

Case study McDonalds Burwood, VIC

McDonalds Burwood, home to Fujitsu General’s first Roof Top Packaging Unit project in Australia

McDonald’s Burwood was undertaking a refurbishment which included replacing the air conditioning with a system that could provide the latest technology and control solution to minimise power usage.

Background

In collaboration with franchisees, suppliers and producers, McDonalds is working to cut greenhouse gas (GHG) emissions associated with its restaurants and offices by 36 per cent by 2030, while also being committed to a net zero emissions target by 2050. Initiatives to achieve this have included refurbishing its restaurants to consume less energy by updating everything from energy management systems for lighting, heating and air conditioning (HVAC), to more efficient kitchen equipment. Since its 2015 base year, the global organisation has reduced absolute emissions from its restaurants and offices by 8.5 per cent.¹



The Project

Located on the corner of Burwood Highway and Scott Grove, Burwood, Victoria, the 24-hour McDonald’s restaurant was undergoing a refurbishment. This included modifying the interior layout and replacing the air conditioning with a system that could provide the latest technology and control options to minimise the restaurant’s power usage, while also providing usage reports that arm the franchisee with information to make informed business decisions.

Challenges

While the interior layout of the restaurant was being modified, the roof would remain the same. The new heating, ventilation, and air conditioning (HVAC) system had to use the existing duct layout and no new penetrations could be made.



1. <https://corporate.mcdonalds.com/corpmcd/our-purpose-and-impact/our-planet/climate-action.html>

Outcome

Following Fujitsu General's assessment of the engineering brief, the installation was managed by Metro Air (VIC) and included: two 66kW AIRSTAGE™ Roof Top Packaged Units; (with Economiser; De-Super Heater); anywAiR® iO controls; and a variable refrigerant flow (VRF) system.

The two 66kW Roof Top Packaged Units would deliver the indoor comfort the staff was accustomed to, with the latest technology suited for a commercial installation of this size. One Roof Top Packaged Unit was installed for the kitchen area, and another for the dining area.



Regardless of the outdoor temperature, a restaurant kitchen can become unbearable if not managed effectively. The Economiser option enables high energy-saving operation as the outdoor air is used for cooling or warming the internal air. Based on free-cooling technology, the unit features three dampers intelligently managed by an electronic control that constantly monitors the internal and external air temperatures. The Economiser easily integrates with the Danfoss DDC control built into the AIRSTAGE Roof Top Packaged Unit.

The engineering brief specified a De-Super Heater be connected to the hot water system. The De-Super Heater captures and transfers the heat energies from the refrigeration cycle to the hot-water loop via a heat-exchanger rather than rejecting the heat energies through the de-super heating and condensation process on the condenser side into the atmosphere. Incorporating a De-Super Heater in the project would provide the restaurant with an additional smart power saving solution.

For remote control capability, Fujitsu General installed anywAiR iO with wireless sensors. This lets the franchisee: monitor the wattage

being consumed; manage the system operation; and remotely change the set temperature. The system also lets the franchisee connect with and manage other restaurant locations from one convenient dashboard, in the office or via mobile phone.

The variable refrigerant flow (VRF) system was installed for a smaller room that had previously been an outdoor space and was being enclosed as an all-weather party room.

"Metro Air has managed numerous McDonalds' refurbishment projects to update the HVAC systems. We have used Fujitsu General VRF ducted in some restaurants; however, the Burwood project was the first time we had worked with the Fujitsu General applied products. The roof top packaged units were simple to install, and Metro Air has happily installed Fujitsu General applied products in commercial and high-end domestic projects where suitable." Tony Gormley, Metro Air (VIC) Pty Ltd

Project Overview

Site: McDonalds Burwood, VIC
Client/Project Manager: Metro Air
Project Timeline: 2020

- Completion date: December 2020
- Application: Restaurants
- Installer/contractor: Metro Air

Product Overview

Outdoor units:

AOTG24LATC 7.1kW INVERTER OUTDOOR
SET-ASTG09KMTC 2.5kW R32 KMTC SERIES WALL MOUNTED SET
AJT040LCLAH 12.1kW VRF J-IIS SERIES COMPACT VRF SYSTEM

Roof Top Packaged Units:

RAQ/K/WP/ECO422-DS 66kW Single Skin RTPU Incl De-Super Heater
RAQ/K/WP/ECO0422 66kw Single Skin RTPU

Indoor units:

AUTG24LVLC 7.1KW R410A Inverter Cassette Indoor
AUXK034GLEHVRF Circular Flow Cassette Large Type Indoor

Other:

- UTY-TWRXZ2 Communication kit
- UTG-UFYD-W Grille to suit AUTG Inverter Compact Cassette
- UTY-RNRYZ3 Wired Remote Controller
- UTG-UKYA-B Cassette Grille Black
- 1 x Rubix Compute with LoRa and RS485
- HLI Modbus connection to 3 x package AC units
- HLI Modbus connection to 3 x electrical meters
- 1 x Edge iO28 for low level enable of 3 x package AC units
- Supply of IoT-ready enclosure with din rail, power supply, circuit protection & plug base

Quantity of outdoor units: 5

Quantity of indoor units: 3

Total capacity: 153.7kW



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