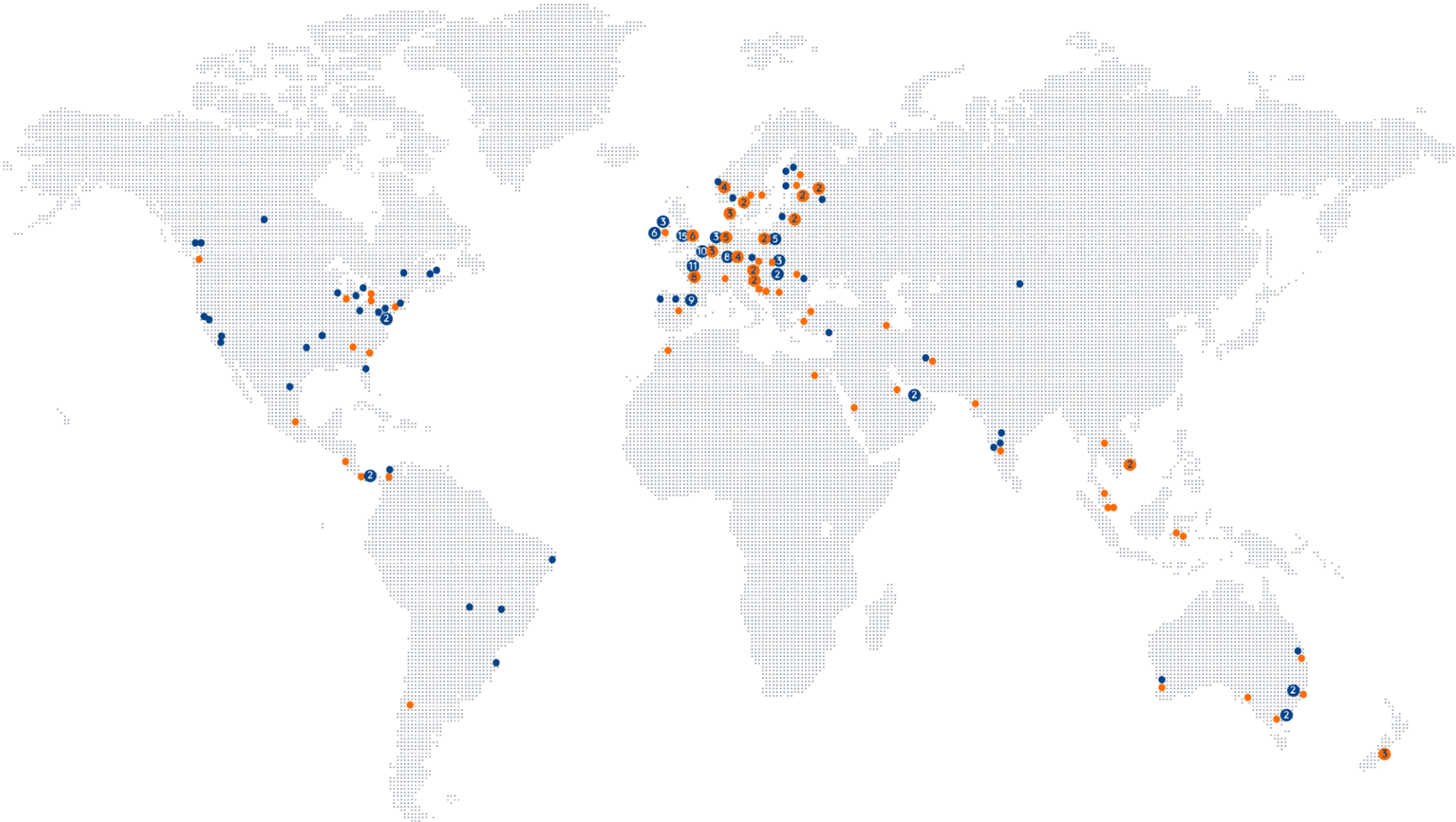
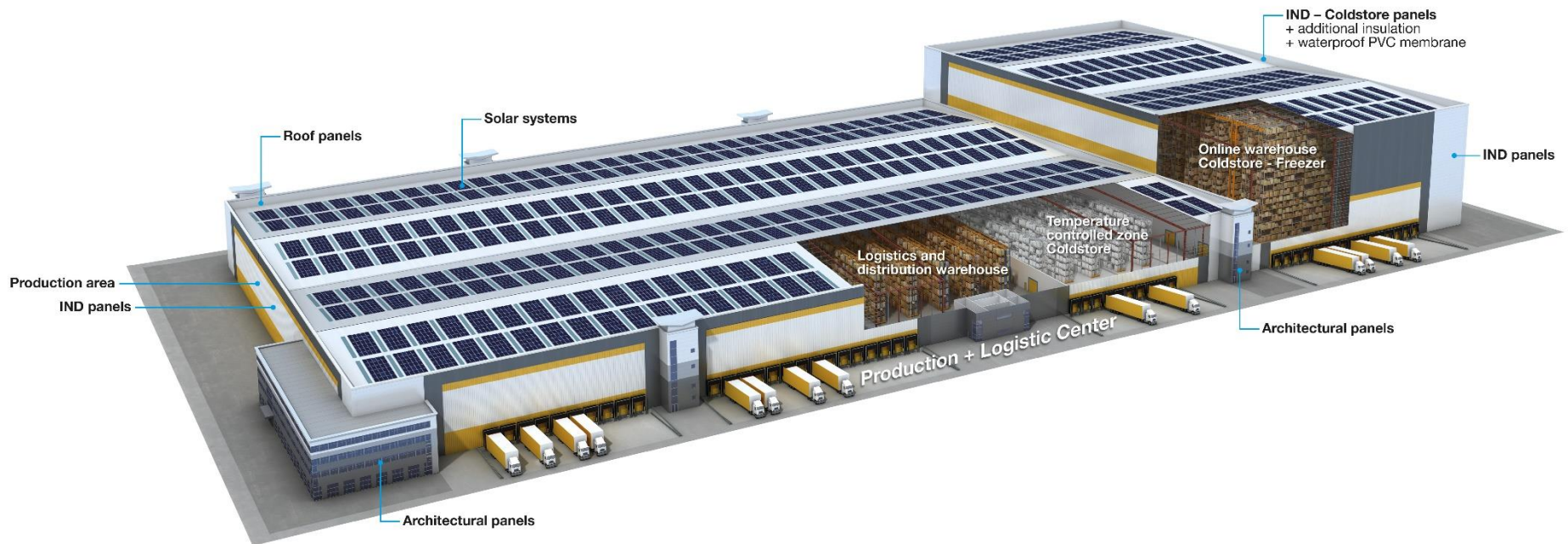


POWERED BY
QuadCore[™]
TECHNOLOGY

An aerial photograph of a large industrial building under construction. The building has a white roof and blue vertical panels on the left side. A red crane is positioned on the roof. The surrounding area includes other industrial buildings and green fields.

STOCKHABO
Completing the envelope

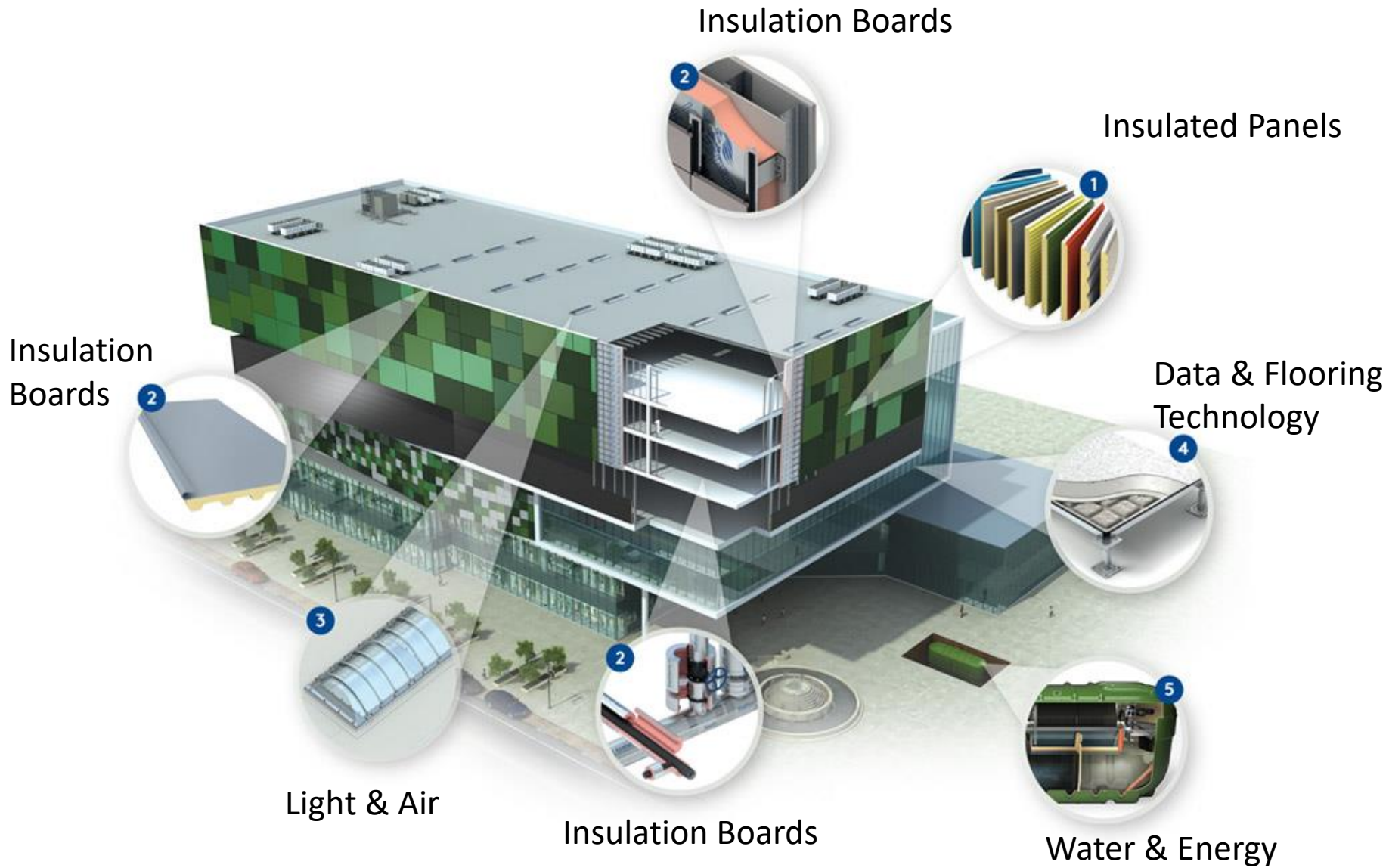




Isocab: insulated industrial sandwich panels

Isomasters: cold- and freezer-room doors and service doors

Kingspan: Light & Air, data & flooring, water & energy, insulation panels & boards



Materials



- › A scientific breakthrough in hybrid insulation technology, Kingspan QuadCore™ achieves the industry's lowest lambda value enabling us to do more with less. QuadCore™ solutions can achieve material efficiency savings of up to 10% when compared with standard polyurethane insulation.
- › We have saved over 5 million litres of water across our division by incorporating the use of harvested rainwater within our solutions and facilities.



Solutions



- › It is estimated that Kingspan insulation systems world-wide save over 176.1 million MWh of energy annually.
- › QuadCore™ solutions have a reduced carbon footprint of up to 11.6% when compared with traditional PIR insulated systems.

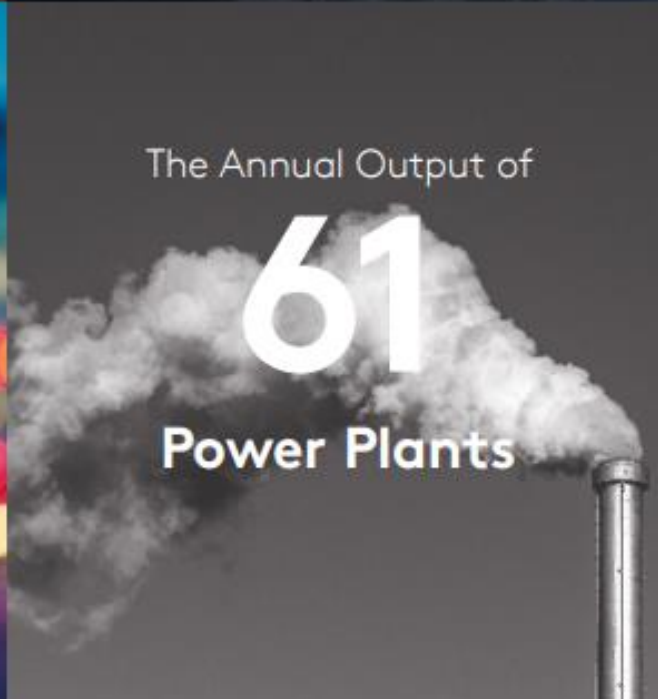


Energy & Emissions



- › The Kingspan Net-Zero Energy Initiative is committed to powering all of our manufacturing facilities worldwide with renewable energy by 2020. In 2017, our division achieved 72.4% NZE.
- › Energy Performance Contracts (EPC) and energy efficiency projects at our UK & Ireland facilities have realised energy savings of over 2 GWh annually.





**In 2017 Kingspan
Insulated Systems
saved...**

The Kingspan Group

Net-Zero Energy by 2020



Energy Costs

Light and heat costs as a % of turnover



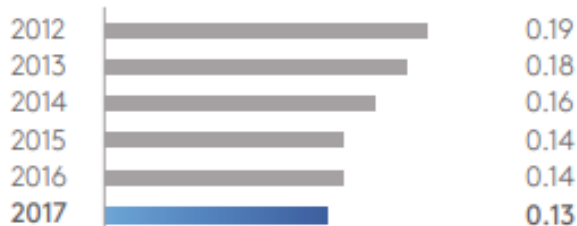
Renewable Energy Usage

Renewable energy used (GWh)



Energy Intensity

kWh per € turnover



On-site Energy Generation

Renewable energy generated on-site (GWh)



Carbon Intensity

CO₂ tonnes per €m of turnover



Renewable Electricity Usage

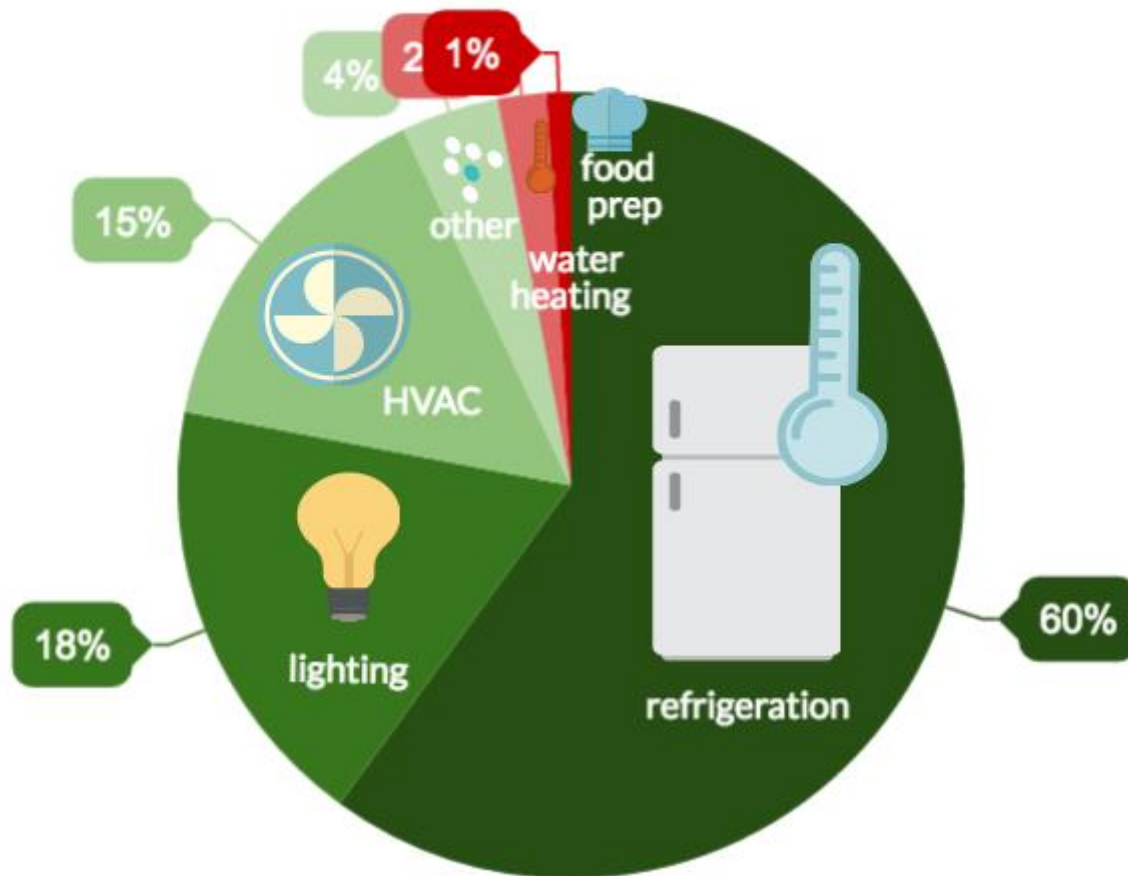
Renewable electricity used (GWh)





Operational costs can make **up to 90%** of the cost of owning a building

How Supermarkets Consume Energy





Stockhabo

Stockhabo dimensions

	HIGH BAY	LOW BAY
Length	120 m	98 m
Width	98 m	15 m
Height	36,4 m	12 m
Competition	$\lambda = 0,024 \text{ W/m.K}$	$\lambda = 0,024 \text{ W/m.K}$
Isocab by Kingspan PIR IND	$\lambda = 0,020 \text{ W/m.K}$	$\lambda = 0,020 \text{ W/m.K}$
Isocab by Kingspan QuadCore IND	$\lambda = 0,018 \text{ W/m.K}$	$\lambda = 0,018 \text{ W/m.K}$

Stockhabo energy savings

	HIGH BAY	LOW BAY
Outside Temperature (C°)	35	35
Inside Temperature (C°)	-25	-25
Thermal Gradient (K)	60	60
Total Energy surface loss competition 200 mm	210,43 kW	58,29 kW
Total Energy Surface loss Isocab by Kingspan QuadCore IND 200 mm	155,33 kW	43,11 kW
Energy saved (kW)	482676 kWh/an	132977 kWh/an

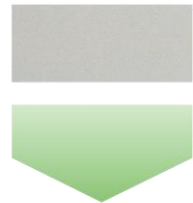
Stockhabo energy savings (€)

kWh cost in BE (€/kWh)	0,11
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	HIGH BAY	LOW BAY
Money saved per year	22886€	6228€

→ ROI: 4,13 years

**Kingspan
IPN-QuadCore
Panels**
0.018 W/m.K



**22%
LESS
HEAT LOSS¹**

**Kingspan
Kooltherm®
Boards & Pipes**
0.020 W/m.K
(0.020-0.023)²



**13%
LESS
HEAT LOSS¹**

**Kingspan
PIR
Panels**
0.020 W/m.K



**13%
LESS
HEAT LOSS¹**

**Kingspan
PIR
Boards**
0.022 W/m.K
(0.022-0.027)²



**4%
LESS
HEAT LOSS¹**



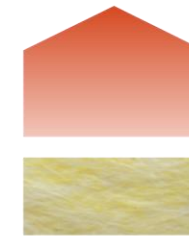
**Reference
Point
Polyurethane**
0.023 W/m.K¹

**30%
MORE
HEAT LOSS¹**



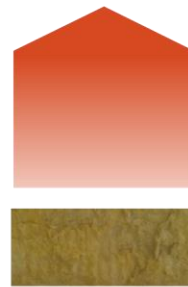
EPS
0.030 W/m.K
(0.030-0.038)²

**34%
MORE
HEAT LOSS¹**



**Glass
Fibre**
0.031 W/m.K
(0.031-0.044)²

**47%
MORE
HEAT LOSS¹**



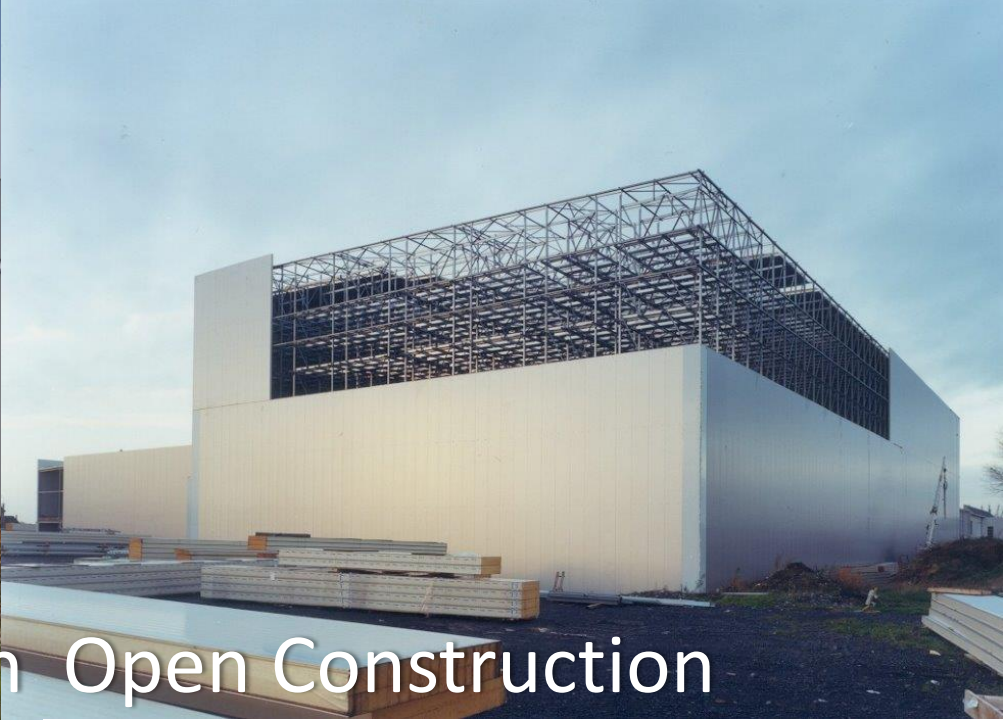
**Rock
Mineral Fibre**
0.034 W/m.K
(0.034-0.042)²

Notes:

- 1 Heat loss for each insulant is based on the best quoted Lambda value compared to rigid polyurethane insulation with a typical Lambda value of 0.023 W/m.K.
- 2 The thermal conductivity range is based on data from insulation manufacturers websites or Agrément certificates.
- 3 Thermal conductivity (Lambda) W/m.K values quoted at 10°C.



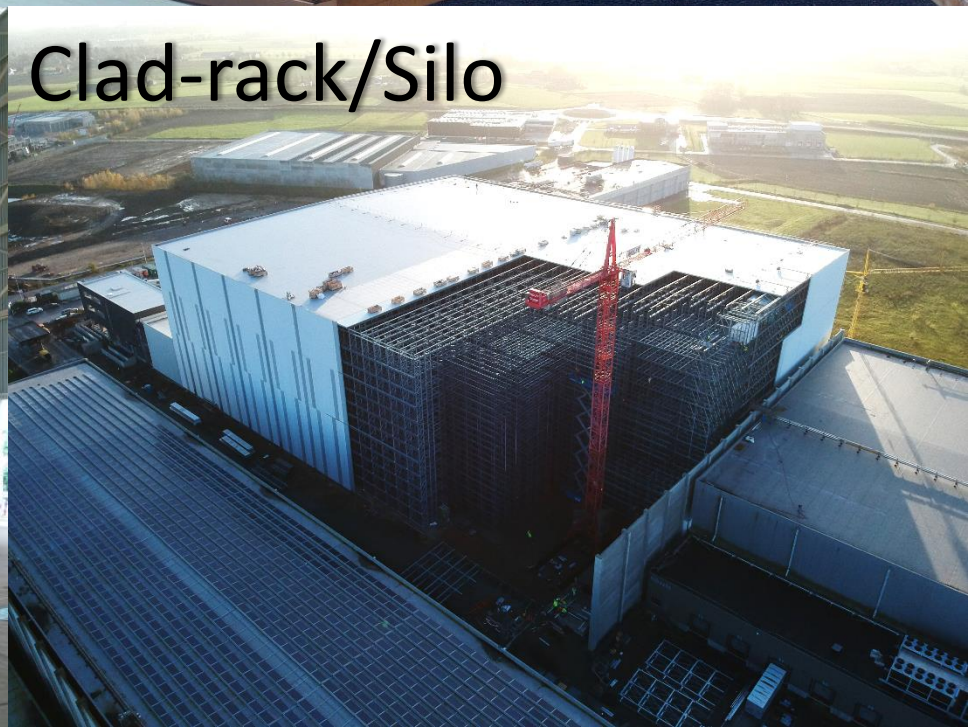
Half Open Construction



Open Construction



Box-in-Box



Clad-rack/Silo



What is QuadCore?

Low
Energy

Fire
Protected

Guaranteed
Performance

Superior
Sustainability







Questions?

Special thanks to GCCA & StockHabo Xavier
Haspeslagh

Wim Polfliet

Isocab.com – isomasters.com