

Playing it cool on the Sunshine Coast

A major fresh fruit and vegetable supplier to Queensland's north coast has taken a long-term view when fitting out its new Coolum facility. As Sean McGowan reports, Suncoast Fresh ensured reliability, energy efficiency and company growth were the cornerstones of its refrigeration equipment choice.



Suncoast Fresh roof top units.

Suncoast Fresh is one of the Sunshine Coast's fastest growing wholesalers of fresh fruit and vegetables, supplying many of the hotels, restaurants and cafes along the north coast of Queensland.

The vision of owner Duane Ashton, a former process factory worker, recently progressed to the point where Suncoast Fresh outgrew its rented accommodation, resulting in the company purchasing a new facility at Coolum.

Buying new also gave the company the opportunity to select an appropriate refrigeration solution, which would take into account the company's products, including mangoes, apples and oranges; allow for future growth; and address skyrocketing energy costs.

In seeking a specific solution, Ashton turned to Paul "Agro" Brennan of Commercial Refrigeration Queensland (formerly B.J. Refrigeration), who had provided installation and servicing to the process factory where Ashton was previously employed.

Both Suncoast Fresh and Commercial Refrigeration Queensland were adamant that the new facility's system design suit their current load duties, as

well as allow for growth in coming years. They also demanded quality components.

"We utilised the engineering experience of Jason Pearce, engineer with the Brisbane branch of Patton Australia, to assist in the calculation of heat and product loading of the coolrooms and guide equipment selection," says Brennan.

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"He paid special attention to saturation suction temperatures (SST) to ensure the required relative humidity (RH) would be achieved in each room. This has been accomplished through the SST and evaporator selections."

The various coolrooms in the facility were designed specifically for the produce they would hold. For instance, the mango room was designed to maintain 15°C with a relative humidity of 90%, achieved via 17kW_r at 10 SST and an ambient temperature of 38°C using R134a refrigerant.

The main fruit and vegetable room was designed to maintain 8°C with 90% RH, via 36kW_r at 3 SST and 38°C ambient using R404a. The apple and orange room was designed for 4°C at 90% RH, achieved via 38kW_r at -2 SST and 38°C ambient on R404a.

Following confirmation of the load calculations and equipment selection, Brennan took the recommendation to site, where they were discussed in depth with the client.

"We talked about the choices they had, the options available to them and the need to get the most out of their new facility," says Brennan. "We also went into great detail as to the reasons why we were quoting significantly larger systems compared to other companies.

"This led to the client discovering that other quotes had undersized equipment selection and had not considered the current draw and weight of equipment to be used," he adds.



Considering the options

Among the options considered were flat-based condensing units with semi-hermetic compressors fitted. However, the weight of the equipment and amp draw saw Pearce suggest other solutions.

“Efficiency and operation was a major factor, which we discussed from the outset,” Pearce says.



“We looked at compressor COPs (coefficient of performance), as well as starting and running amps to select the right equipment for each of the facility’s cool rooms. And [we] considered sizing equipment that would allow for the future growth of the company.”

Due to a number of site issues, Pearce recommended the team use scroll-type compressors on two medium-sized coolrooms because of their maximum COP; and the fact that their current draw was better than if semi-hermetic compressors were to be used. This also avoided the weight issues associated with semi-hermetic compressors.

“We did, however, use a semi-hermetic, capacity-controlled unit on the larger coolroom due to it being used as more of a loading room, where product would be entering and leaving more regularly,” says Pearce.

As this was also the facility’s main coolroom, more capacity was supplied to allow for operational growth.

“At the end of the day, the final equipment selection and design came about due to load, growth, energy consumption and the weight of the units,” Pearce says.

Avoiding banana peels

Although this was an installation within a new building, challenges inevitably arose, not least of which was the time constraints of Suncoast Fresh, which planned to have the new facility operational just as its lease expired at the rented premises.

“

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“What large project doesn’t have challenges?” asks Brennan. “With the help of Patton Australia and my team, which included a lot of effort over and above what they needed to give, we were able to meet the time constraints and the client’s needs.”

One of the more technical challenges confronting the team was the weight of equipment being installed on the roof of the facility – a building not specified to hold the combined weight of the condensing units.

The solution? Strengthen the main roof supports of the building, which were subsequently checked by structural engineers before the equipment installation.

According to Brennan, the path to any successful installation is asking the right questions of the client from the very beginning so all parties understand the desired outcome. It’s vital to maintain good communication between the contractor, client and supplier.

“The problem with winning projects like this is that the client can be misled by contractors who



select undersized equipment that will only just do the required job, yet will cost the client a lot more money both in the short and long term, as inferior equipment breaks down,” Brennan says.

Suncoast Fresh

The details

Client: Suncoast Fresh, Coolum, Queensland

Contractor: Commercial Refrigeration Queensland

Equipment supplier: Patton Australia

The equipment

Mango room:

9hp Patton Quantum Pak scroll condensing unit (1 x PZB900)
P series Patton evaporator (2 x PM95)

Fruit and vegetable room:

15hp Patton Quantum Pak scroll condensing unit (1 x PZB1500)
P series Patton evaporator (2 x PM160)

Apple/Orange room:

20hp semi-hermetic condensing unit (1 x CH2000)
P series Patton evaporator (2 x PM190)

Ancillary equipment:

Parker balanced port TX valves and solenoid valves
Allflex FR insulation

Refrigeration control system:

Carel Mastercella

"This also impacts on energy usage, as undersized systems inevitably have longer running hours, and can lead to compressor damage and the like.

"Selecting the right equipment for the job and explaining to the client why it has been selected and what it will be able to handle is important."

Keeping it fresh

Since the new facility was commissioned last year, Suncoast Fresh has been extremely happy with the performance of the installed refrigeration systems.

Brennan says the installation is being checked regularly to ensure all temperatures and humidity levels in the rooms are meeting the client's requirements, and no issues have been found.

"We like to make sure that our installations, on any job big or small, are operating as planned," he says. And by providing operational updates as often as possible, it gives the client peace of mind."

He cites two factors that were critical to the project's success. One was the assistance of Pearce, who ensured system equipment and selections were right for the application. The other was the operation and quality of the equipment supplied by Patton Australia, right down to the ancillary parts.

"This [refrigeration solution] should be what all fresh produce cold storage markets are looking for," Brennan says.



Two evaporators are utilised in the mango room.

Suncoast Fresh successfully relocated into its new Coolool facility late last year without hitch. Despite the natural disasters inflicted on the state during

the recent summer, the company is enjoying strong growth, its new home able to accommodate it for the foreseeable future. ■



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