20 product takeback and recycling schemes

WATER

Harvest Rainwater and
Support Ocean Clean-up

- Harvest 100 million liters of rainwater annually

Higher Building Performance with Kingspan

It's all in the gray cells

QuadCore® Technology is Kingspan's next generation of self-blended hybrid insulation core. Across the world of insulated panels, this innovation with its distinctive gray microcells powers the industry's highest combined performance:

- Exceptional thermal efficiency
- Superior fire protection
- Unmatched health & wellness certification
- 30-year thermal warranty

QuadCore® Technology, together with our end-to-end services and whole building design know-how, takes Kingspan buildings to a higher level of lifetime performance, and delivers the ultimate protection for our partners, their buildings, and the environment for future generations.

POWERED BY
QuadCore®
TECHNOLOGY

1

Exceptional thermal efficiency

QuadCore® Technology is certified as one of the most thermally efficient closed-cell insulation cores on the market.

Lifetime performance and value benefits

- The highly efficient R-value of R-8.0 per inch has the potential to reduce HVAC size, and lower both energy consumption and carbon emissions.
- QuadCore® Technology is a more streamlined solution relative to other insulation materials with associated benefits in interior space optimization, for specific transport, and ease of handling during construction.

2

Superior fire protection

The hybrid nature of QuadCore® Technology delivers a range of improvements in fire performance which surpass all other insulated panel systems incorporating closed-cell insulation materials.

Lifetime performance and value benefits

- For any building owner that wants the best protection against the impact of fire, the unique low smoke characteristics of QuadCore® Technology provide the optimum solution.
- QuadCore® Technology also delivers improved fire resistance ratings leading to more cost-effective installations due to economies in steelwork and fixing, in certain applications.

3

Unmatched health & wellness certification

The improved thermal performance of QuadCore® Technology helps to optimize resource efficiency. It is also CFC, HCFC, HFC free and has a very low Global Warming potential.

Lifetime performance and value benefits

- GREENGUARD Gold certified
- Environmental Product Declaration (EPD)

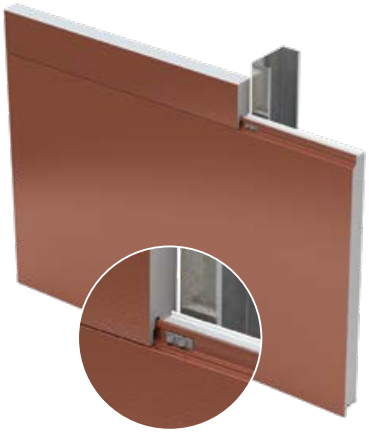
4

30-year thermal warranty

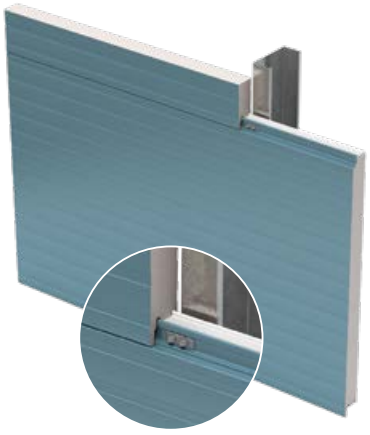
The inimitable science behind QuadCore® Technology and comprehensive independent third-party testing has delivered the industry an unparalleled 30-year thermal performance warranty.

Products at a Glance

Wall – Vertical and Horizontal Application

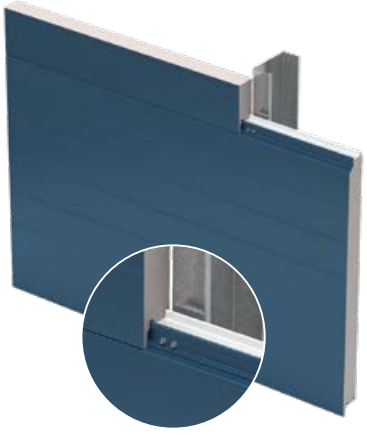


KS Azteco™

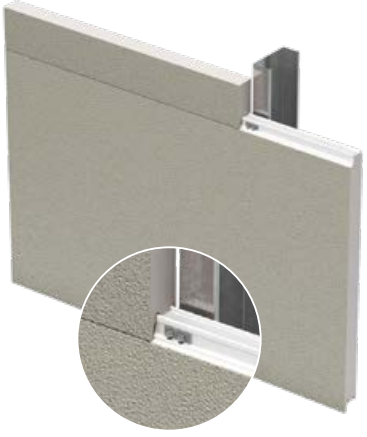


KS Shadowline

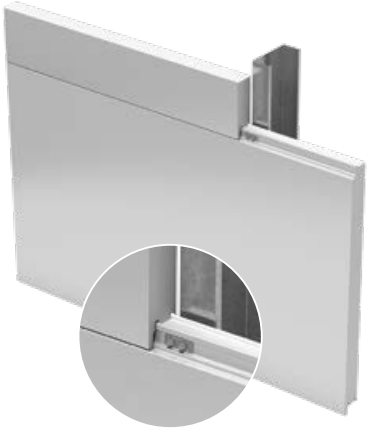
KS Shadowline Interior



KS Vektra®



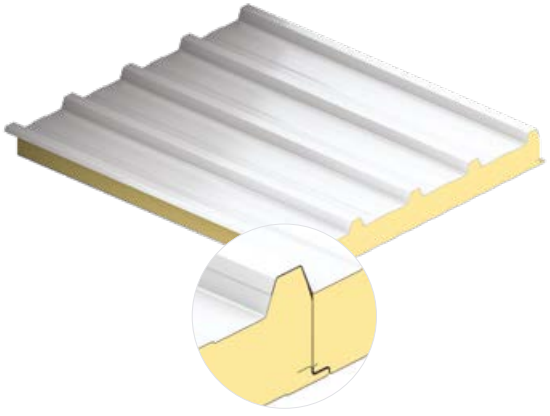
KS Granitstone®



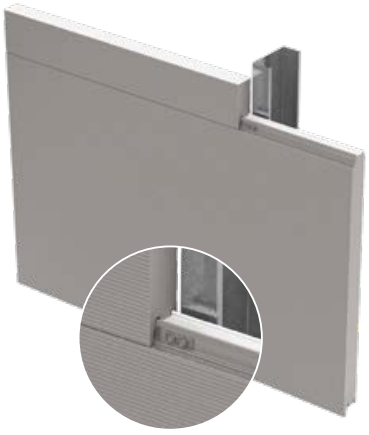
Optimo®

Roof

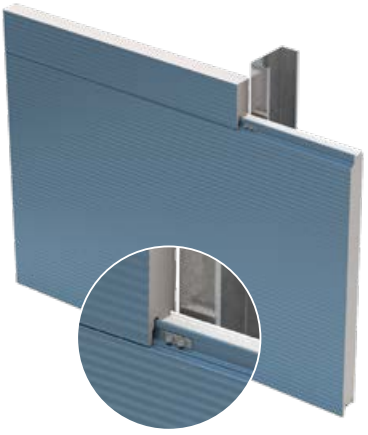
KingSeam®



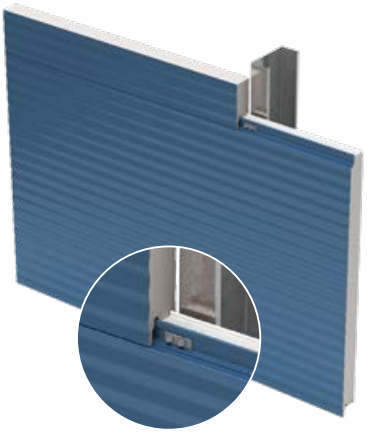
KingRib®



KS Mini Micro-Rib



KS Micro-Rib



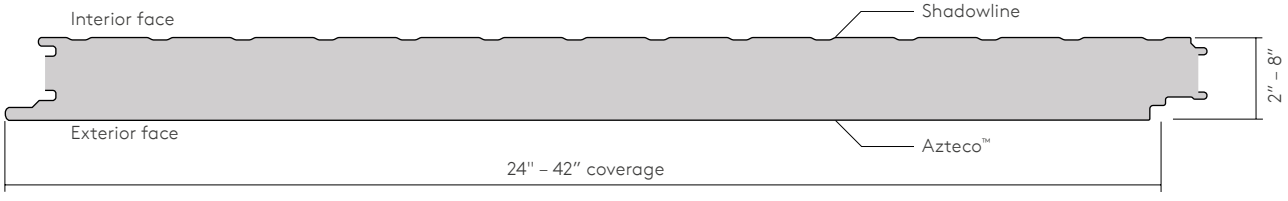
KS Mini-Wave

K-Roc® FX

KS Azteco™

KS Azteco™ insulated metal panels are a pre-engineered wall system that delivers an attractive and affordable panel choice. KS Azteco™ panels, horizontally or vertically applied, use a patented double seal integrated joint. Standard reveals are ⅛″ for vertical applications, and ⅜″ for horizontal applications.

Insulation Core:	QuadCore® Technology
Profile:	Exterior: Flat / Interior: Shadowline
Embossing:	Exterior: Azteco™ / Interior: Stucco or non-embossed
Gauge:	Exterior: 26, 24, 22 / Interior: 26, 24, 22 ga
Width:	24″, 30″, 36″, 42″
Thickness:	2″, 2.5″, 3″, 4″, 5″, 6″, 8″
Length:	8′ – 53′
Reveal options:	⅛″ or ⅜″
Orientation:	Vertical or horizontal
Post fabrication (optional):	Trimless ends (Manufacturing limitations apply. Please contact us for detailed information.)
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature



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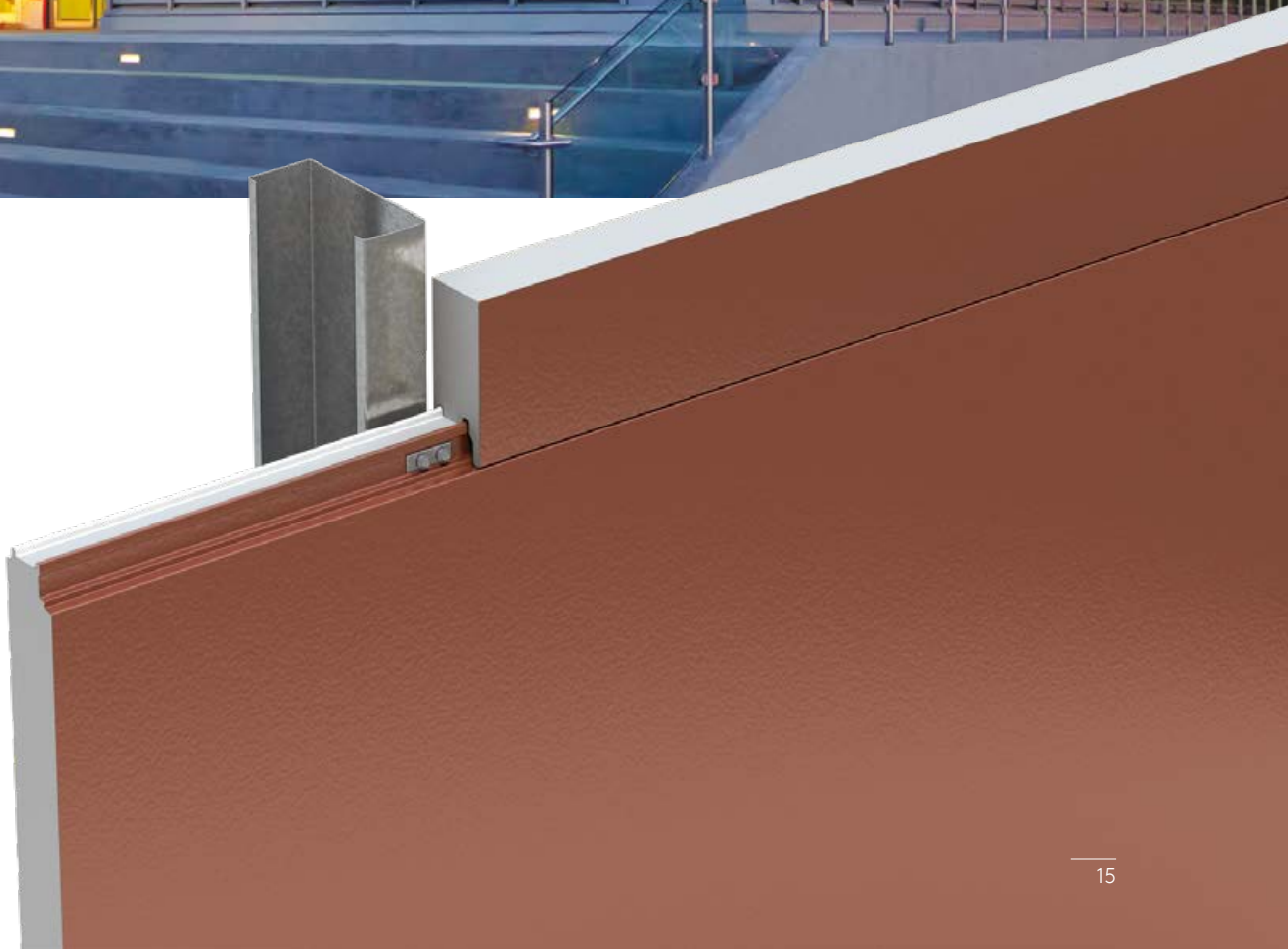
SPORTS in VEGAS

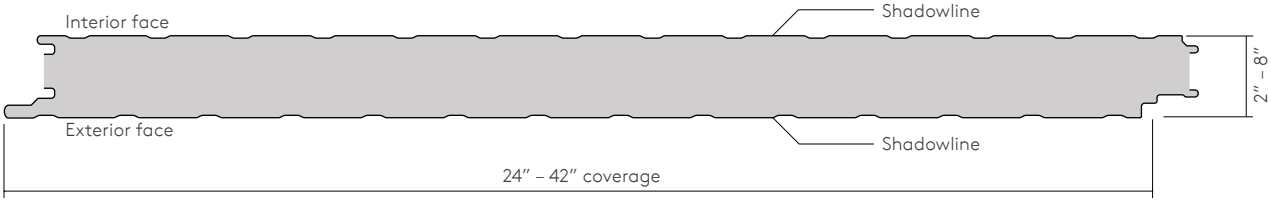


KS Shadowline

KS Shadowline wall systems provide an aesthetically pleasing and economic panel choice. KS Shadowline panels, applied vertically, provide a clean, flat appearance that gives your building the modern finish desired.

KS Shadowline panels are ideal for new and retrofit applications across commercial and industrial market sectors.

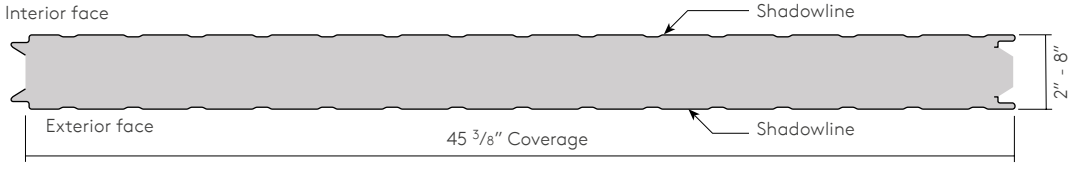
Insulation Core:	QuadCore® Technology
Profile:	Exterior: Shadowline / Interior: Shadowline
Embossing:	Exterior: Stucco or non-embossed / Interior: Stucco or non-embossed
Gauge:	Exterior: 26, 24, 22 ga / Interior: 26, 24, 22 ga
Width:	24″, 30″, 36″, 42″
Thickness:	2″, 2.5″, 3″, 4″, 5″, 6″, 8″
Length:	8′ – 53′
Reveal options:	1/8″ or 3/8″
Orientation:	Vertical or horizontal
Post fabrication (optional):	Trimless ends (Manufacturing limitations apply. Please contact us for detailed information.)
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature



KS Shadowline Interior

KS Shadowline Interior panels are applicable for both wall and ceiling conditions in cold storage buildings, food and meat processing plants, critical temperature and controlled environment areas as well as in medical and pharmaceutical facilities. The superior engineered joint assures a tight, well designed vapor barrier in enclosures of any size.

Insulation Core:	QuadCore® Technology
Profile:	Exterior: Shadowline / Interior: Shadowline
Embossing:	Exterior: Stucco or non-embossed Interior: Stucco or non-embossed
Gauge:	Exterior: 26, 24, 22 ga / Interior: 26, 24, 22 ga
Width:	45 3/8″
Thickness:	2″, 2 3/4″, 3″, 4″, 5″, 6″, 8″
Length:	8′ - 53′
Orientation:	Vertical
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature



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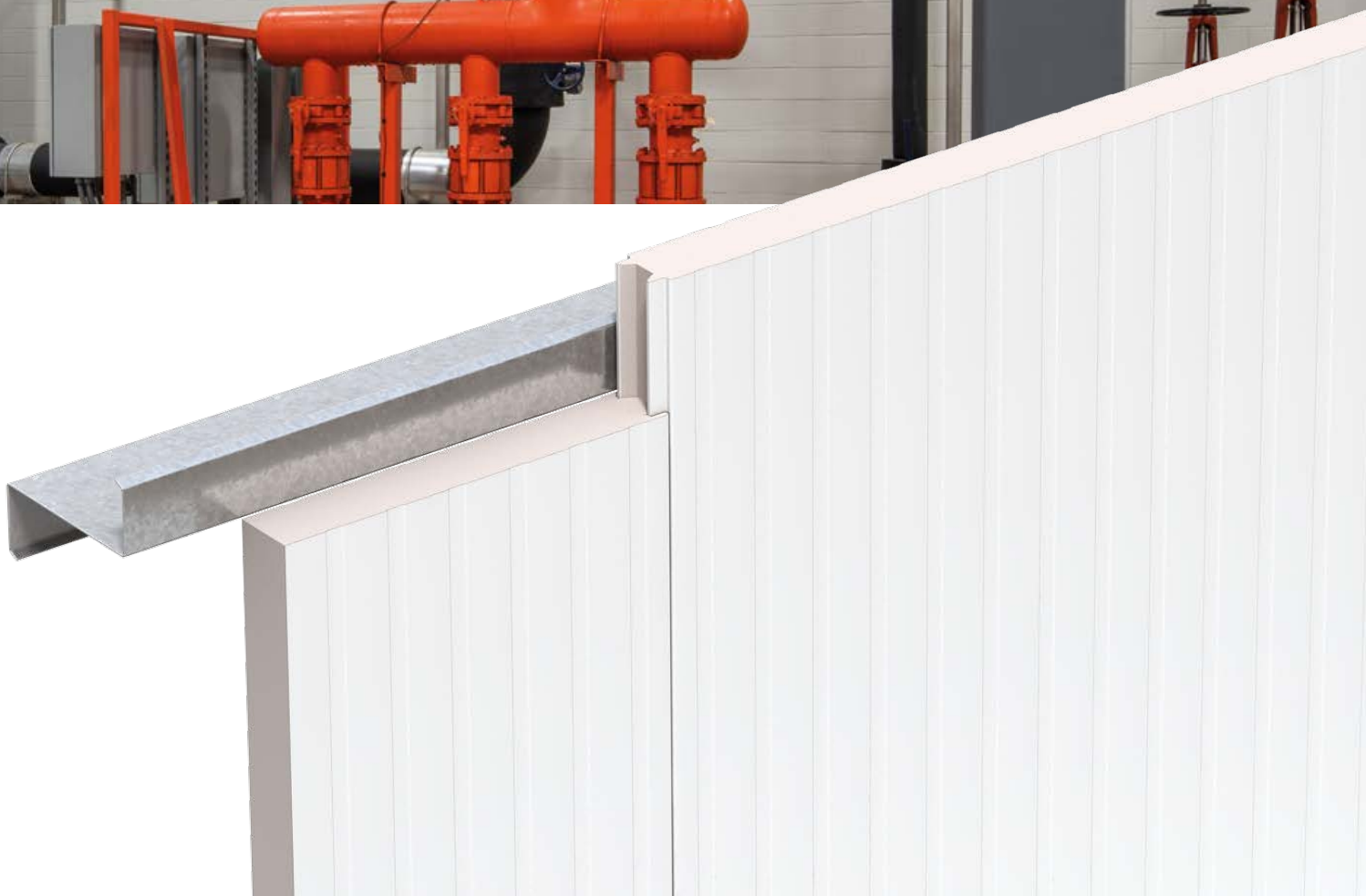
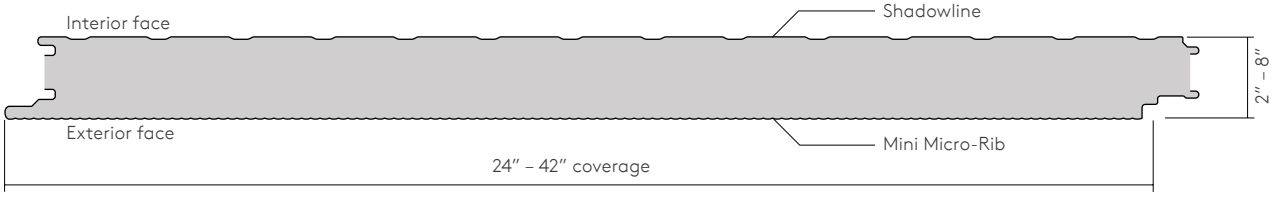


KS Mini Micro-Rib

Mini Micro-Rib allows for an attractive building exterior providing the appearance of fine lines. Mini Micro-Rib panels, applied vertically, are ideal for new and retrofit applications across a wide range of sectors.

KS Mini Micro-Rib panels provide an outstanding combination of performance benefits with design flexibility.

Insulation Core:	QuadCore® Technology
Profile:	Exterior: Mini Micro-Rib / Interior: Shadowline
Embossing:	Exterior: Non-embossed / Interior: Stucco or non-embossed
Gauge:	Exterior: 24 ga / Interior: 26, 24, 22 ga
Width:	24″, 30″, 36″, 42″
Thickness:	2″, 2.5 ″, 3″, 4″, 5″, 6″, 8″
Length:	8′ – 53′
Reveal options:	1/8″ or 3/8″
Orientation:	Vertical or horizontal
Post fabrication (optional):	Trimless ends, folded corners, transverse bends. (Manufacturing limitations apply. Please contact us for detailed information.)
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature

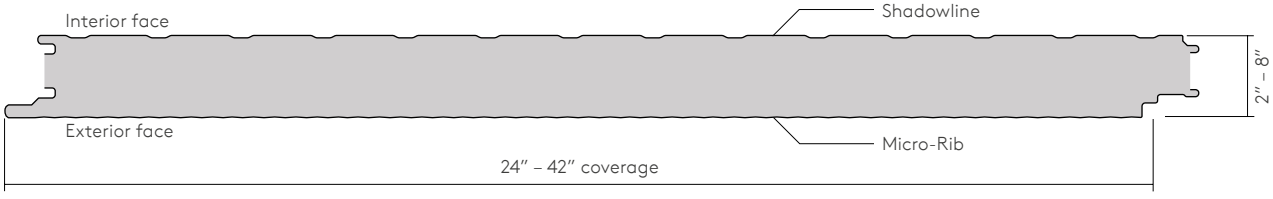


KS Micro-Rib

The KS Micro-Rib profile creates an aesthetically superior look while also creating shadows due to its linear appearance. These panels provide an unrivalled combination of aesthetics and performance benefits while remaining an economical option.

Applied vertically or horizontally, they can be used across a wide range of sectors and are suited to new construction or retrofits.

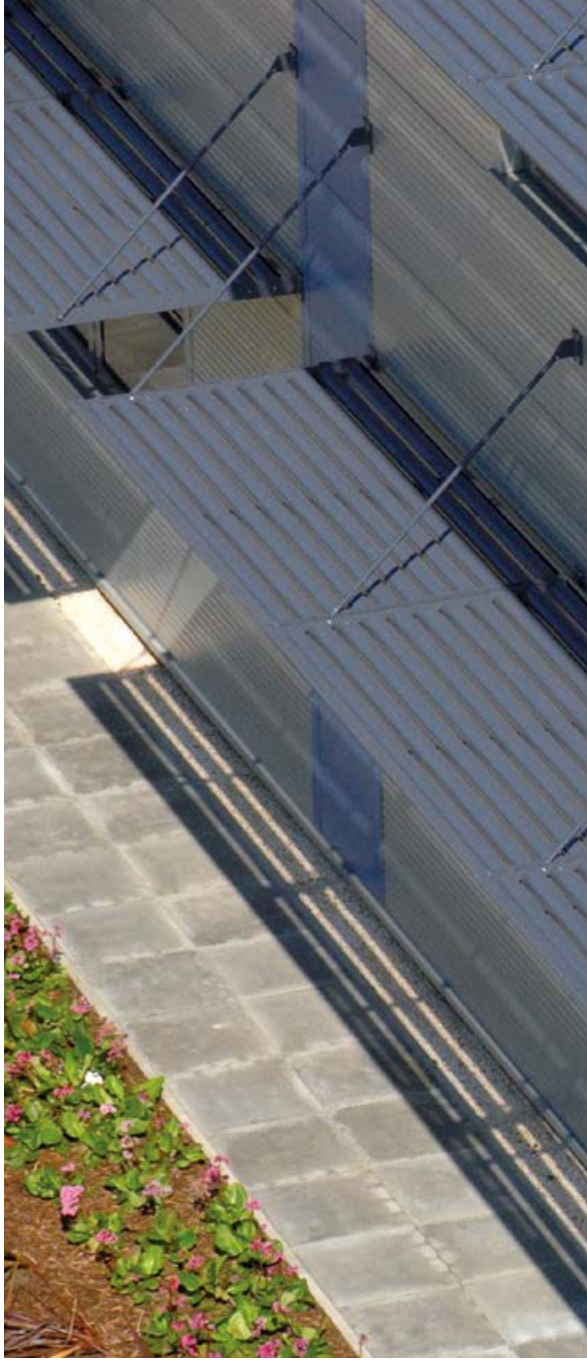
Insulation Core:	QuadCore® Technology
Profile:	Exterior: Micro-Rib / Interior: Shadowline
Embossing:	Exterior: Stucco or non-embossed / Interior: Stucco or non-embossed
Gauge:	Exterior: 24, 22 ga / Interior: 26, 24, 22 ga
Width:	24″, 30″, 36″, 42″
Thickness:	2″, 2.5″, 3″, 4″, 5″, 6″, 8″
Length:	8′ – 53′
Reveal options:	1/8″ or 3/8″
Orientation:	Vertical or horizontal
Post fabrication (optional):	Trimless ends, folded corners, transverse bends. (Manufacturing limitations apply. Please contact us for detailed information.)
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature



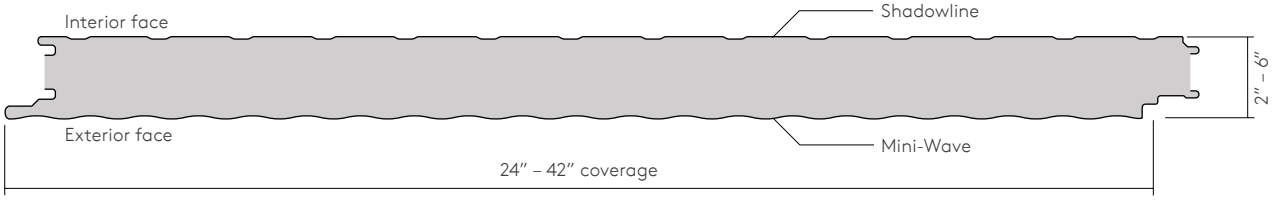
KS Mini-Wave

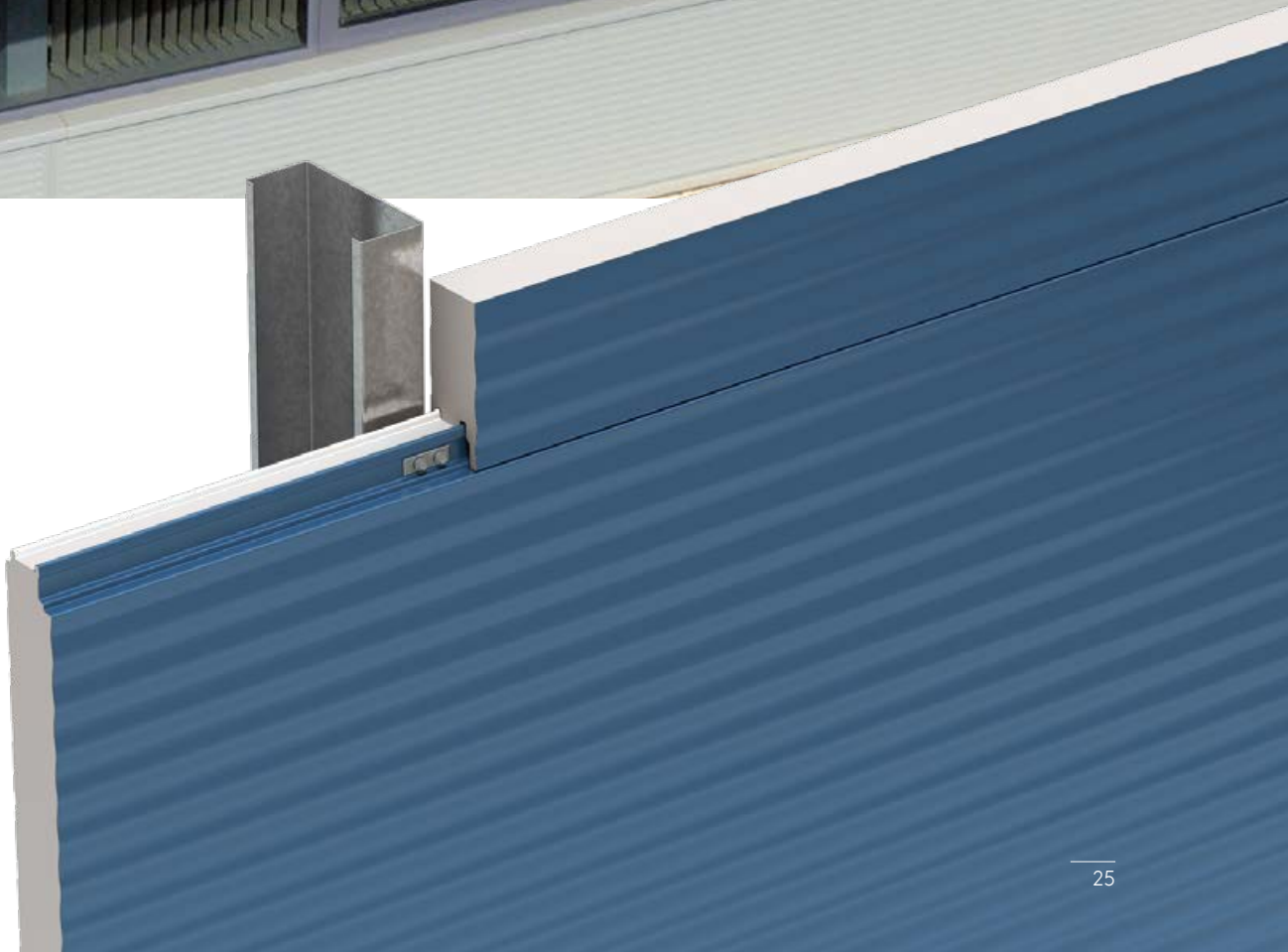
Mini-Wave wall system provides a continuous sweeping profile creating a unique wave appearance. Mini-Wave panels, horizontally or vertically applied, use a patented double seal integrated joint.

KS Mini-Wave is ideal for new and retrofit applications across commercial and industrial sectors.



Insulation Core:	QuadCore® Technology
Profile:	Exterior: Mini-Wave / Interior: Shadowline
Embossing:	Exterior: Stucco or non-embossed / Interior: Stucco or non-embossed
Gauge:	Exterior: 24, 22 ga / Interior: 26, 24, 22 ga
Width:	24″, 30″, 36″, 42″
Thickness:	2″, 2.5″, 3″, 4″, 5″, 6″
Length:	8′ – 53′
Reveal options:	1/8″ or 3/8″
Orientation:	Vertical or horizontal
Post fabrication:	N/A
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature



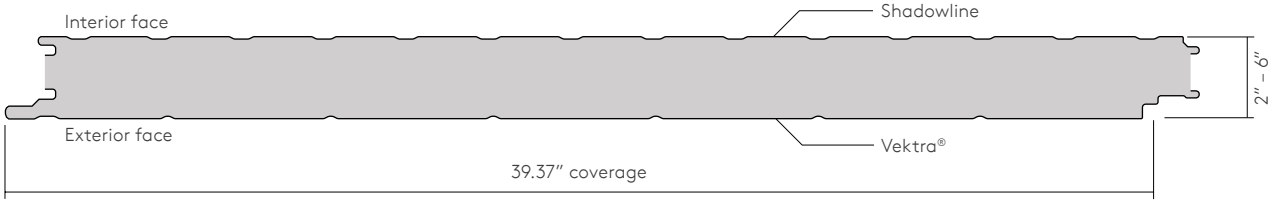


KS Vektra®

With its subtle inverted V-groove profile, the KS Vektra® wall panel provides an understated elegance to any elevation. KS Vektra® helps achieve a refined finish with its non-embossed exterior face.

KS Vektra® can be installed vertically or horizontally and is ideal for new and retrofit applications across commercial and industrial sectors.

Insulation Core:	QuadCore® Technology
Profile:	Exterior: Vektra® / Interior: Shadowline
Embossing:	Exterior: Non-embossed / Interior: Stucco or non-embossed
Gauge:	Exterior: 26, 24, 22 ga / Interior: 26, 24, 22 ga
Width:	39.37″
Thickness:	2″, 2.5″, 3″, 4″, 5″, 6″
Length:	8′ – 53′
Reveal options:	1/8″ or 3/8″
Orientation:	Vertical or horizontal
Post fabrication:	N/A
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature

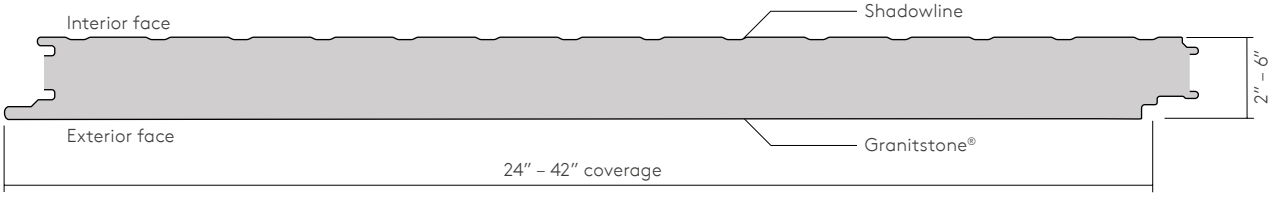


KS Granitstone®

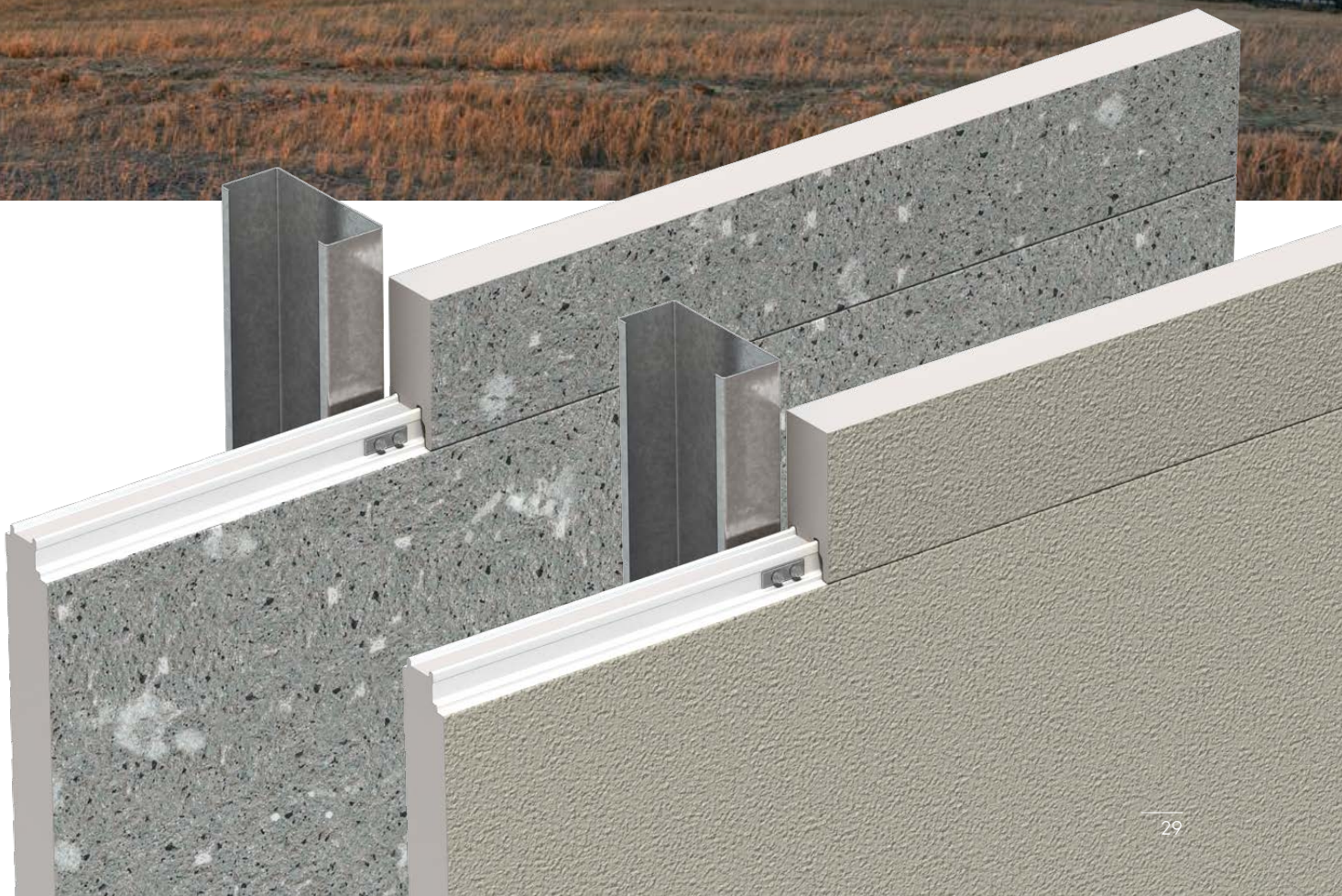
The KS Granitstone® finish provides the appearance of stucco or natural stone, with an acrylic aggregate finish factory applied over primed steel. This product is also available in Granitstone® Quartz.

KS Granitstone® panels provide design flexibility and can be used in multiple applications.

Insulation Core:	QuadCore® Technology
Profile:	Exterior: Flat with Granitstone® or Granitstone® Quartz finish / Interior: Shadowline
Embossing:	Exterior: Stucco / Interior: Stucco or non-embossed
Gauge:	Exterior: 24, 22 ga / Interior: 26, 24, 22 ga
Width:	24″, 30″, 36″, 42″
Thickness:	2″, 2.5″, 3″, 4″, 5″, 6″
Length:	8′ – 30′
Reveal options:	1/8″ or 3/8″
Orientation:	Vertical or horizontal
Post fabrication (optional):	Transverse bends (Manufacturing limitations apply. Please contact us for detailed information.)
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature



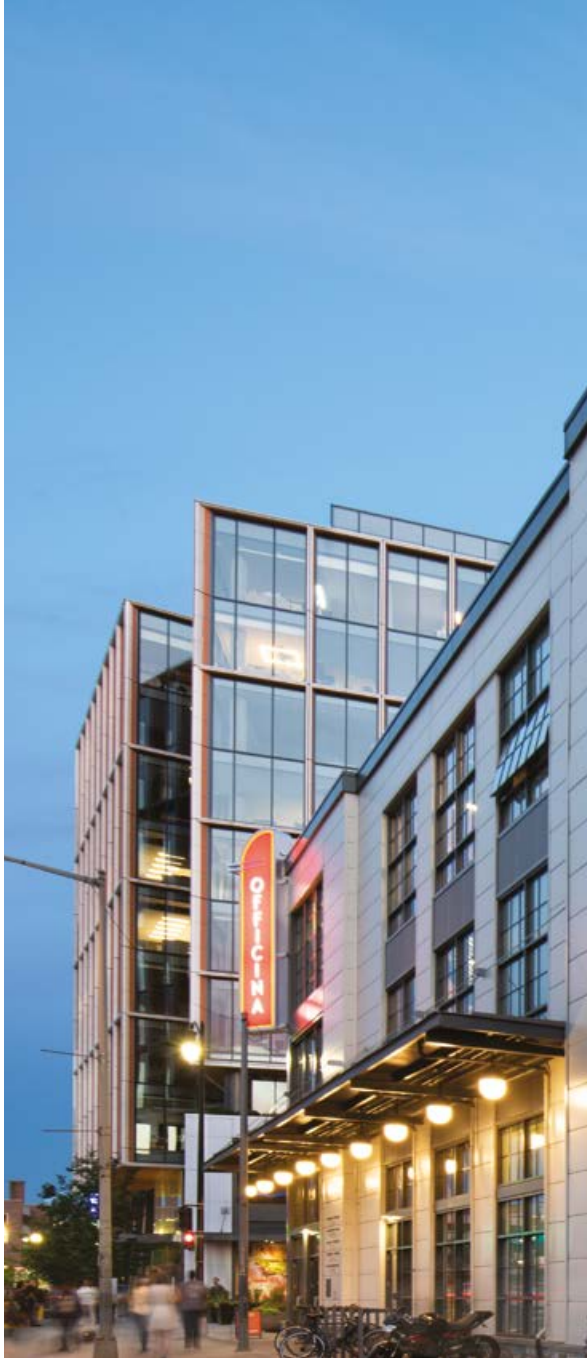
golden state foods



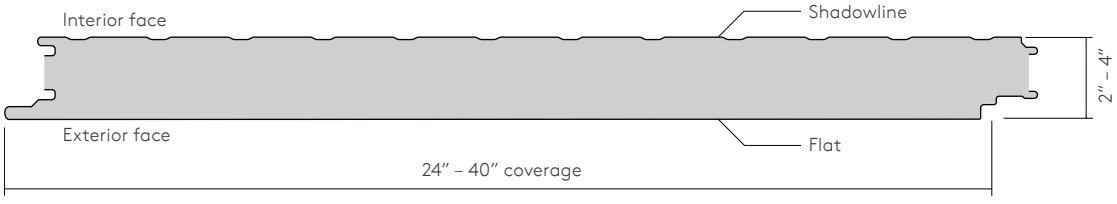
Optimo®

Optimo® delivers a clean, smooth and aesthetically appealing modern solution. Incorporating superior airtightness as well as high R-value.

Kingspan's Optimo® is available in either a non-embossed or embossed texture. Optimo®'s single component design can reduce on-site installation time by up to 50% compared to traditional site assembled systems. Optimo® is suitable for high volume, large scale, new and retrofit applications across the commercial and industrial sectors.



Insulation Core:	QuadCore® Technology
Profile:	Exterior: Flat / Interior: Shadowline or flat
Embossing:	Exterior: Stucco or non-embossed Interior: Stucco or non-embossed
Gauge:	Exterior: 22 ga / Interior: 26, 24, 22 ga
Width:	24", 30", 36", 40"
Thickness:	2", 2.5", 3", 4", 5", 6"
Length:	Embossed: 8' – 32' / Non-embossed: 8' – 20'
Reveal options:	1/8", 3/8", 1", 2"
Orientation:	Vertical or horizontal
Post fabrication (optional):	Trimless ends, folded corners, transverse bends. (Manufacturing limitations apply. Please contact us for detailed information.)
R-value:	≈ 8 per inch per ASTM C518 @ 75°F mean temperature ≈ 9 per inch per ASTM C518 @ 35°F mean temperature



K-Roc® FX Series

K-Roc® FX Series panels are an excellent choice for superior fire protection. The 42″ cover width of K-Roc® FX allows for fast, easy installation.

Insulation Core:	Mineral fiber
Profile:	Exterior: Azteco™, Flat, Micro-Rib, Mini Micro-Rib, Shadowline Interior: Shadowline
Embossing:	Exterior: Stucco or non-embossed (Azteco™ profile only available with Azteco™ embossing) Interior: Stucco or non-embossed
Gauge:	See individual panels
Width:	42″
Thickness:	4″, 6″, 8″
Length:	8′ - 48′
Reveal options:	1/8″
Orientation:	Walls: Vertical or horizontal Ceilings
Post fabrication:	N/A
R-value:	3.7 per inch per ASTM C518 @ 75˚F mean temperature

K-Roc® FX Azteco™

Gauge: Exterior: 24, 22 ga / Interior: 26, 24, 22 ga

K-Roc® FX Flat

Gauge: Exterior: 24, 22 ga / Interior: 26, 24, 22 ga

K-Roc® FX Micro-Rib

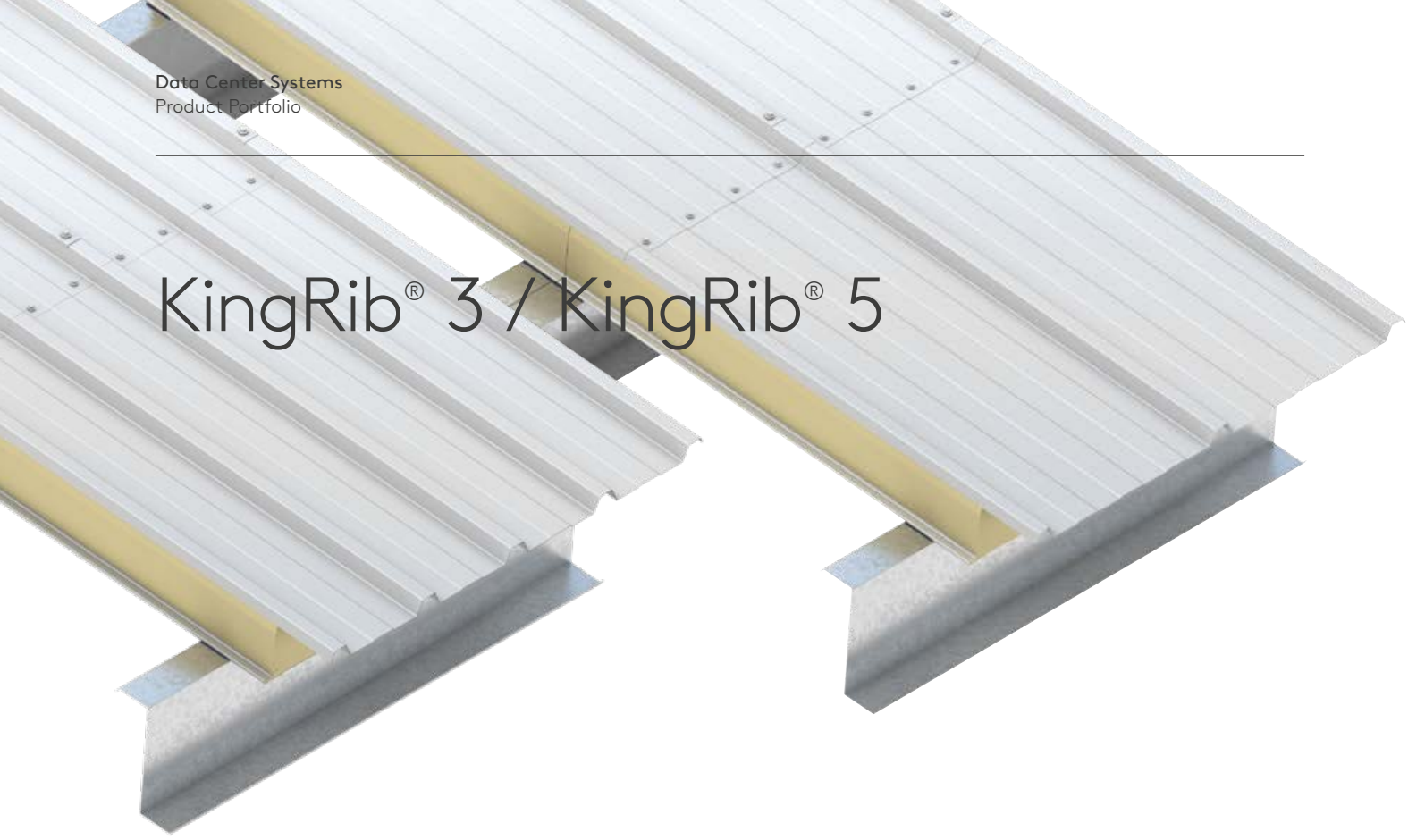
Gauge: Exterior: 24, 22 ga / Interior: 26, 24, 22 ga

K-Roc® FX Mini Micro-Rib

Gauge: Exterior: 24 ga / Interior: 26, 24, 22 ga

K-Roc® FX Shadowline

Gauge: Exterior: 26, 24, 22 ga / Interior: 26, 24, 22 ga

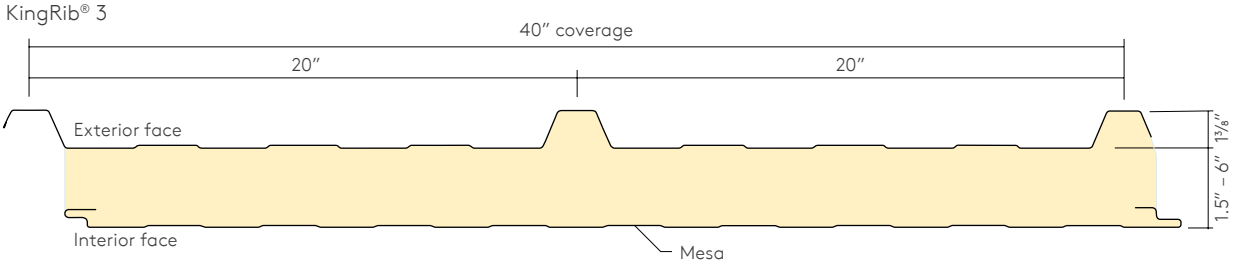


KingRib® 3 / KingRib® 5

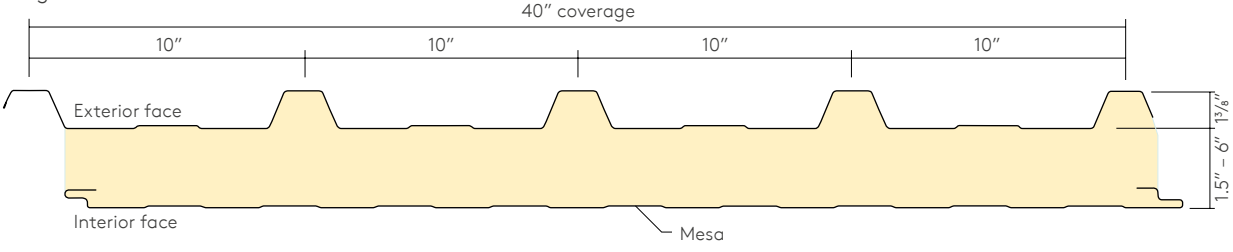
KingRib® insulated roof panels are the perfect option for a modern design combined with high energy-efficiency, durability, and high R-value.

Profile:	Exterior: Mesa with Trapezoidal Ribs / Interior: Mesa
Embossing:	Exterior: Stucco or non-embossed / Interior: Stucco or non-embossed
Gauge:	Exterior: 26 ga Standard (24, 22 ga optional) / Interior: 26 ga Standard (24, 22 ga optional)
Width:	40″
Thickness:	1.5″, 2.5″, 4″, 5″, 6″
Length:	8′ – 50′ (please contact your Kingspan Regional Sales Manager or Kingspan Technical Services for detailed limitations on specific lengths)
Post fabrication (optional):	Cutbacks
R-value:	≈ 7.1 per inch per ASTM C518 @ 75°F mean temperature / ≈ 8.1 per inch per ASTM C518 @ 35°F mean temperature

KingRib® 3



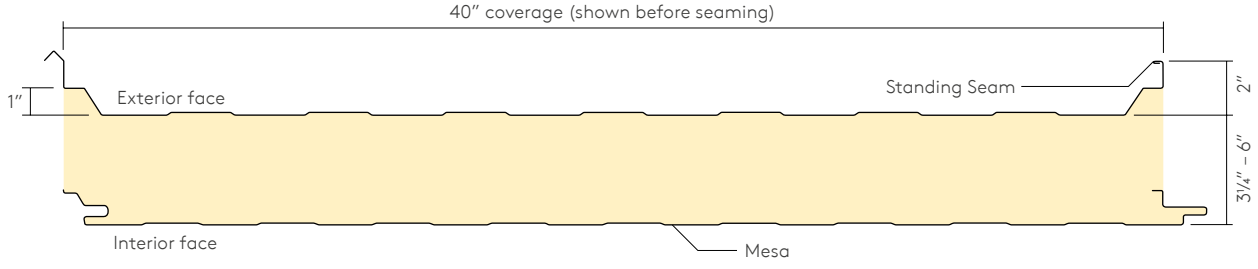
KingRib® 5



KingSeam®

KingSeam® insulated standing seam roof panels are designed to offer design flexibility and aesthetics combined with high R-values and unparalleled service life performance. Ideal for new and retrofit applications across a wide variety of building sectors.

Profile:	Exterior: Mesa with Trapezoidal Ribs / Interior: Mesa
Embossing:	Exterior: Non-embossed / Interior: Stucco or non-embossed
Gauge:	Exterior: 26 ga Standard (24, 22 ga optional) / Interior: 26 ga Standard (24, 22 ga optional)
Width:	40″
Thickness:	3.25″, 4″, 5″, 6″
Length:	8′ – 50′ (please contact your Kingspan Regional Sales Manager or Kingspan Technical Services for detailed limitations on specific lengths)
Post fabrication (optional):	Cutbacks
R-value:	≈ 7.1 per inch per ASTM C518 @ 75°F mean temperature / ≈ 8.1 per inch per ASTM C518 @ 35°F mean temperature



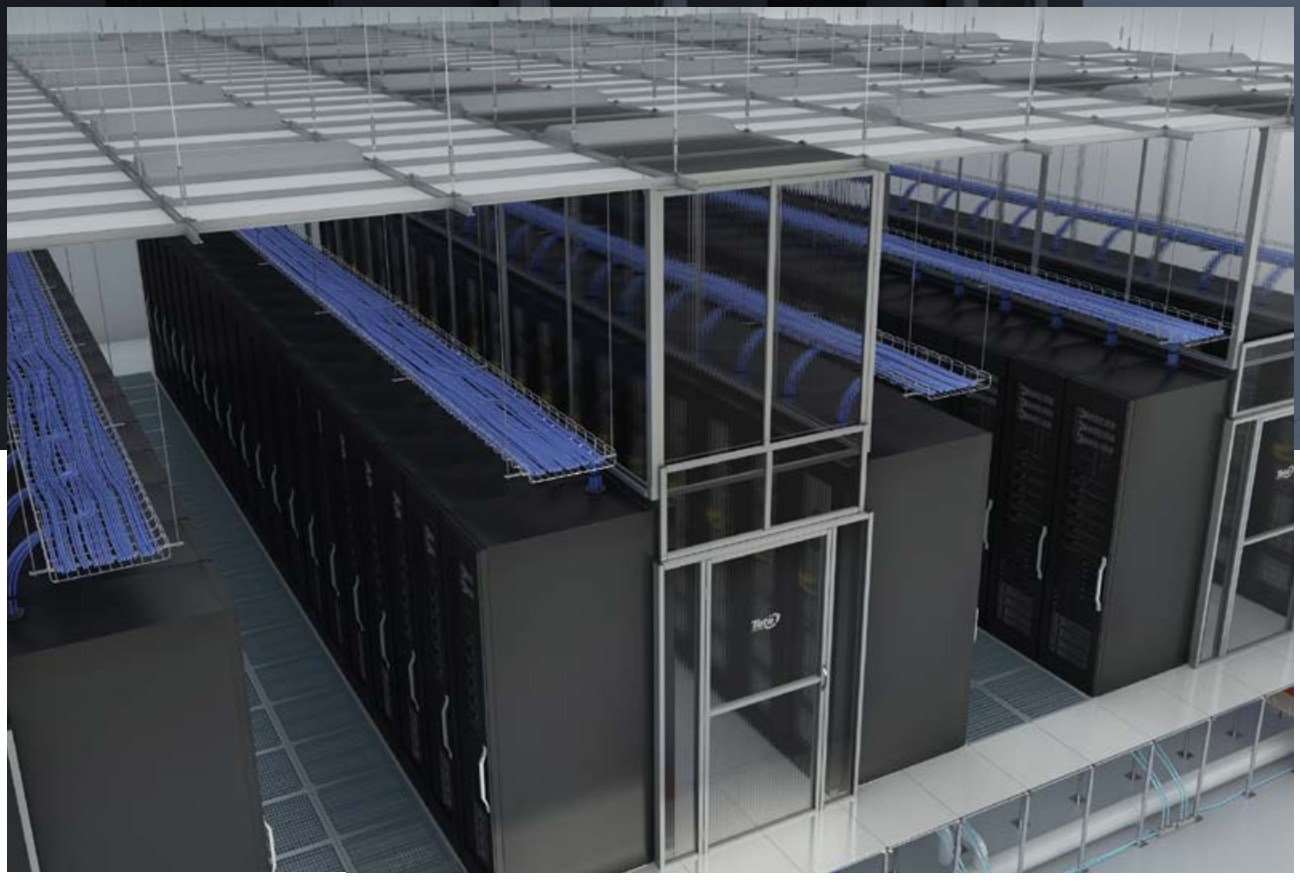
Optimized Cooling Solutions for Next Generation Data Centers

The modern data center environment needs to be a highly adaptable space that provides the ability to respond quickly and easily to tenant and technological changes – all while being cost-effective in both construction and operation.

The inclusion of manifold liquid cooling solutions, pre-designed structural ceiling and modular pre-fabricated aisle containment in your facility all help to address the demands of today's ever-evolving data centers, while still meeting the everyday needs of its users in a secure and reliable environment.

Benefits Tate solutions offer to data centers:

- Rapid deployment for faster build cycles.
- Custom designed, pre-engineered solutions for easy and exact placement.
- Schedule compression to reduce cost and speed of facility construction.
- Factory built solutions for greater control and consistency.
- Lessens the requirement for onsite material and staging.
- Supports various cooling solutions, including manifold liquid cooling, enhancing efficiency and computing capacity.
- Easily adapt to technological and client changes over the data center's life-cycle at low cost.
- Raised floors keep the white space clean and neat.
- Provides a platform for future scalability.



Tate®

For more information on Tate products please visit **www.tateinc.com** or scan the QR code.

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For the product offering in other markets please contact your local sales representative or visit our website.

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