

M&J Refrigeration's Extensive Upgrade While IGA St Albans Kept Trading

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Contractors who upgraded and modernised the refrigeration plant and equipment of an established supermarket in Melbourne had to keep the supermarket running while working with the renovation timetable of the builders on the project.

IGA St Albans is one of the largest independent supermarkets in Melbourne and part of the Independent Grocers of Australia (IGA) franchise.



The newly renovated IGA St Albans supermarket

Its original plant room and refrigeration units were more than 20 years old needing a complete upgrade, while the new building renovation doubled the size of the original supermarket.

A director of M&J Refrigeration the contractor, Jos Jeanne, told *Celsius* he had been in the refrigeration game for more than 20 years and seven of those years in his own business. On this project he was working for the Australian Pacific Group run by the Lay Brothers. Work started on the upgrade of the supermarket in April 2006 and was still continuing.

"We are a multi-skilled company and can work on any project to do with refrigeration and air conditioning," Jeanne told *Celsius*. "We do all the plant room installation, merchandising displays, build cool rooms and do all the wiring including low voltage systems as well as the plumbing," he said. "I employ seven refrigeration mechanics and a couple of apprentices. We also have a salesman, Mick Sullivan, who has many years of experience advising our clients on the best equipment. Three administration staff in the office do the paperwork and our draughtsman, Blair Westerman, is responsible for producing the layout and drawings for the merchandising cases. These include drains, pipe connection and plant room design.

"It's very important for us to have a drawing we can all refer to our customers or project managers,

errors such as dimensional mistakes. The drawings also let the customer understand the extent of our work before we start working on site.

"We have been working for Lay Brothers on various supermarket projects for the last four years.

"Trevor Lay's needed to upgrade all of the old units and virtually double the size of the old supermarket with the new extension. The old units were falling apart. The maintenance bill to keep these going was huge. The monthly power bill alone was around \$8000, so low maintenance and energy efficiency was important in the equipment we selected.

"We started work in April last year and have been renovating all the refrigeration systems while the supermarket was still trading, doing a stage at a time in line with the building renovation. This meant working at night during parts of the project," Jeanne said.

"It's one of the busiest supermarkets in the IGA group and Trevor didn't want to hinder his trading during the renovation."

Originally the supermarket had 20 year old merchandise display units. They were powered by different condensing units and compressors of all shapes and sizes.

"We have replaced all of these with three racks of compressors and modernised the plant. There are high temperature, medium temperature and low temperature racks," Jeanne said.

The Fridge and Freezer Doors

The TGD (Thermo Glass Doors) were very good doors and had come up pretty well in the supermarket, according to Jeanne. John Mignano, the Australian distributor for TGD, a LU-VE owned company, looked after supply and delivery during the project.

"There is another brand on the market we have used in the past but the TGD are easier and quicker to assemble even if they cost a little more," Jeanne said.

Mignano told *Celsius* they selected the ten TGD, five door Line-Up frames and supermarket doors and delivered all five to site. These frames one piece factory wired and at 4 metres long they give you a nice straight line: "They are a modular system and doors can be easily removed from the frame.



Some of the 50 new TGD Line-Up supermarket doors

"The one piece frame design allows for a quick job so M&J installers just had to mount the frames and the next day I delivered the 50 doors. Their crew then fitted the doors and tensioned the self-closing mechanism. TGD packs their doors in an intelligent way with a foam pack around them in a special carton so the installer doesn't have any issues with glass breakages.

"We chose for the Australian market a particular size door which gives the best fit. The TGD Line-ups are between 1800 by 760 mm. Each line-up has a plug-in system with just three wires to make it run. It's easy to clean without dirt catching in holes or the engravings. It's a modern design with black frames and full length curved door handles.

"Lighting is built into the top and side mullions with electronic ballast, and fast switch-on. There is a 90° opening lock so doors can't be left open by the people charged with loading the fridge and our customers appreciate this feature," Mignano said.

"In this project we supplied more than 50 doors. The TGD doors are well lit in each mullion from the side and above. This improves retail sales."

The Delicatessen and Cool Rooms

The installation supervisor for M&J, Simon Warde, told *Celsius* that when they installed the new section of the supermarket they kept half the existing delicatessen area running so they could keep trading.

"The Deli units we installed were Koxka from Hussmann. We installed all the dairy cases first and built a new cool room at the back at the same time.

"We then knocked a wall down between the old and new supermarkets and put in half of the new delicatessen units. Then when we had the new delis running we removed the old one," Warde said.

"In behind the delicatessen area deli and meat cool rooms. The smaller



The Koxka from Hussmann delicatessen unit

of these rooms is storage for olives, salamis, hams and other deli items. There was wasted space between the two meat cases so we put an ice room in there. This fills up with ice from an ice machine on the roof. This means it is close to the fish section where they use a lot of ice for the display."

LU-VE's evaporators selected by M&J for the cool rooms were BHC-SHC Unit Cooler that blow air all the way to the back wall and not to the side of the unit. Air straightening grills were a standard fixture on LU-VE units, according to LU-VE's John Mignano.



LU-VE BHC-SHC Unit Cooler evaporators

"They have Turbocoil 2 heat exchangers with a high ratio of capacity to cost based on the new grooved helical high efficiency copper tubes developed for new refrigerants. The Turbofin 2 have aluminium high efficiency fins with special turbulence reducing dehumidification and frost formation."

Upstairs M&J built large multi-purpose room: "This cool room is a combination freezer room," Warde said. "With the flick of a switch it will turn from a low temp room to a medium temp room so the supermarket has extra space for storing fruit and vegetables and dairy products.

"When there is no stock of medium temperature products, with a flick of a switch the room can be turned into a freezer room and it will go down as low as minus 20.

"A lot of cool rooms don't have these features, but we like to give a customer

a multi-purpose room," Warde said.

The Compressors

Before M&J upgraded the old plant room from one wall to the other were old compressors everywhere, said Jeanne.

"We decommissioned and removed half the plant room and placed the new medium and low temp Bock racks in a corner and then we removed the other half and installed the Bock racks."

Sales manager for Bock Australia, Phil Phillips, told *Celsius* the two compressor racks supplied for the supermarket were medium temperature racks combined with four cylinder, hermetic, gas cooled HGX5/725-4 and HGX5/830-4 with a combined capacity of 72 kW for each rack.



Simon Warde with the Bock high temperature compressor racks

"The lubrication system uses ester oil," Phillips said. "The conventional single circuit lubrication system has an oil pump independent of the direction of rotation, with a large volume oil sump. It's a standard inclusion for the MP10 Motor Protection. It monitors function and mains availability are shown with coloured LEDs. It has a reconnection, preventing device; a reset; free terminals for PTC temperature sensors, heat protection thermostat and other useful features."

Jeanne said that when he ordered a rack he told Phil Phillips how many liquid line and suction line spigots and what size receivers he wanted. "They put it together in a nice neat package and all we had to do when it arrived down here was to connect the spigots.

M&J has a policy of using the latest refrigerant gases. "The refrigerant used is R404A," Jeanne said. It's easier for us because we have got seven vehicles on the road and if you have a different array of gasses in each van it's costly for us to keep ten different refrigerants. We do not think this extra cost can be passed on specially as some gases are being phased out. With this project the refrigerant is the same," Jeanne said.

"There is a sub cooler on the high temperature Bock rack boosts the capacity of the freezer. We are using the high temp system to sub-cool the liquid. It does help the performance of the equipment. There is less gas and fewer problems with the valves. "They work much more efficiently.

"A low temperature rack was bought at auction by our customer. This was equipment from an old Franklin's supermarket. The units were only three years old and they worked out very well on price. We had only to make small modifications to improve the performance of the rack - we are always available to advise our clients on second hand equipment," Jeanne said.

The Condensers

Warde told *Celsius* M&J was running a split condenser to give more heat out of the heat reclaim coil.

"It's a simple way of doing it, using a few check valves. When the heat comes in through the heat reclaim coil there are two coils there, one for each rack.

"There are two condensers in the heat reclaim hooked up. We can use one or two coils of the heat reclaim. Heat comes through one and stops at a check valve. This system will use only half of the condenser in the winter. During summer when there is normal condensing, it will come through the check valve and use both coils. The customer gets free heating this way in winter.



SHVN 305 with 284 kW capacity and an SHVN 264 with 264 kW capacity

Mignano said the LU-VE condensers were an SHVN 305 with 284 kW capacity and an SHVN 264 with 264 kW capacity. "The condensers each have Turbocoil heat exchangers which give high efficiency by combining new fins. They have a special tube configuration for high performance with lower air quantities, low motor consumption, low noise and reductions in internal circuit volume. The coil suspension

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system eliminates tube contact with the condenser frame and giving full protection for the coil during transport," Mignano said.

According to Jeanne, all the new condensers went in at the same time as the new compressors. "There is a second hand condenser which is hooked up to the second-hand compressor rack," he said.

The condenser had eight 800 mm fans and needed to run only at 40% even on the hottest days of summer: "If you size your condenser correctly that's the efficiency you can get. It's much better than having the fans revving out at full speed," Mignano said.

The new plant room and nearly all the cool rooms are complete and working well. They were ahead of schedule and waiting on the builder before completing the last cool room upstairs, according to Jeanne.

"The power bill was \$8000 a month and now we have increased the energy efficiency and doubled the size of the supermarket the electricity bill is only \$10 000 which goes to show you how inefficient the old plant was. Trevor Lay is very happy with the new refrigeration plant and equipment," Jeanne said.

Plug and Play Refrigeration Unit from LU-VE had a Country Supermarket Running in One Week

In the Gippsland town of Sale in the country Victoria, three hours from Melbourne a father and son team have set up a supermarket and bottle shop. Paul Feltis manages the store with the assistance of his father Jim.

It was a complete turn-key project for us said Jos Jeanne of M&J Refrigeration. "When I first quoted on the job the building was only open

at the front as a milk bar. Paul kept running the milk bar to give him revenue while we were doing the work in the back," Jeanne said.

"The new FoodWorks franchised supermarket needed a modern energy efficient system. LU-VE's John Mignano told me about a plug and play unit he had made for other refrigeration projects. Because we have the team and expertise LU-VE supplied all the components CKD and we assembled the complete unit inclusive of electrical switchboard.

"We prefer to use Plug and Play systems as they are installed easily and quickly and give our customers the possibility to relocate the refrigeration to be close to the cases. Without a plant room on the floor level there is more floor space available. Also supermarket customers do not need to see our service people walking through the deli section to get to the plant room when we need to do a service."

M&J pre-package everything in a couple of days and sent it to the Sale site. "There was additional savings on the wiring and control of the unit which was all included," Jeanne said



The plug and play refrigeration system in a box on the roof of the supermarket

"The Plug and Play includes a LU-VE SHVN 110 condenser with a Turbocoil heat exchangers which give high efficiency by combining new fans and a special tube configuration for high

performance with lower air quantities, low motor consumption, low noise and reductions in internal circuit volume. There are three compressors within the unit, two for medium temperatures and one for low temperatures with an overall capacity of 40 kW," Mignano said.

"With the plug and play unit M&J just lifted the unit up on the roof and there was no need for an electrician," Jeanne said.

"There are Arneg refrigeration display cases and we have installed the same TGD/LU-VE Line-Up doors in the milk and soft drink section as we did in the big 50 door job at the IGA St Albans supermarket.



The TGD Line up supermarket doors lit from the top and side mullions

"There are seven TGD doors on the freezer and five on the medium temperature cases.

"We even put an air conditioner in his office for him.

"We pulled down the existing cool rooms and built new ones. There's a 9 x 3 m cool room up the front of the supermarket. We installed two Arneg dairy cases.

"It was a small job but a good job and on 38°C days of summer it didn't miss a beat. Paul and Jim are very happy," Jeanne said.

"We did the installation of the whole supermarket in one week."

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The new supermarket in Sale