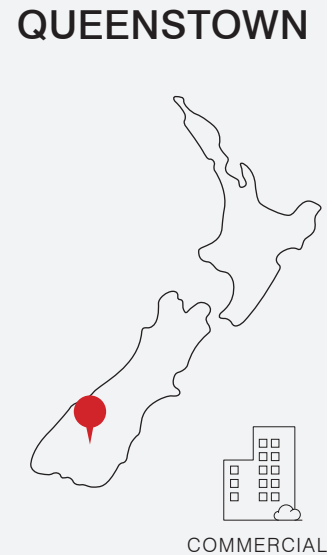


Project Showcase: Holiday Inn Remarkables Park Hotel



Photo Credit: IHG Hotels & Resorts



Nestled beneath the stunning Remarkables mountain range, Holiday Inn Queenstown Remarkables Park hotel offers visitors a full service, 4.5 star Qualmark rated accommodation experience with Mitsubishi Electric solutions to ensure year-round total building comfort for guests while achieving impressive energy and operational efficiencies.

Introduction

The latest addition to the Holiday Inn hotel family lives in the new Remarkables Park precinct, located just a quick drive from the airport, city centre, Remarkables Ski Field and Queenstown's famous attractions such as the pristine Lake Hayes, historic Arrowtown and the best wineries the Otago region has on offer.

This new 5-storey plus basement 9,500m² hotel features 182 rooms, a full service restaurant, bar, grab and go café, cosy media lounge, gym facility, 4 flexible conference rooms as well as an adaptable drying/storage room for all guests ski and outdoor adventure equipment. However, what really makes the Holiday Inn's New Zealand flagship so special, is the flexible 'open lobby' concept area; free-flowing living spaces where guests and visitors can linger longer to eat, drink, work, meet, relax and socialise, a first for the New Zealand hotel industry.



Photo Credit: IHG Hotels & Resorts

EQUIPMENT BREAKDOWN

- R32 Hybrid
- City Multi VRF
- Split Systems
- Air Handling Heat Pump
- Centralised Control

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The Goal

With the client's vision to bring innovative next-generation hotel design to Australasia, combined with the Queenstown location that brings cold, snowy winters and hot, dry Otago summers – a safe, energy-efficient and centrally managed comfort heating and cooling solution was required.

The Challenge

As a hotel project with 182 rooms, the confined sleeping spaces are classified as a Class A application under the AS/NZ 5149:2016 and therefore has a maximum charge kg for refrigerant volumes – if the system were to exceed the concentration limit, forms of mitigation such as alarms, shut off valves and ventilation would be needed to ensure greater occupant safety. Alarms as a form of mitigation can be costly in the long term.

Furthermore, as a building with different spaces and multiple functions a mix of VRF, split systems and an Air Handler Unit to introduce fresh air, would be required for simultaneous heating and cooling to ensure comfort in every space. However, it was important to the client that guests could soak up the view from balconies without it being interrupted by bulky outdoor air conditioning units.



Photo Credit: IHG Hotels & Resorts

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The Mitsubishi Electric R32 Hybrid Solution – Safe and Efficient Water Based Technology

The Mitsubishi Electric R32 Hybrid advanced simultaneous heating and cooling system with heat recovery was the logical choice for accommodation areas. R32 Hybrid is based on a 2-Pipe Heat Recovery VRF System but uses water as a heat exchange medium between the Hybrid Branch Controller and the indoor units. As such, the system combines the comfort of a traditional hydronic system with the efficiency and ease of modern VRF air conditioning – giving you the best of both worlds.

Water at the Heart of the Indoor Units

Because water rather than refrigerant is used between the patented Hybrid Branch Box and the indoor units, this removed the refrigeration-containing parts from the occupied spaces by transferring heating or cooling to each indoor unit via water. R32 Hybrid not only significantly reduced the risk of refrigerant leaks in these confined spaces to safeguard guests, the total cost of the system and ongoing maintenance is reduced as the need for expensive leak detection is minimised – a major benefit for the maintenance team.

The R32 Hybrid system utilises the low GWP refrigerant R32, providing a real solution that delivers high operational efficiency whilst minimising the global warming potential of the refrigerants used within these systems. The hybrid technology also reduced the amount of costly refrigerant while providing additional benefits of a water-based design such as higher sensible cooling and no refrigerant noise at the indoor units.

2-Pipe System Uses Less Material and Equipment

Mitsubishi Electric's unique 2-Pipe Heat Recovery System requires less piping than a 4-Pipe Chiller System. The system does not require an external pump, valves, sensors, actuators, or other ancillary controls associated with conventional 4-Pipe Chiller Systems.



Photo Credit: IHG Hotels & Resorts

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Mitsubishi Electric Products Offer Seamless Integration for Total Building Comfort

Due to the capacities needed, City Multi VRF was chosen for the open plan lobby. The modular nature of the VRF system also allowed for tidy installation alongside the R32 Hybrid System and seamless integration with the Air Handler Unit through the Zubadan Series Condenser, which introduces tempered fresh air into the kitchen.

The physical footprint required for the outdoor units on the roof top is significantly smaller than other systems. The client remarked that they appreciate how guests can soak up the view without these units being seen. Furthermore, the use of discrete concealed ducted units with stylish grilles and in-ceiling cassettes in public spaces ensured the hotel's interior design can take centre stage.



Photo Credit: IHG Hotels & Resorts

Centralised Control Ensures Easy Management of Guest Comfort without Wasteful Energy Use

With 182 rooms to manage as well as conference rooms that can experience temperature fluctuations when hosting events, quick and remote adjustment of temperatures was key for maintenance staff. Two AE200 Centralised and Web Controller LCD touch panels were installed with three EW-50E Central Controller Expansions, allowing up to 250 indoor units to be controlled; one touch screen controls the guest rooms and the other controls common areas and back of house. The AE200's large, back-lit display makes programming a breeze, giving the management team control of temperature, fan speed and airflow options at the touch of a button.

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The ability to time room air conditioning operation with check in and check out times also avoids wasteful energy used when rooms are empty.

As the hotel's Maintenance Engineer explains, "As the maintenance manager, I found it easy to learn and intuitive to operate the centralised control functions and instant monitoring capability via the touch screen panels. This cuts down the time needed to respond to a guest comfort query as I have access to accurate, instant, detail on settings and temperatures in the room.

The easy to use wall controller and thermostat, integrated with behind the scenes room energy management sensors and wider integration into the building management system, greatly reduces the unnecessary operation of air handling equipment while allowing touch of a button comfort for valued guests.

Smart setbacks programmable in each wall controller allow for maintaining guest rooms in a comfortable temperature range, critical with Queenstown's defined seasonal variations, without overuse of the system."



Photo Credit: IHG Hotels & Resorts



AE200



EW-50E

The Results

As the bulk of the install was R32 Hybrid, time consuming installation and cost-heavy ongoing leak detection requirements were avoided. Now the Holiday Inn Remarkables Park Hotel stands proud in the newly established precinct as a conveniently located one stop shop to sleep, eat and connect, in total comfort.

The client now enjoys impressive energy and operational efficiency which they can continuously monitor, make year on year comparisons and is a breeze for management staff to operate in response to Queenstown's varying seasons.



Photo Credit: IHG Hotels & Resorts



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R32 Hybrid Key Features

- ✓ Simultaneous heating and cooling
- ✓ Utilises environmentally-friendly R32 refrigerant
- ✓ 2-Pipe Heat Recovery System requires less material and equipment
- ✓ Water, rather than refrigerant is at the heart of the indoor units
- ✓ Reduced maintenance costs
- ✓ Minimises the need for leak detection equipment
- ✓ Flexible design and modularity allows for a manageable, phased installation
- ✓ Quiet operation
- ✓ High sensible cooling and stable room temperatures
- ✓ Increased energy savings

Full Equipment Breakdown

R32 Hybrid Systems

Outdoor Unit:

- 1x PURY-M200YNW-A R32 Hybrid 2-Pipe Heat Recovery Unit
- 4x PURY-M300YNW-A R32 Hybrid 2-Pipe Heat Recovery Unit
- 8x PURY-M350YNW-A R32 Hybrid 2-Pipe Heat Recovery Unit

Controller

PAR-W31MAA

Accessories

- 62x PEFY-WP15VMS1-E Ceiling Concealed (Low Static)
- 8x PEFY-WP20VMS1-E Ceiling Concealed (Low Static)
- 38x PEFY-WP25VMS1-E Ceiling Concealed (Low Static)
- 60x PEFY-WP32VMS1-E Ceiling Concealed (Low Static)
- 16x PEFY-WP40VMS1-E Ceiling Concealed (Low Static)
- 4x PEFY-WP50VMS1-E Ceiling Concealed (Low Static)
- 1x PEFY-WP32VMA-E Ceiling Concealed (Mid Static)
- 1x PKFY-WL15VLM-E Wall Mounted
- 1x PKFY-WL20VLM-E Wall Mounted
- 2x PLFY-WP20VFM-E Compact Ceiling Cassette (4-Way)
- 2x PLFY-WP32VFM-E Compact Ceiling Cassette (4-Way)

Split Systems

Outdoor Units

- 2x MXZ-2F52VF-A OmniCore Classic Multi
- 2x MUZ-AP35VG-A R32 Split
- 1x PUZ-ZM100VKA-A R32 Split
- 1x PUZ-ZM125VKA-A R32 Split

Indoor Units

- 2x MFXZ-KW25VG-A Floor Console
- 2x MSZ-AP25VGKD-A Wall Mounted
- 2x MSZ-AP35VGKD-A Wall Mounted
- 1x PKA-M100KAL Wall Mounted
- 1x PLA-M125EA-A Ceiling Cassette (4-Way)

Controllers

- 213x PAC-YT52CRA-K Simple Wired Wall Controller
- 8x PAR-33MAA-J Wired Wall Controller
- 4x MAC-334IF-E Interface
- 3x PAC-SJ95MA-E Interface
- 1x PAC-SH29TC-E Terminal Block
- 2x AE-200E Central Controller
- 3x EW-50E Central Controller Expansion
- 5x PAC-YG10HA-E External Input/Output

City Multi VRF Systems

Outdoor Units

- 1x PURY-P200YNW-A City Multi VRF Heat Recovery Unit
- 1x PURY-P350YNW-A City Multi VRF Heat Recovery Unit
- 1x PURY-P450YNW-A City Multi VRF Heat Recovery Unit

Branch Controllers

- 1x CMB-M108V-JA1 VRF Branch Controller
- 1x CMB-M1012V-J1 VRF Branch Controller

Indoor Units

- 2x PEFY-P40VMA-E Ceiling Concealed (Mid Static)
- 3x PEFY-P50VMA-E Ceiling Concealed (Mid Static)
- 4x PEFY-P80VMA-E Ceiling Concealed (Mid Static)
- 1x PEFY-P100VMA-E Ceiling Concealed (Mid Static)
- 2x PEFY-P125VMA-E Ceiling Concealed (Mid Static)
- 1x PKFY-P20VLM-E Wall Mounted

Air Handling Unit Heat Pump

- 1x PUHY-HP250VHM-A

Contractor:



Consultant:

