



**UniLodge**

# UNILODGE CITY GARDENS

## BACKGROUND

Adelaide based air conditioning specialist, O.P. Industries, worked with commercial property developer Synergy Construct, to deliver a modern and sustainable student accommodation project. UniLodge is located on the west side of the Adelaide CBD, next to the University of South Australia's City West campus and within walking distance from the University of Adelaide.

A high-rise student accommodation building, with 16 floors above ground, it features 772 apartments with shared kitchen, dining and games spaces on the ground floor. The building makes a design impact with a 1,764 square metre living green wall, the largest of its kind in Adelaide.

## THE PROJECT

The tender required air conditioning in all 772 units as well as large common areas, and a full mechanical package for air and services. Originally, the brief was to provide

a VRF Heat Recovery system for the whole building, however this was later found to be outside the budget.

According to Wayne Russell, Project Manager at O.P. Industries, "The developer tasked the build team with sourcing an economically efficient system that conformed to the performance and warranty requirements of the project. We recommended the VRF Heat Pump system for the apartments which provided significant value for money benefit. The performance of both systems is identical, the heating and cooling temperature set points are exactly the same, the difference lies in the way you work the units themselves."

In a heat recovery system, individual fan coils can heat or cool simultaneously. With a heat pump system, all air conditioners in this system either heat or cool only. This is determined by one unit which has a master control, likely to be controlled by the building manager.

A VRF Heat Recovery system was still utilised for the ground floor, as larger units were needed to control the temperature of the spacious common areas.

## OVERVIEW

**APPLICATION**  
STUDENT APARTMENT  
ACCOMMODATION

**SITE**  
UNILODGE CITY GARDENS  
ADELAIDE SA

**CLIENT/PROJECT MANAGER**  
SYNERGY CONSTRUCT  
O.P. INDUSTRIES (SA)

**PROJECT TIMELINE**  
2018-2019



**O. P. INDUSTRIES** Pty. Ltd.



**SYNERGY  
CONSTRUCT**  
TIER 1 THINKING.



AIR CONDITIONING





**UniLodge**

## CHALLENGES

The main challenge of this project was limited space. The unprecedented number of units in the building meant there was restricted roof space to fit the condensers.

According to the installer, in comparison to a standard residential apartment building, the UniLodge project was considerably large, with more than 800 individual units installed across the entire building.

O.P. Industries and Fujitsu General were also faced with tight delivery schedules.

"We had a very tight schedule for commissioning equipment and were concerned we would not be able to meet the four to six week turn-around. The standard time allowance for a project this size is normally eight to ten weeks. Luckily, Fujitsu's commissioning team had the manpower to commission and deliver the products in the limited time frame without any delays," said Wayne.

Managing the heat load of the building also posed a challenge to O.P. Industries and Fujitsu General. As a high-rise structure, certain sides of the building were impacted more by direct heat from the sun, so they required larger units in these areas for more efficient cooling.

## OUTCOME

Installing a heat pump system rather than a heat recovery system reduced the number of condensers, allowing more room on the roof.

"We were one of the first companies in Adelaide to use the J-IIIIL unit to meet the refrigerant charge. This required fewer condensers, making it easier for us to space them out. The Fujitsu General engineering team helped considerably with the design. They worked with refrigerant volumes and condenser locations to try to minimise the amount of pipe and labour used on the project," commented Wayne.

Fujitsu General's VRF Heat Pump and Heat Recovery systems went above and beyond the client's requirements to provide efficiency and cost saving. These products helped to improve the sustainability of the building, as the internal settings and compressors of Fujitsu General's new J-IIIIL condenser use less power, making it more energy efficient.

## CONCLUSION

Fujitsu General's inhouse project engineers worked with O.P. Industries to provide selection data, system design and efficiency ratings for the Unilodge specification. This project required a cost-effective solution that could deliver exceptional performance across the entire apartment block. The Fujitsu General VRF Heat Pump system and VRF Heat Recovery system were able to meet the requirements for efficient heating and cooling in both common areas and the large number of individual apartments.

## PRODUCT OVERVIEW

### PRODUCT:

FUJITSU AIRSTAGE VRF

### OUTDOOR UNITS:

4 X J-IIS, 31 X J-III,

54 X J-IIIIL, 2 X V3,

5 X VR-II, 3 X LFCC

WALL MOUNTED, 1 X LHTA

HIGH STATIC DUCTED

### INDOOR UNITS:

823 X ASYA, 3 X AUXA,

3 X AUXD, 3 X AUXB,

5 X ARXC, 1 X ARXA,

3 X ASTG, 1 X ARTG

### QTY OF OUTDOOR UNITS:

100

### QTY OF INDOOR UNITS:

842

### TOTAL SYSTEM CAPACITY:

2069.8KW



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