



ENGINEERS  
AUSTRALIA

## Family Fresh Farms Site Visit

25th October

Engineers Australia Central Coast Group in conjunction with management from Family Fresh Farms and Central Coast Industry Connect (CCIC) hosted a site tour of the Family Fresh Farms Facility on 25th October. Over 60 people attended this evening event.

The Gerry Harvey-owned Family Fresh Farms site at Peats Ridge was developed from the ground up using the latest technology in Glasshouse production from Holland and Biomass heating from Denmark and Austria. Significant excavation works took place to build and to cater for drainage and services to support the 5 hectare glass structure that sits on the 16 hectare site.

The tour began in the boiler house with Frank Sammut, Chair of the Central Coast Group, welcoming guests and the speakers. After a short “meet and greet” amongst the guests Thomas Strang, CEO of Justsen Pacific who supplied and install the 5MW Biomass boiler, provided an overview of its workings and the wood chip feed system. The boiler heats water that is used to heat the glass house through a series of pipes when required. Around a million litres of hot water is stored to be able to respond quickly, to any heating requirements.

Wood chips are sourced **from** sustainably produced forestry residues from the surrounding region and are brought in via an open top Pantech semi-trailer. The trailer has a “moving floor” that moves the wood chip from the Pantech and feeds it into one of two bin systems. Typically, the types of fuel that can be used are wood chips, sawdust, bark, shavings and timber mulches. The wood chips are approved by the EPA as a fuel source.

The Burner can consume up to 2 tonnes per hour of wood chip through its single auger feed system. The cost of these fuels is about 75% cheaper than LPG but the capital cost of the unit is higher. The ash generated by the burning of the wood chip is about 1% of the fuel load. The flue gases are passed through an Austrian-made Scheuch electro-static precipitator leaving no visible emissions from the stack. The stack emissions are far less than those permitted. and the feed system uses a single auger system.

From here Frank led the group to the outside of the packing area, some 150 metres away from the boiler house. Here Tim Walton, a civil engineer from Lindsay Dynan, engineers for the civil works, took the group through the site preparation. At the boiler house end the ground was cut into but some 220,000 cubic metres of fill from the North Connex project was brought in to get the required levels across the rest of the site. Drainage is directed to two existing dams on the site and this water is filtered and reused in the operations of the glass house.

From here Tim handed over to Patrick De Craen, the Operations Manager for Family Fresh Farms. Patrick is from Holland and has spent over 20 years in farming and in particular Glass house food production. Patrick explained that the frame structure originated from Holland and the panel safety glass for the walls and roof came from China. Before moving into the packing room Patrick spoke about the roof cleaner which was positioned on one of the gables outside. The entire roof of the complex is cleaned once a week. This is critical as for every 1% loss of light there is a corresponding 1% loss of product yield.

The group moved into the packing room where Patrick gave an over view of the equipment for the process. The glass house currently produces cucumbers. Seedlings are sourced from WA due to the volumes required. The seedlings which are about 200 mm high are then planted in a fibrous wool material and are then drip feed by a premix of liquid nutrient. This is produced in a far corner of the packing room and is done automatically through computer controlled dosing and mixing system. Any excess liquid from plant feeding returns to be reused.

Below the roof structure there is a "Shade cloth" of a particular grade to control the amount of direct light reaching the plants. There is also a misting system that provides humidity control in the growing areas. The glass ceiling has a number of opening and shutting panels together with internal fans and a hot water heating system that regulates the temperature in the area. Any condensate within the area is collected and used in the systems water supply. All this is computer controlled.

The group had an opportunity to enter one of the glass house areas that was being stripped out of its plants as they were at the end of their cycle. There are 3 crop rotations per year, each plant produces around 90 cucumbers. The cucumbers are picked by hand and are collected in trolleys that are taken out to the packing room where they are packed into boxes ready for shipping. Peak production is around 24 tonnes per week.

There are strict guidelines in entering glass house areas that have growing plants to ensure disease control. Once the crop is spent plants are removed and the area is cleaned and sterilised using heat. The group were able to see growing plants through the glass in the packing room.

Throughout the evening, attendees took the opportunity to ask questions of each of the speakers regarding the state of the art facility that encompasses the best of engineering and agriculture practice in this space. Frank concluded the evening with a special thanks to the speakers and to those who attended.