



Saffire Freycinet has a panoramic view over Great Oyster Bay.

The gem

Located on a picturesque peninsula on the east coast of Tasmania is a luxury resort, Saffire Freycinet, where every aspect, including the HVAC, has been designed with the guests in mind, writes **Matt Dillon**.

The potential of the Freycinet Peninsula has long been recognised. Indeed, the area on the east coast of Tasmania, located 125km from Hobart, is home to one of the state's oldest national parks, founded in 1916.

Wineglass Bay is considered by the travel cognoscenti to be among the world's best beaches. And Freycinet's jagged granite peaks, known as the Hazards, are another feature of the rugged area renowned for its beauty, tranquillity, and many rain-free days per annum.

It is, in other words, just the place for a high-end resort.

Located on the site of an old and disused caravan park is Saffire Freycinet, the boutiquest of boutique hotels.

Two components make up the complex, which sits on 11 hectares. There is the main visitor facility, described as looking

a little like a stingray from a distance, and a string of 20 suites delegated "deluxe", "luxury" and "premium". Note: no "economy".

Everything about the resort is designed to relax, beguile and inspire its high-paying guests. It is conceived as an "experience".

WE DON'T WANT TO SEE IT

Of course, part of that Saffire Freycinet experience includes the views, which the architects, Circa Morris-Nunn Walker, designed to be revealed gradually.

"We shaped the main building as the end point of a continuing journey, in which views of the Hazards are shielded and revealed and finally presented inside the building as a panoramic overview of Great Oyster Bay," the architects say.

"The journey moves from the monumental to the more intimate personal spaces of the suites."

The ask of providing HVAC for this intimate journey fell to Wood & Grieve Engineers, which was tasked with designing a system for the uniquely shaped main building, a structure that houses three levels of south-facing double-glazed windows, but is also home to pools and ponds.

At first glance, the HVAC design seemed reasonably straightforward, but there was caveat: the architects didn't want anything to be seen.

Saffire Freycinet is, after all, a luxury resort, and opulence is as much about what isn't experienced – bad service, traffic noise, potentially unsightly grilles and what have you – as what can be (high thread-count sheets, for instance, or pleasant vistas).

“As you walk through the space, there’s very little of the systems that you can notice,” says Wood & Grieve Engineers’ Grant Holman, M.AIRAH. “It’s very understated, and we were conscious of that.”

“We did a lot of work with architects to not only get a workable solution, but also one where there is no visual intrusion.

“There is a mixture of some underfloor and some overhead, but for the most part, in the key areas, you can’t see the diffusers at all.”

Holman says there were three key issues to consider for the main building: condensation; where the air was distributed; and controlling the temperature of the occupied levels, which needed to be consistent, without any drafts.

“We worked very closely with the diffuser manufacturer to make sure the diffusers weren’t creating any drafts but were getting the heat to the façade, because there are three to four metres or maybe more where the façade is away from the systems, and they’re at low-lying levels and in the traffic path,” Holman says.

“We didn’t want to have it so that you’re walking along and maybe sitting in the

restaurant component and feeling that draft.”

Considerable modelling work was done to make sure condensation wouldn’t ruin views out of the three levels of glass.

“We modelled to make sure the solar heat gain coefficient and U-value were compliant from a Section J point of view,” Holman explains.

“On top of that there was an expectation from a U-value perspective to minimise condensation. We had to make the glass work pretty hard to do that because of not being able to treat inside the building right next to the inside face.

THE CONTROL SITUATION

Holman says there are some intricacies in terms of controls, because of trying to manage the main building’s multiple levels and different scenarios of pressurisation. “Each different system had the ability to run in the economy cycle at different times, depending on the conditions in different spaces,” he says. “So managing pressure and relief in the building was important.

“Even within the building there were various VRV fancoils in each of the spaces – some with multiple ones – so that you might have one area of the space, because of a function there, might be suitable to run economy-cycle, whereas somewhere else in the building it was not.

The individual systems therefore run in some cases with a base-load of fresh air and in some cases with economy-cycle.

Yet the relief on the economy-cycle was driven from a single system, so there was some pressure balancing we had to do and linking it in to when it goes into economy-cycle and things like that.

The systems also utilise heat recovery via the refrigerant system to further reduce energy use where possible.

“So with VRV and interfacing with the data control systems meant there was a little bit of challenge to try and get the controls to talk to one another to try and make that transition smooth.

“Credit Degree C, the mechanical contractors. It’s working well. They did a great job of understanding the concept and the detail in how it was going to come together.”



The luxury spa.



Glazing in the main building was modelled to ensure no condensation.

A SOCK RUNS THROUGH IT

“The building has almost like a fabric sock that rises up through it,” Holman says.

“We actually used that as part of our return air path and destratification point at the top of the main building. In the depths of winter, heat builds up at that point; it draws the heat as the return air path.

“Then in summer, it draws it from a lower level, allowing the hot air to stratify, so we don’t have to condition the whole space.”

“With heat recovery, we’ve actually sheltered the condenser units to try and minimise the issues of frost and de-icing capacity,” Holman says.

“There is also redundancy in the system’s capability. We can have condensers out of action and still have capacity, which is important given the location.”



Suites are arranged so that each appears to have a private bay view.

PROJECT AT A GLANCE

The professionals

Architect:

Circa Morris-Nunn Walker

Electrical consultant:

Wood & Grieve Engineers

Environmental consultant:

Wood & Grieve Engineers

Facade engineers:

Hyder Consulting

Fire services engineers:

Wood & Grieve Engineers

Mechanical consultant:

Wood & Grieve Engineers

Mechanical contractor: Degree C

The equipment

AC units:

Daikin VRV Heat Recovery

Air diffusion: Holyoake

Controls: Daikin and Innotech

Fans: Fantech

Hot water: Rheem heat pump and LPG gas-fired systems

Refrigeration: Buffalo Trident

Water features and pools:

Tassie Pools and Spas



Spa exterior.

SUITE ACTION AND CHALLENGES

The 20 suites all feature variable refrigerant volume (VRV), connected to a series of common condensers, with heat recovery. In a space wishing to evoke sensations of being in a peaceful oasis, it wouldn't do to have guests disturbed by maintenance staff attending to the HVAC kit, which is located away from the suites.

It's another example of how every aspect of the design was considered for how it would affect the guest experience.

For instance, nothing was allowed to pop through the roof – no kitchen or toilet exhaust, so the HVAC design solutions were managed in different ways to make them non-visual.

And although Holman says the design work was not especially complex, neither was it typical.

“We had the ability to work through the issues and challenge ourselves from a design perspective,” he says.

“And the architects were open to those ideas. They respected that the building had to be serviced, but were helpful in driving some of the aesthetic responses.”

Kit is in a basement plantroom, with the tail of the building also becoming a services space, and home to the core water-filtration equipment (Saffire Freycinet captures some of its own water).

“We virtually made one side of the building the exhaust pipe, if you like, to get the entire services component out and away in that area,” Holman says. “And then the other side was for fresh air, so you're providing good separation from those two.”

Of course, this means the noisy components are on the other side of the building from guests, which again attends

to the mission of making everything about Saffire Freycinet's temporary inhabitants.

Holman says Wood & Gries' biggest challenge was the building's shape; the normal understanding of services zones and reticulation didn't apply.

“It really needed some creative thought about how that was going to happen, together with the directive of, ‘We just don't want to see it.’”

All this, and high expectations about thermal comfort.

Holman says one of the most enjoyable aspects of working on the project was the freedom to implement some interesting design. Often there are trammels – financial or otherwise.

“But in this case we had a fantastic client and a fantastic team that really understood the end result and what was needed to make it happen,” he says.

“Everyone was pretty connected to the result and really cared for the project – and that included the builder too. Plus, it's a unique building, and we're just proud of the result.”

As for the guests, well for them it's about relaxation and rejuvenation. Thermal comfort is a given, and please don't let foggy windows get in the way of their late-afternoon view. Apart from that they don't need to know too much about the HVAC. ■

Did you know?

Grant Holman, M.AIRAH was part of the working group responsible for getting the AIRAH Graduate Certificates re-accredited. A considerable number of Wood & Grieve Engineers personnel have been through the course.