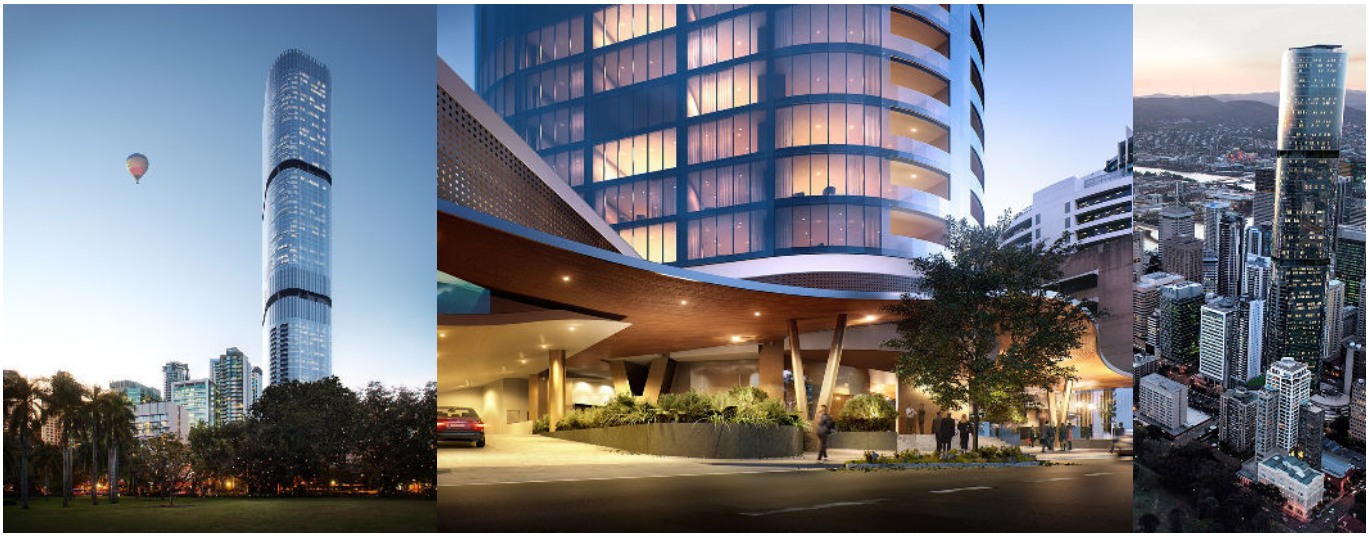
Water Cooled CITYMULTI VRF 2-pipe Heat Recovery technology providing simultaneous heating and cooling and reduced plant space and refrigerant pipework.



Project Info

Application
Skytower

Location
Brisbane, QLD

The Challenge

Set to be Brisbane tallest residential building at the time of completion, the Brisbane Skytower will consist of 90 stories with 88 levels of residential apartments. Being a landmark project, a cost and energy efficient, reliable air conditioning system that would provide year-round comfort for the tenants is essential for the client.

Using typical air-cooled VRF systems on such a project would require immense plant space and large amounts of refrigerant pipework in risers which leads to increased refrigerant volumes.

The client was also looking for an accurate way to apportion air conditioning power usage costs to each tenant.

The Solution

The solution to this was Mitsubishi Electric's Water Cooled CITYMULTI VRF 2-pipe Heat Recovery technology which provides simultaneous heating and cooling while utilising water as the heat rejection source as opposed to conventional air cooled systems.

As water is used for heat exchange at the condensing unit that does not output any radiant heat into the surrounding area, the Mitsubishi Electric Water Cooled VRF condensing units were able to be installed in small plant rooms on each level thus, minimising floor space and therefore providing more usable floor space for the clients use.

The Team

Client
Billbergia, AMP Capital

HVAC Contractor
Navaska

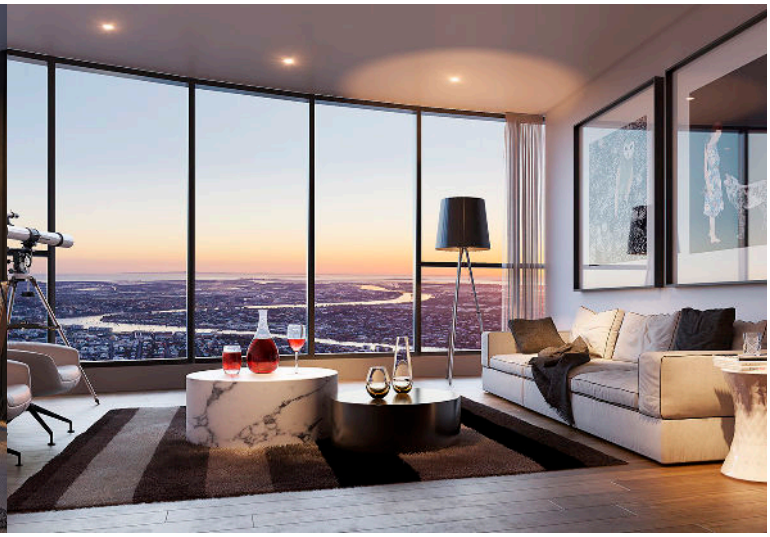
HVAC Consultant
Norman Disney & Young

With Mitsubishi Electric Water Cooled VRF systems plant space is only required to house the cooling tower, heat exchanger and pump set-up with only two water pipes travelling up the risers.

Further cost savings were provided by Mitsubishi Electric Heat Recovery technology which uses only 2-pipes from the condensing unit to the central branch controller and again from the branch controller to fan coil units providing considerable installation savings due to less pipe work and connection points when comparing to 3-pipe systems.

With multiple apartments being served by only two Water Cooled CITYMULTI VRF condensing units on each level, the power apportioning feature on the AE-200E central controller was used to break up the total power consumption of the condensing unit against each connected indoor unit thus allowing the client to accurately charge each apartment for their air conditioning usage.









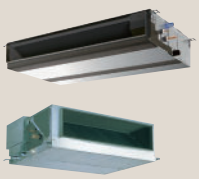
UNIT INFORMATION



Outdoor Units
PQRY-P600YSHM-A x 1
PQRY-P550YSHM-A x 4
PQRY-P500YSHM-A x 4
PQRY-P450YSHM-A x 10



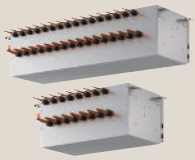
PQRY-P400YSHM-A x 3
PQRY-P300YHM-A x 20
PQRY-P250YHM-A x 22
PQRY-P200YHM-A x 16
MUZ-GE25VA-A1 x 1



Indoor Units
PEFY-P25VMA-E x 304
PKFY-P63VKM-E x 2
PKFY-P20VBM-E x 2
PEFY-P80VMH-E x 3
PEFY-P71VMH-E x 2



PEFY-P250VMHS-E x 1
PEFY-P200VMHS-E x 12
PEFY-P140VMH-E x 4
PEFY-P125VMH-E x 1
PEFY-P100VMH-E x 2
MSZ-GE25VA-A1 x 1



BNC
CMB-P108V-GA1 x 6
CMB-P104V-G1 x 2
CMB-P1016V-GA1 x 10
CMB-P1013V-G1 x 12



Controllers
AG-150A-J x 3
PAR-30MAA-J x 30
PAC-YT52CRA-J x 304
PAC-YG50ECA-J x 9
PAC-SE55RA x 304

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