

FJB System LLP are specialist designers and consultants within the food and refrigerated storage industries. Their expertise ranges from the total design of 'green field' food factories through to state-of-the-art cold stores, distribution facilities & factory extensions. Founded in 1990, FJB Systems have provided designs and consultancy expertise throughout the world.

Background

In 2005, FJB Systems were contacted by Turners (Soham) Ltd., a large cold storage and distribution company based in Newmarket, UK, who wished to convert two of their ambient storage facilities totalling approximately 2000m² into a bespoke food processing facility for one of their clients, CP Foods (UK) Ltd. CP Foods (UK) Ltd. are a UK subsidiary of the Thai food processing company, Charoen Pokphand Foods Public Company Limited, who are a world leader in supplying poultry products.

The new factory would be designed to prepare retail-ready prepared meals for the UK market and would require the design and construction details to meet the highest standards of a 'High Care Facility'.

FJB Systems, in conjunction with the client, prepared tender specifications and drawings for the building, electrical, mechanical, insulation and refrigeration works of the project. These clearly defined the technical requirements of each discipline allowing 'like for like' prices to be realised by quoting contractors. Similarly, by separating the project into distinct specialist elements, the individual contractors could quote on items that they were familiar with, therefore eliminating 'contingency pricing' or uncompetitive sub-quotations.

As the project was 'fast-track' (the go-ahead was given in January 2005 and the facility was due to be commissioned in May 2005), a main building contract was quickly awarded to enable work to start on site immediately. The remaining tenders were then quickly issued and contracts awarded as the contract progressed.

Technical Details

Due to the project involving converting a warehouse facility on an existing cold storage site, much attention was paid to integrating the services and utilities with the existing site. FJB Systems analysed the anticipated electrical load demands and diversities of the CP factory and determined the most economical form of connection. Similarly, detailed refrigeration loads were calculated in each processing department taking into account product, air ingress, insulation and machinery loads. These were then equated back to the central ammonia plant and it was determined that a further compressor was required to accommodate the load. Due to the factory employing many production personnel, a decision

FURTHER PROCESSING

a case study

*by FJB Systems LLP
www.fjb.co.uk*

".....the new factory would require the design and construction details to meet the highest standards of a 'High Care Facility'."



CP FOODS UK



Main Preparation Area

was made to utilise a secondary refrigerant – polypropylene glycol, which was pumped through stainless steel evaporators within the process areas, incorporating super low air velocity fans. In order to ensure a positive pressurisation of the High Care process areas, specialised centrifugal fans and EU5 filters were incorporated. This ensured that all air flow was from high to low risk areas.

The central part of the factory relied on air-defrosting tunnels in order to thaw out the frozen cooked ingredients. In order to ensure the optimum design, trials were conducted at a local test laboratory to prove the air velocities and temperatures required in order to match the throughput of the defrosters to the production plant. Four defrosters were then designed and constructed allowing air thawing of frozen products using variable air temperatures of between +1°C and +15°C. Air velocities (achieved using high capacity reversible axial fans) were designed to achieve 5m/s across the product.

The other services within the factory, namely the mechanical and electrical services, were designed with a view to expansion in mind. This decision was taken due to the ever changing needs of the ready meal sector and the demands of the large retailers. New product lines or additions to existing lines could therefore be accommodated at minimal cost and quickly.

Conclusion

The project was finished on-budget and on-time. With the total project time being less than five months from start to finish, this was a particularly fast turn-around. The construction quality and hygiene of the production facility is second to none and the factory represents the cutting edge of UK food processing.

Since commissioning, CP Foods (UK) Ltd. have been rapidly expanding their throughput and it is hoped that due to the increased demand for this product, CP will shortly be expanding again.

FURTHER PROCESSING

a case study

“With the total project time being less than five months from start to finish, this was a particularly fast turn-around.”



Mid-Care Preparation Area



Low-Care Preparation

