

Wiley delivers award-winning innovation for Primo Smallgoods—Stage Two



CLIENT

Primo Smallgoods is the largest producer of ham, bacon and smallgoods in Australia. Catering for both the domestic and export markets, Primo holds a unique position in the industry by owning and operating abattoirs, food manufacturing and processing facilities and distribution warehouses.

Controlling these critical stages of the production and distribution process ensures Primo maintains the highest level of quality control in the industry.

OBJECTIVES

Wiley was contracted to master plan, design and construct a \$136 Million integrated smallgoods processing plant which would incorporate:

- A 10,566 pallet freezer for the storage of meat products used in the manufacture of Primo products
- A 7,656 pallet distribution chiller for the storage, picking and distribution of finished products
- A 21,500m² process and production building
- A 4000m² administration building.

Due to the scale of this undertaking, the project was delivered in two stages:

Stage One—Cold storage and distribution

Stage Two—Process and production facilities and administration building

This profile will detail **Stage Two** of the project.

CHALLENGES

- Achieve specified production rates of 1800 tonne of finished smallgoods per week
- Consolidate several aging Primo production operations into a single state-of-the-art facility with amenities for 600 workers
- Provide a means for safety during construction within a compressed program
- Ventilate 145,000 m³ of ceiling space to enhance performance of conditioned production rooms below
- Innovate a solution to eliminate the need to install (93) standard fire hose reels within the production space
- Design a wall and slab joint system to eliminate micro-organism build-up
- Deliver a hot water solution with small footprint, no storage tank to provide dual temperature, instant hot water to production areas
- Design and construction to achieve the following food standards:
 - Food Safe Queensland
 - AQIS approvals for export licences
 - BCA approvals
 - Working environment to be sterilised daily:
 - Eliminate Cross contamination
 - Airflow—raw to finished product
- Manage the impact of the collapse of Hastie Group which placed \$21M of subcontract work under administration or liquidation overnight
- Bring the completed plant online by September 2012, enabling timely production of Christmas hams and smallgoods.

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SOLUTIONS

Advice

Wiley's integrated model and collaborative approach to project delivery was important to Primo. The staged approach—following logical phases with stringent approval gates—provided Primo with early confidence in the critical areas of design, budgeting and the delivery timeframe.

A master plan was created to ensure timely delivery of design and construction over both stages of the project as well as flexibility for any future developments required by Primo.

Design

Building Information Modelling (BIM): a complete project tool—The Wiley design team collaborated and developed BIM to import and model all key elements providing the client with a real time, real life understanding of the project.

This consolidated communication platform was an integral project delivery tool which provided 100% confidence in construction details and clash detection.

- Designed personal access system in the ceiling space to separate hygiene zones and prevent cross-contamination. Incorporating:
 - Individual corridors in ceiling space for isolated hygiene zones: ham, salami, bacon and smallgoods
 - Direct access from amenities to hygiene wash station to work face.

- All design documentation was aligned with programmed construction cycles from the beginning of the detailed design phase. This provided opportunities for:
 - Multiple work faces and rapid construction
 - Resolution of services installation challenges in the 3D model that were then reflected in the construction cycles.

Engineering

- Wiley designed a combined fire hose reel and hygiene wash down station including:
 - Open reel for hygiene
 - Spray gun acceptable to QFRS and AQIS
 - Potable cold and hot water supply
 - Compressed air supply
 - Compliant flow rates and spray aperture
 - This unique design was a first ever approval by QFRS.
- Air Flow design modelled the ceiling space to provide:
 - Adequate air movement
 - Temperature control
 - Environmentally friendly and energy efficient solution.
- Revolutionise standard concrete wall joint plinth design and construction so all slab expansion occurred in the middle of the plinth, under the wall, thus eliminating exposed floor joints.
- Installation and commissioning of over 250 shipping containers full of process equipment completed in 4 weeks
- Custom-engineered a 7,500 kW instant hot water system with small footprint, no storage tank, dual temperature (28 litres/sec @ 70°C | 14 litres/sec @ 50°C) which was inherently safe.

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Construction

- 21,500m² total building floor area—Production building
- 4000m² administration—offices and amenities
- Controlled work sequence to avoid work overhead and unsafe work practices
- Designed services gantry system within ceiling space providing safe access during construction and long-term maintenance access
- Services and equipment support structure erected with structural steel providing early access in the construction cycle and safe platforms for working at heights
- The production rate of 1800 tonnes/week was achieved after many weeks of production trials and commissioning
- Coordination and supervision of all suppliers, subcontractors and services to process equipment
- The BIM model was used extensively during construction site meetings, via an on-site PC, to communicate and co-ordinate daily operations.

The Hastie Collapse

The Team Leader successfully formulated and delivered an action plan which had the project back on track within a week and met the following objectives:

- Support the workers by securing their entitlements and future employment
- Communicate the events of the collapse to the worker thereby avoiding rumour and maintaining site unity
- Maintain project momentum
- Work with unions to resolve employment and entitlement issues
- Engage other contractors to employ existing workers and conclude the works.

RESULTS

Wiley consolidated several smaller Primo operations into a unified, efficient and custom-designed solution.

This world class facility has been recognised for its outstanding level of design and innovation with numerous industry awards:

2013 Australian Institute of Building Excellence in Building National Awards:

- Professional Builder of the Year
- Research, Development and Technology

2013 Australian Institute of Project Management, Project Management Achievement Award:

- Construction/Engineering Project over \$100 Million

2013 Queensland Master Builder's Brisbane Regional Awards:

- Industrial Building over \$5 Million
- Innovation in Environmental Management

The completed facility was delivered on time and to the highest international food-grade standards by September 2012 ensuring Primo would be on-track enabling the timely production of Christmas hams and smallgoods.

