

Cold solutions

This is a time of evolution and revolution when it comes to refrigeration – with great strides being made both in plant and on the road. FoodBev takes a closer look at the latest developments.

Ultra efficient cold store development

A new super energy-efficient cold storage warehouse extension for Turners of Soham, one of the UK's leading temperature controlled storage and distribution companies, is to feature an advanced insulated single envelope designed and installed by composite panel specialist ISD Solutions.

Forming the weathered external skin of the building, this will be the first UK chilled distribution warehouse to incorporate Kingspan's latest IPN-QuadCore technology, a new insulated panel core which delivers a thermal improvement of up to 20% over standard PIR insulated panels.

Located at Turners' existing site near Boston in Lincolnshire, the 5,500m² extension will provide capacity for 5,500 pallets, plus packaging space and loading docks, all chilled to 1°C. It is led by project designers FJB Systems, who have formulated a range of features to meet Turners' environmental goals.

These include the use of natural refrigerants and reclaimed heat, rain water harvesting to provide all grey water requirements, LED lighting and controls to reduce energy consumption, roof top photovoltaic panels and rapid doors. The air-tight fully insulated single envelope construction proposed by ISD Solutions using Kingspan IPN-QuadCore panels, adds further environmental benefits and cost savings both during the construction phase and energy savings to

reduce operational running costs over the life of the building.

Turners managing director Paul Day said: "For this project, we needed a specialist contractor with the proven ability to work in collaboration with other trusted stakeholders on a complex project that delivered significant environmental and sustainability benefits. ISD had the creativity to offer innovative solutions, and the necessary expertise."

ISD Solutions managing director Tony Wall added: "We are delighted to be working with FJB Systems and lead contractor H H Adkins on this ultra-efficient cold store development. Single envelope composite panel construction is fast outpacing traditional building methods in warehouse and cold store developments. The air-tight thermally efficient building skin can be constructed around 20% faster than traditional builds and significantly reduces the need for secondary steelwork. Add to this Kingspan's new improved QuadCore insulated panels, backed by the industry's first 40-year thermal and structural guarantee, and it's a win-win for Turners in terms of environmental performance."

With responsibility for overall project design, FJB Systems has calculated that the new panels alone would reduce heat loss through the fabric of the external envelope by as much as 50kW. Handover of the project is expected this autumn. ●

Refrigeration lubricant

ExxonMobil has developed a new lubricant – Mobil SHC Gargoyle 80 POE – for refrigeration compressors which is specifically designed for those that use carbon dioxide as a refrigerant. It has been launched in response to the growing demand for applications cooled by natural refrigerants, which Exxon predicts will be one of the main refrigerants by 2020. This lubricant was implemented across a major food prep facility in France and delivered a 2% reduction in electricity consumption. ●

CO² refrigeration systems

Kelvion can now use less refrigerant content, with a smaller footprint, and significantly reduced weight for its Searle GF gas coolers – designed for subcritical and transcritical CO² refrigeration systems. Equipped with AC or EC motors, these heat exchangers have tube diameters of only 5mm which allow cost-efficient cooler solutions for applications with high pressures. Numerical flow simulation tests revealed that a non-equilateral tube configuration is best with a resulting heat transfer 18% greater than before. ●