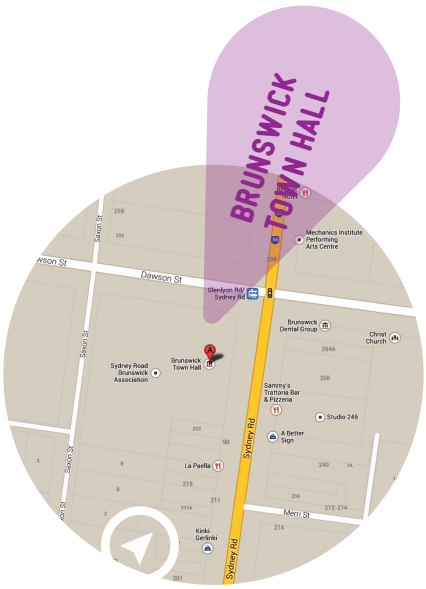
BRUNSWICK TOWN HALL AND LIBRARY

MORELAND LEADING THE WAY IN ENERGY EFFICIENCY

"The Brunswick Library is the second largest in the municipality and receives over 150,000 visits each year."

KEY ACTIONS

- Installation of new building management system (BMS)
- Replacement of heating, ventilation and air conditioning (HVAC) equipment



ENERGY EFFICIENCY UPGRADES

Energy efficiency upgrades at Brunswick Town Hall and Library involved installation of a new building management system (BMS) and replacement of the chillers.

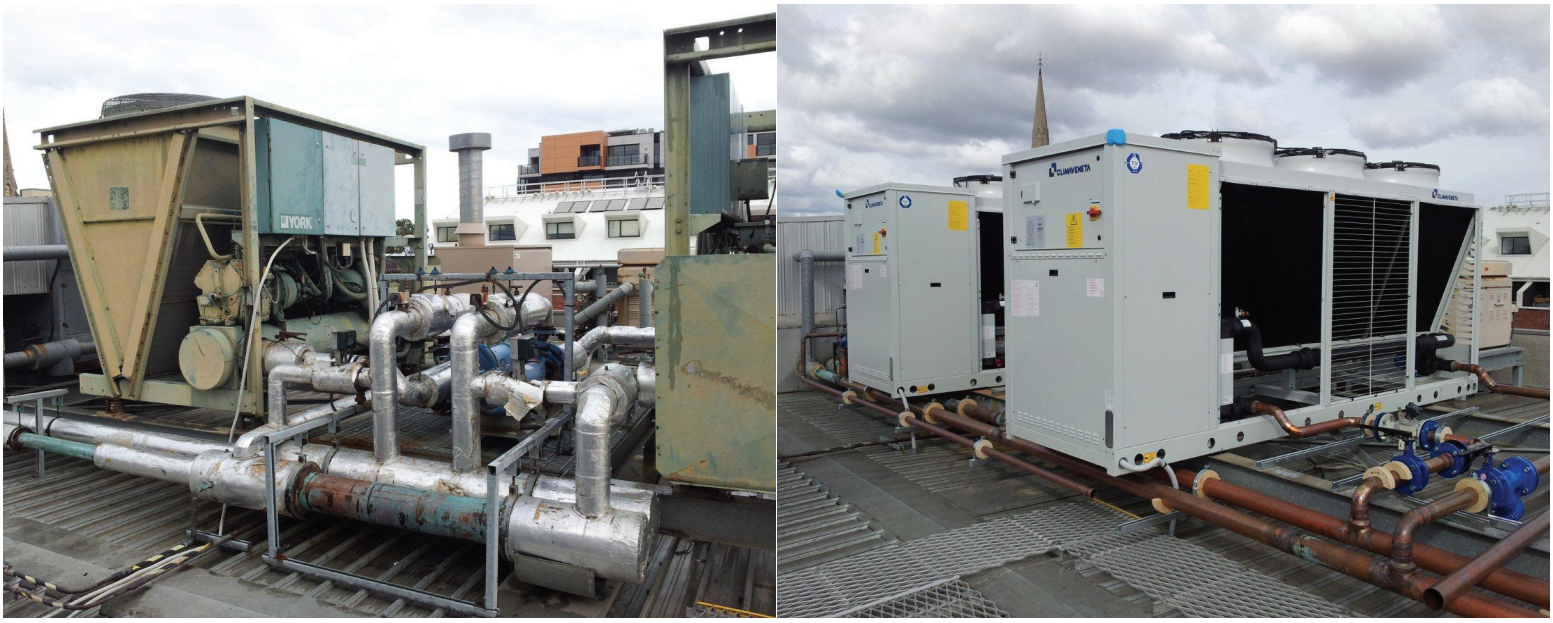
The new BMS is a direct digital control system that controls and monitors the building's heating, ventilation and air conditioning systems (HVAC) in accordance with industry guidelines and Council's Indoor Thermal Comfort Policy.

Replacing an old analogue system, the new system allows engineers to tune the building to its precise requirements and reduce wasted energy in heating and cooling. It is capable of monitoring building occupancy in different areas and making sure only occupied areas are heated and cooled as needed.

The new BMS is expected to save over $15,000 in energy costs each year and 120 tonnes of greenhouse gas emissions (CO_2e), just by having better control over delivery of heating and cooling.

The CHILLERS were replaced because they could not vary their output, used large amounts of electricity and struggled to keep the building comfortable all year round. Another issue was that the electricity connection was not large enough to expand the air conditioning into the library as well, which meant that the library experienced very uncomfortable temperatures during hot weather.

As a solution Council replaced the chillers with two new 200 kW European units, replaced the air handler, and added cooling coils to provide cooling to Library.



▲ The HVAC and Chiller equipment before (left) and after (right)

The new chillers will deliver savings in the order of 166 MWh, $20,000 and 218 tonnes greenhouse gas emissions per year. The project cost $196,000, representing a return on investment of approximately 10%, or a simple payback of 10 years.

THE BENEFITS

New chiller technology can modulate down to 25% capacity with two staged units. This allows a much better delivery of air temperature in spring and autumn when the demand for cooling is small, and avoids the currently common practice of over cooling during these times. Also with 2 x 200kW, the equipment no longer struggles to keep the building cool and comfortable during the hottest days.
New efficient equipment also enabled the building to improve comfort without having to upgrade the electricity supply, saving additional money and resources.

LESSONS LEARNT

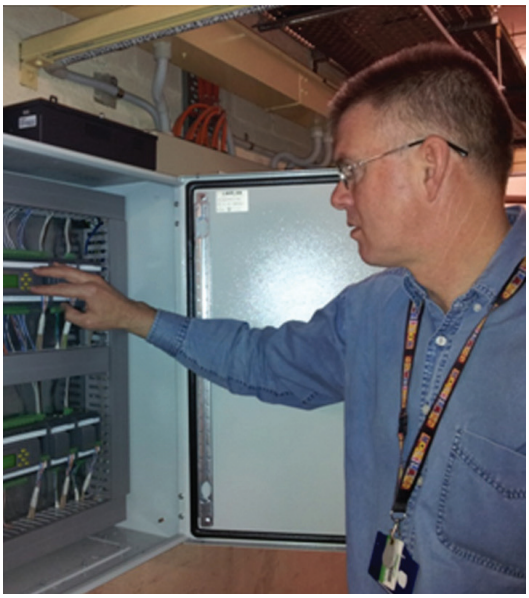
While the sorts of technologies we used are really only suitable for larger public or commercial buildings, the principles can be applied to any building type, large or small:

1. Always choose energy efficient equipment and appliances.

2. Replace older, obsolete equipment as soon as is practicable.

3. Use control systems on all heating, cooling equipment to make sure the equipment is operating effectively and efficiently. Switch equipment off when it's not needed.

4. Improvements to the building itself, such as insulation and shading, will help minimise the demand for mechanical heating and cooling.



▲ Climate Change Technical Officer Stuart Nesbitt inspecting the BMS

Australian Government

COMMUNITY ENERGY EFFICIENCY program

Moreland City Council