



Kaer Air at Commonwealth Food Services

Mission Critical Operations

Kaer is playing a part in ensuring food safety in the F&B sector in Singapore by deploying its Kaer Air (Air-Conditioning as a Service) model at the Commonwealth Food Services (CFS) facility.

CFS provides food production, distribution and logistics services for brands such as Pasta Mania, Swiss Bake, Soup Spoon, and Udders, among others. In January 2017, it opened its \$70 million state-of-the-art food manufacturing hub with supply chain and other services all under one roof.

The 300,000 square feet facility consists of hi-tech processes such as Singapore’s first high pressure processing line and a fully-automated 13-storey storage and retrieval warehouse system. The technologies and processes in this new facility are able to extend the shelf life of food without the use of artificial preservatives while retaining nutritional value.



Singapore’s Deputy Prime Minister Tharman Shanmugaratnam officiated at the opening ceremony and remarked that this project is “one of the very important ways forward for the food industry”.

Background

One of the major factors in food safety and keeping the 24-hour operations running smoothly is the right indoor temperature and the Kaer Air model was the perfect fit.

Kaer Air is an example of the familiar concept of servitization. Rolls Royce famously no longer supplies jet engines but provides airline operators with ‘power by the hour’.

Similarly, with Kaer Air, instead of investing in and operating air-conditioning equipment, building owners simply dictate the conditions they want to achieve in their space.



The Kaer Air Model

Kaer assumes all financial and operational responsibility to deliver the conditions and the building owner simply buys air-con at a fixed \$/RTH rate on a pay-as-you-use basis.

This allows CFS to dedicate their time and capital to providing unique experiences for their customers whilst Kaer is fully accountable for providing the conditions they need throughout the facility.





The Solution

To accommodate the 24-hour mission critical requirements, Kaer installed two 500 RT multi-compressor chillers to support an actual load of 380 ton (with capacity for future expansion). Additionally, Kaer designed a special fresh air make-up air system in the kitchen areas to bring in replacement outside air to compensate for what is being drawn out by exhaust hoods. This was done to maintain an optimal indoor air quality and reduce the load of the building (and the installed capacity of the chiller plant) by 25%.

Kaer installed fabric ducting throughout the facility as it is more hygienic, easy to maintain and can be easily taken down for washing.

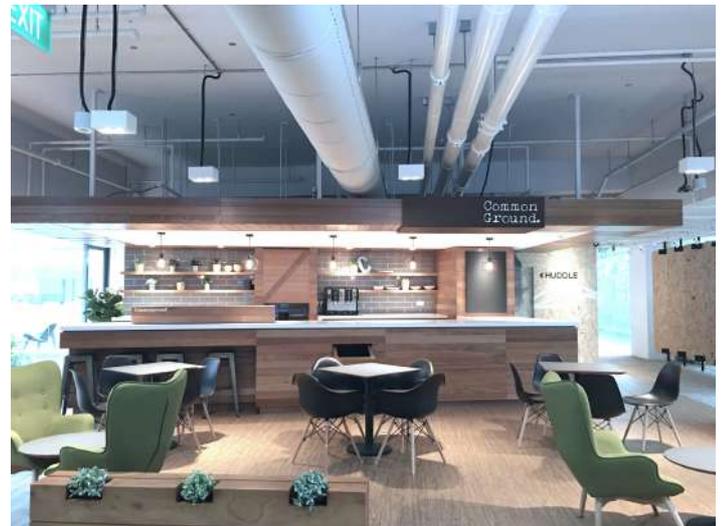
Kaer is also using its patented K-RealTime building monitoring and control system to monitor, measure and track the energy efficiency of the plant. K-RealTime consists of sensors and meters and runs the data through a cloud-based platform. The data is hosted on secure Kaer servers and engineers can view the data and make decisions around operating parameters, in real time 24/7, on an interactive user interface that can be accessed on a PC, iPad and smartphone.



Additional automation was added to the on-site control system, with the briQs machine learning technology. briQs is a world's first autonomous optimisation tool developed by Kaer engineers to run chiller plants efficiently and provide reports and alarms to allow Kaer's engineers to take preventive measures necessary to ensure that comfort and efficiency targets are achieved.

Results

- Reduction in air-conditioning load by 25%
- World's first installation of the briQs autonomous optimisation technology at an industrial facility delivering Green Mark Platinum levels of efficiency
- Fully automated operations resulting in a 90% reduction in manpower to operate the plant



Dave Mackerness, Director at Kaer, said: "We realised right from the start that this project was going to receive a lot of high profile attention. The food industry is one of our economy's pillars and Commonwealth Food Services is taking Singapore to the next stage of growth by going international through the investment in this hi-tech hub. Kaer is honoured to be able to play a crucial part."