CASE STUDY

AUSTRALIAN MADE
Manufactured by Armcor

MACQUARIE DATA CENTRE IC5

PROJECT SCOPE

The Macquarie Data Centre IC5 located at the Canberra Airport Industrial Park, is a purpose-built facility specifically for the Australian Government.

IC5 uses the latest physical and virtual security to manage government protected and secret cloud workloads.

CONTRACTOR

The mechanical services contractor was AG COOMBS Canberra Division.

FRESH AIR REQUIREMENTS

The specifications required 1000 l/sec of fresh air to enter the data centre at 22c/50% rh and to provide 100% redundancy in the event of a breakdown.

The equipment was required to have a very high COP with low running costs.

EQUIPMENT SELECTION

INDEC Indirect Evaporative Cooling combined with a DX cooling system was chosen as the best solution to meet all the specifications and requirements.

INDEC is manufactured by Armcor Air Solutions in Melbourne and is the only Australian made product which combines the indirect evaporative cooling with DX cooling.

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OPERATION

Canberra summer design conditions are 32.7° CDB / 17.6° CWB

Under normal conditions, with low relative humidity, INDEC conditions the fresh air to achieve supply air temperatures of less than 20°C without any additional humidity and without any compressor operation.

If the humidity rises, the DX system will operate to reduce the temperature and humidity of the supply air to the required humidity level. The operation of the compressor is controlled by a 0-10v dc signal which can give accurate supply air temperatures without fluctuations.

The equipment is controlled via a low-level controller with fault and status outputs integrated with the on site BMS.

RESULTS

Armcor engineers commissioned the equipment in February 2021.

In the initial factory commissioning of the equipment, it was recorded:

Ambient (incoming fresh air)	29°C
Supply Air (after indirect cooling)	15°C
Supply Air (after DX cooling)	3°C

Armcor also attended site to assist with commissioning.

The DX cooling system was tested and exceeded the anticipated temperature / humidity requirement.

The project is a complete success with the required 1000 l/sec of fresh air being introduced and cooled with minimal power usage.

The COP of the Indirect cooling is 10.4 and with the Indirect and the DX Cooling, the COP is 6.9.

The efficiency of the INDEC supersedes all other cooling systems and has many applications in the HVAC field.

Fresh Air Indoors

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