



Active Chilled Beam

Perimeter System

Infuser cold air solution

Active Chilled Beams

Project Name:	9-21 Gouger Street, Adelaide, S.A.	
Date Completed:	August 2008	Building Size: 7,500 m ²
Installed Base Building Capacity:	360 kW Perimeter	340 kW Internal Zones
Engineered By:	Bestec Consulting Engineers	Installed By: Watson Fitzgerald
System Used:	ACB40 Active Chilled Beams	Number of Units: 501
<u>Design Criteria:</u>		
Room Temperature:	24°C / 50%RH	Chilled Water Temperature: 13°C
Primary Air Temperature:	12°C	Total Primary Air Quantity: 15,829 L/s

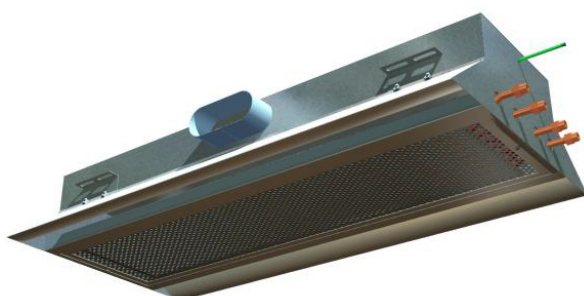
Energy efficiency,

sustainability

+ Quality

9-21 Gouger Street is a 7 story high-profile multi-tenancy office building completed in 2009 with approximately 1150m² net lettable area per typical office floor.

Modern building required significant perimeter cooling capacity for full-height glazing together with highest possible efficiency and best practice air movement to achieve the goals of 5 Star Green Star (GBCA) and 5 Star ABGR energy ratings.



ACB40 Active Chilled Beam

Active Chilled Beam solution must deliver best practice air performance, reduced noise and increased cooling capacity using the smallest possible air ductwork and secondary chilled water infrastructure and risers.



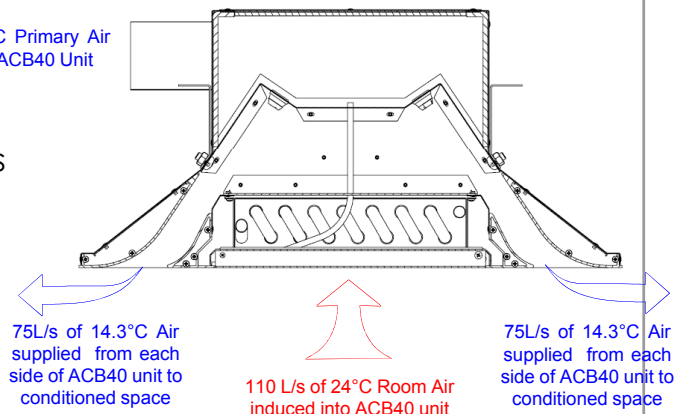
The Challenges

- Required perimeter cooling of 360kW with smallest possible infrastructure
- Minimise primary air quantity to achieve 5 Star ABGR strategy
- Must deliver best practice air movement to meet 5 Star Green Star requirements
- Limited ceiling space (3500mm slab-to-slab) throughout building
- Active Chilled Beam design must lend itself to integrated fitout solutions
- Zone control flexibility needed for integrated fitout options

The Solution

- Design for primary air pressure of 100Pa
- Select Active Chilled Beam air quantities not to exceed 0.25m/s space velocities
- Install 241 High Induction 'ACB40' Active Chilled Beams throughout the perimeter of 7 floors
- Install 260 High Induction 'ACB40' Active Chilled Beams throughout the centre zones of 7 floors
- Deliver uniform 12°C primary air to all Active Chilled Beams
- Select & supply special ceiling & bulkhead mounted Active Chilled Beams to custom designed fitouts

40 L/s of 12°C Primary Air delivered to ACB40 Unit



The Benefits

- ✓ Delivered a compact 600x1200 ceiling mounted Active Chilled Beam to fit within tight spatial constraints throughout building
- ✓ Achieved perimeter cooling capacity of 360kW with only 7,986 L/s of primary air
- ✓ Achieved centre zone capacity of 340kW with only 7,843 L/s of primary air
- ✓ Delivered average primary air distribution & ventilation rate of ≥ 2.3 L/s/m²
- ✓ Perimeter secondary sensible cooling capacity of **239 kW** (67% of total sensible cooling) and higher total air distribution rates delivered for **NO ADDITIONAL FAN ENERGY** through induction process of Active Chilled Beams
- ✓ Australian designed, manufactured and supported product for a prestige South Australian project