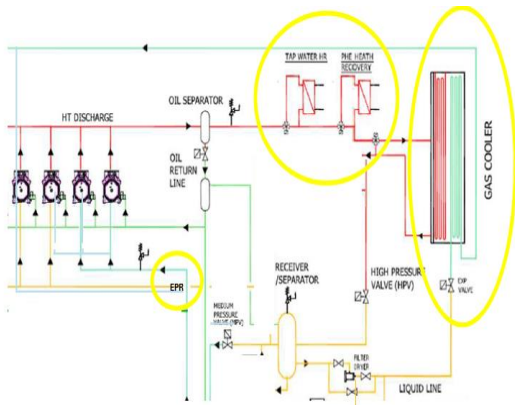


## Project Overview

A major UK retailer approached Ryan-Jayberg to work with their nominated design team to develop a heat reclaim solution for use in a new build supermarket. The specific design challenge was to integrate the Co2 refrigeration systems with their mechanical systems to provide a co-ordinated heat reclaim system that will suit both annual store refrigeration & store heating demands.

Our design team worked closely with contractors and manufacturers to develop the clients existing Co2 refrigeration system, integrating heat reclaim for both their hot water and space heating demands whilst maintain refrigeration system operation for their frozen & chilled supermarket fixtures.



## Key changes from standard system

- 1) the inclusion of two plate heat exchangers to provide heating at different grades for domestic water services (65degC) & LTHW for space heating requirements. (45degC)
- 2) The inclusion of an evaporator coil within the gas cooler design to allow for a false load condition during low refrigeration demand conditions. This is required to meet the heating requirement through the annual cycle.

## Challenges

Winter heating demand is satisfied with a total heat recovery solution by increasing the compressor discharge pressure, along with a false load evaporator to improve the heating capacity. To better match peak heating demands buffer vessels were provided by the mechanical contractor to allow storage of reclaimed heat.

This particular development had stringent Bream requirements putting significant emphasis on the need to install energy efficient technologies.



## Project Outputs

Develop a new specification for application on future sites

Further system development to allow provision for chilled water for air-conditioning/cooling demands

Engagement with the local college to further student's knowledge of the built environment, covering the engineering design, development and delivery of the new store.

