New Building

Dadanco Pty Ltd

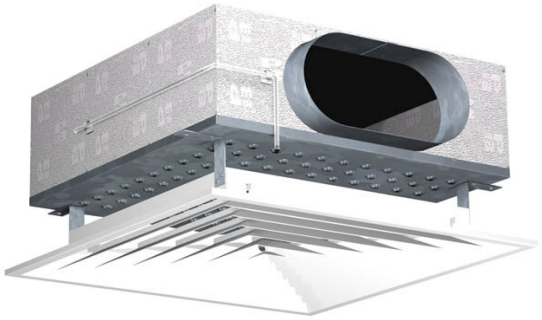
All-Air Cold Air Delivery System

Project Name:	29-31 Brindabella Circuit, Canberra
Date Completed:	February, 2007
Building Size:	10,655 m2
Installed Sensible Capacity:	750 kW
Designed By:	RUDDS Consulting Engineers
Installed By:	Climatech
Building Rating:	Simulated 5 Star
System Used:	IDS60e
Number of Units:	554
Design Criteria:	
Room Temperature:	24°C / 50%RH
Chilled Water Temperature:	NA
Primary Air Temperature:	11°C
Sensible Cooling Load:	40-150 W/m2

Energy,

efficiency

+ with all air



To achieve energy efficiency and meet GBCA Green Star targets not every project has to have chilled beams or is suitable for them.

29-31 Brindabella Circuit is a 4 story multi-tenanted office building project at Brindabella Business Park designed to meet energy targets with an all-air VAV perimeter and constant volume centre zone air conditioning system.

The project solution utilises DADANCO INFFUSER IDS60e on both the perimeter and centre zones to deliver an all-air solution that provides best practice air distribution rates while minimising total air quantity and on-floor ductwork infrastructure.

active chilled beam

Perimeter system

Inffuser cold air solution

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active chilled beam Perimeter system **Inffuser cold air solution**

The Challenges

- Conventional heating & cooling loads
- High energy efficiency design requirement
- Minimise air quantity to reduce on-floor ductwork infrastructure
- High load diversity from facade to facade
- Provide future tenancy flexibility
- Safely deliver cold primary air while guaranteeing on-floor air distribution rates
- Solution must deliver best practice air distribution rates consistent with the requirements of potential government agency tenancies

The Solution

INFFUSERS provided a solution for the delivery of lower temperature primary air by inducing secondary air directly from the conditioned space into the primary air stream before discharging the combined warmer air streams through the air outlet as mixed supply air.

- Install 554 IDS60e square louvre faced Inffusers throughout the building
- Deliver 11°C primary air to all Inffusers (centre zones & perimeter)
- Entrain secondary air directly from the conditioned space for mixing with primary air to be discharged to the conditioned space
- Install VAV hot water reheat to perimeter zones for independent zone control

The Benefits

- ✓ Delivered required sensible cooling capacity for 30% less air than would be required with conventional all-air system design using 14-15°C supply air temperatures
- ✓ Delivered final air circulation rates ≥5 l/s/m²
- ✓ Delivered 77,940 l/s supply air for 47,557 l/s primary air processed
- ✓ Safely delivered 11°C primary air as typical 14.0-17.8°C mixed supply air
- ✓ Allowed installation of smaller VAV boxes for individual zone temperature control using conventional VAV zone control strategy
- ✓ Improved energy efficiency
- ✓ Smaller HVAC infrastructure (Flexible ducts, VAV boxes, Ductwork & AHU
- ✓ Reduced plant room sizes due to smaller air handlers
- ✓ Delivered real comfort (humidity & temperature control + air movement)

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