

North Shore Community Centre

Environmentally Sustainable Design

Architectural

- North / south orientation
- Orientated to take advantage of prevailing breezes
- High level louvered openings to the foyer in the direction of the dominate southerly breezes
- Positioning of louver openings to maximise cross ventilation
- A visible feature of the building are the three vertical ventilation cores, that extract air from within the centre of the building, aiding in cross ventilation (heat shelf used to heat the top of the chimney to encourage the convective flow)
- The angle of the ventilation chimney roofs roof above facilitates the optimum solar angle for solar collection
- The large Multi-purpose roof is north facing, with ample space for extending the solar requirement
- Large overhangs shade walls decreasing solar gain
- High levels of thermal and acoustic insulation specified to reduce impact of sun and sound
- Limited openings / glazing to western elevation
- Low VOC (Volatile Organic Compound) paints
- High WELS star rated sanitaryware (water efficient fittings)
- Thermal glazing
- Use of renewable plantation timber
- Introduction of internal planters combined with cross ventilation providing oxygenated air to aid in improving air quality
- Connection between the internal and external landscape
- Efficient and timer controlled boiling water units
- Compliance with Part J of the 2010 BCA
- Introduction of natural lighting to internal rooms via Solatubes (foyer and toilet areas)
- Provision of bicycle parking to encourage riding
- Building is designed to be adaptable for many uses

Landscape

- Community gardens and gathering spaces
- Use of local native planting palette

Civil

- Bio-retention basins (cleaning overland flow water before returning to the natural water course)

Mechanical

- The architectural design promotes cross ventilation, lowering the requirement on mechanical cooling.
- A climate station monitors local weather conditions, communicates with the BMS (building management system), that helps co-ordinate cooling methods within the building: Natural or air conditioned.
- Mixed mode, zoned air conditioning to allow local use rather than the whole building.
- Efficient air conditioning selection: Variable Refrigerant Flow.
- Multi-purpose rooms:
 - Air conditioning Connection to automated louvres via the BMS will close louvres when air conditioning is turned on.
 - Natural ventilation modes: The weather station communicates that ambient conditions are ideal for natural ventilation causing a LED light to flash within each of the Multi-function rooms. This promotes the user to make the choice to turn the air conditioning off.
- Monitoring and metering mechanical and electrical systems, and displaying the building energy usage on a LCD screen in the public foyer promotes raising awareness of how much energy is being used.
- The LCD screen can display:
 - Local weather conditions.
 - Provide building statistics for energy use including (can be zoned if required):
 - Power use
 - Water use
 - Power created by solar production
 - Volume of rain water harvested
 - Can calculate CO2 emissions
 - Etc – Multiple options can be displayed and this is to be agreed by the client prior to installation
- The BMS system will allow a building manager to monitor the building systems and recognise areas where efficiency can be improved. The system can be accessed remotely so that the Council can monitor systems remotely.
- Large internal fan aiding in air movement to the foyer/lobby area.
- External louvers can be controlled by the BMS when temperatures raise, or drop, or when rain is sensed by the weather station.

Electrical

- Efficient T5 fluorescent and Metal Halide lighting.
- Lighting zoned to each of the Multi-function rooms rather than to the whole hall.
- External lighting on PIRS and timers.
- Internal lighting to rooms fitted with light and movement detectors to switch lighting off when there is sufficient natural day lighting, or when there are no users in the room.

- New field lighting to utilize energy efficient lights.
- Daylight dimming to last row of fittings in multi-function rooms.
- Electrical sub-metering to separate light and power distribution boards.
- Electrical sub-metering to mechanical services.

Hydraulic

- Rainwater harvesting and reuse for toilet facilities & irrigation (3 x 27,000 litre tanks).
- Instantaneous gas hot water for toilet facilities.
- Electric boosted solar hot water for kitchen facilities.