



World Trade Centre Tower 2 Case Study

**18-38 Siddeley Street,
Melbourne**

Building Profile

The WTC Wharf is a progressive redevelopment and refurbishment of the former World Trade Centre complex. It is one of Melbourne's largest integrated waterfront office complexes, strategically located on the banks of the Yarra River.

The complex occupies an expansive waterfront site. Central to Northbank, and positioned directly opposite Melbourne Convention Exhibition Centre, the World Trade Centre is the gateway to Melbourne's Central Business District.

Recently relaunched as the new WTC wharf, the complex occupies over 150 metres of waterfront, over 70,000m² of office space, over 300 car spaces, and is home to Thales Australia and Thales Land groups, Victoria Police Headquarters, Australian Taxation Office, Australian Energy Market Operator and other major corporations.

The World Trade Centre comprises of five office towers in total, each ranging from eight to twelve stories high. Parking is mostly located on the lower three levels, giving convenient access to WTC's Ground Floor, Mezzanine and Atrium Lobby.

Tower 2

The WTC tower 2 building, formerly known as the Northbank Centre, is an 8 level office tower with approximately 1600m² floor plates. The building had the original Honeywell pneumatic & Delta 1000 control system dating back to construction in 1981. The project involved upgrading the pneumatic controls on the dual duct mixing boxes and air handling plant. The new control system that has been installed is an open Tridium Niagara AX system connected to open BACNet field controllers. Some existing Niagara AX and BACnet main plant controllers were integrated into the new SWAP head end.

Energy efficiency was a key attribute of the upgrade to reduce greenhouse emissions with enhancements to the air-conditioning and control strategies.

Energy Savings

Occupancy Based Control

Optimum Start/Stop

Improved floor mixing box
temperature control

Improved supplementary floor A/C
unit control

Integration existing systems into
SWAP system

Heating and cooling calls to
central plant

Comfort conditions for staff



Implement Niagara upgrade:

The Building Automation System (BAS) is based on the Niagara platform with open BACnet communication. The Niagara Headend communicates via BACnet to the new field controllers Air Handling Units (AHU) and Floor Variable Air Volume Units Mixing Boxes. (VAVMB)
The existing chiller and boiler plant controls were already BACnet and were able to be easily integrated into the Niagara AX framework.

The Mechanical plant:

The mechanical plant is made up of.

- 120 mixing box VAV
- 30 PAC units
- 3 AHU
- 2 RAF
- Main plant boilers and Chillers.
- Exhaust and ventilation fans.

Controls and strategy upgrade:

Energy efficiency was a key attribute of the upgrade to reduce greenhouse emissions with enhancements to the air-conditioning and control strategies;

- BACnet system and field controllers
- Occupancy Based Control
- Optimum Start/Stop
- Improved floor mixing box temperature control
- Improved supplementary floor A/C unit control
- Heating and cooling calls to central plant
- Improved Comfort conditions and deadband for staff

Site Wide Access Portal (SWAP) Overview



A Site Wide Access Portal was installed to allow remote access via web to monitor and control the building automation system. This SWAP was a very useful interface for the WTC to help monitor and manage the multiple towers situated on the premises.

The Independent Automation Site Wide Access Portal allows multiple Building Automation System (BAS) vendors (Siemens, Honeywell, TAC, Johnson, Alerton, etc.) to be connected to one network across multiple sites or one site with the following features:

- Up to date IP based system.
- From any PC on the site network you can access all BASs on the site (Password Protected)
- Offers a single point of access to all BMS system on the site (or multiple sites).
- The system is site map driven. (Simply click on the building and the correct BAS will be accessed).
- New BAS's can be connected directly to the SWAP, no third party needed.
- Utilises the site IT network or VLAN

Integration Benefits

Adding the new Site Wide Access Portal has the following benefits:

- Faster system awareness for new staff.
- Single web location for all systems.
- Simplifies operator training, time saving.
- Cost effective upgrade path.

System Navigation

The Site Wide Access Portal will bring multiple sites and or systems together with a single point of log by allowing an operator to log on to many different BMSs.