

Innovative new cold store design for Versacold



CLIENT

Versacold is a leading global provider of logistics services for temperature sensitive products and one of the top four public refrigerated warehouse operators in the world.

OBJECTIVES

Wiley was contracted to design and construct a new 11,545m² cold store at Murarie in Brisbane. Wiley had to complete the facility in two stages, managing the first stage to a seven-month fast track schedule so the company could start using the facility in time for the busy Christmas period.

CHALLENGES

- Fast tracking all stages of the project: development approval, building approval, design documentation, construction and commissioning
- Introducing Versacold to Wiley design elements and innovations that would mean a new style of cold store for the company
- Being innovative in design to enhance the facility's longevity, flexibility and cost-efficiency
- Paying close attention to fire safety management due to the high storage capacity of the cold store.

SOLUTIONS

Advice

- Intense project management to meet the seven-month timeframe
- Application of fast track strategies, including staging the development approval so earthworks could start, engaging shop drawers on basic structural drawings prior to tender, and concentrating on safety issues to allow multiple trades to work within the one area

- Provision of a guaranteed maximum price for the project.

Design

- Introduction of an insulated panel penthouse and duct refrigeration system in the ceiling space (rather than the traditional evaporator unit and metal duct within the cold room). (This system puts the framework of the building on the outside and the insulated panel on the inside and all services in the ceiling space instead of in the cold store area. Typically, Versacold cold stores have the framework inside and the insulated panel as external cladding for the walls and roof.) The benefits of the panel penthouse and duct system include:
 - a cleaner, more efficient internal space without column intrusions
 - a readily accessible ceiling area for more efficient and convenient services maintenance
 - a longer life for the facility (particularly the roof, which can corrode and leak when constructed of insulated panels)
 - greater flexibility of use
 - better hygiene and product and personnel safety
 - improved vapour barriers
 - maximum storage volume in the internal space
 - no need to go into the freezer area to access services
 - typically a longer life for services because they are not exposed to low temperatures and inspections and servicing are likely to be more frequent

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- Inclusion of a post-tensioned concrete floor within the heavily trafficked staging and packing area, which removes the need for floor joints that are easily damaged by forklifts, makes maintenance easier, and lasts longer than traditional concrete floor slabs
- Use of mains water floor heating instead of glycol floor heating to generate energy savings (new technology for P&O)
- A fire-engineered solution to fire safety in which the high-risk fire sources are separated from the cold store, Vesda detectors are used throughout the facility (including in the ceiling void spaces), and fire retardant or fire-rated materials are used in penetrations through insulated panel — valuable inclusions in today's difficult insurance environment
- Use of a syphonic roof drainage system
- Design of each cold room for use as both a chiller and a freezer (or in chiller-freezer or freezer-chiller combinations), with sub-floor insulation and complex vapour barriers.

Construction

- Completion of the facility within the prescribed deadline.

RESULTS

The result is a new style cold store for Versacold that is innovative, designed to last longer, flexible and cost-efficient.

