



Project Name:	Santos Headquarters Adelaide, S.A.
Date Completed:	March, 2007
Installed Sensible Capacity:	1,122 kW
Building Size:	15,500 m ²
Designed By:	Bestec Pty Ltd
Installed By:	Frigrite
Building Award :	5 Star Green Star 5 Star ABGR
System Used:	ACB50 Perimeter CM10 Internal Zones
Number of Units:	942
<u>Design Criteria:</u>	
Room Temperature:	24°C / 50%RH
Chilled Water Temperature:	12°C
Primary Air Temperature:	12°C
Sensible Cooling Load:	150 W/m ²

Active Chilled Beam

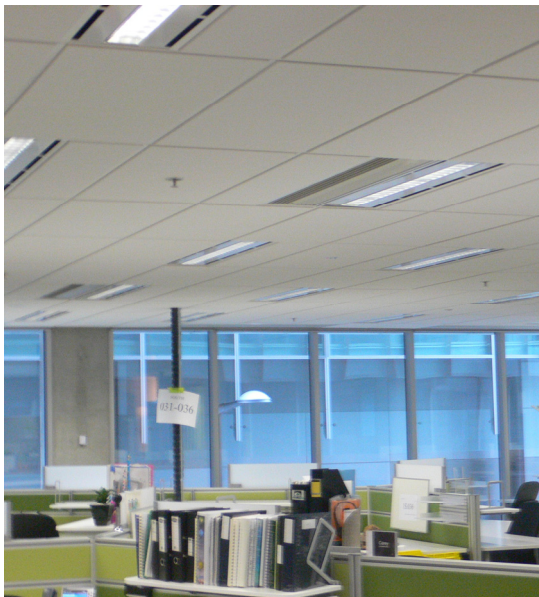
Perimeter System

Infuser cold air solution

Comfort,

sustainability

Active Chilled Beams



Australian oil & gas exploration and production company SANTOS have moved to their new headquarters building in Adelaide.

The new 13 level headquarters building with 15,500 m² of commercial office space is a purpose built office designed to achieve 5 Star Green Star rating and 5 Star ABGR rating.

The building will accommodate Santos' Adelaide staff as well as a biostratigraphy laboratory, core sample preparation and workshop.

The project utilises ACTIVE CHILLED BEAMS (ACB's) on both perimeter (ACB50) and internal zones (STARLINE CM10) to achieve best practice air movement and comfort.



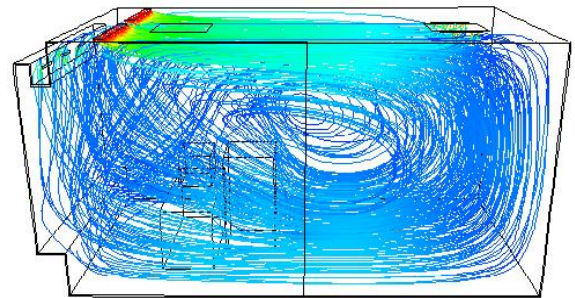
The Challenges

- Integrated services design with only 400mm of clear ceiling void
- Conventional cooling & heating loads & large glazed area facade
- Requires low primary air flow to minimise on-floor ductwork height to 200mm while delivering ventilation code requirements +100%
- Highest achievable energy efficiency
- Purpose built tenancy fitout at time of construction
- Must deliver best practice air distribution and load diversity control for the lowest possible primary air quantity

The Solution

- Install floor-by-floor air handlers for separate perimeter and centre zones
- Install 942 Active Chilled Beams throughout the building
- Install a dedicated secondary water chiller for maximum chiller efficiency
- Install 12°C secondary chilled water infrastructure throughout the building
- Smaller primary air ductwork to all zones due to low primary air volume

Each perimeter structural bay fitted with two ACB50 units delivering supply air away from the perimeter, produce the air velocity streamlines shown at right



The Benefits

- ✓ Delivered outside air component of 100% above minimum ventilation requirement to achieve 2 of 3 credits, improving the occupied space indoor environment quality
- ✓ ACB system achieves clients requirement for delivering comfort and energy efficiency
- ✓ Achieved a floor Air Change Effectiveness (ACE) of >0.95 for at least 90% of NLA, the first building in Australia with all ACB's to achieve this credit
- ✓ Thermal comfort level achieved by the all ACB system was a Predicted Mean Vote (PMV) between -1 and +1 achieving 1 green star credit
- ✓ Delivered 1,122 kW of sensible capacity for 25,252 litres/second of primary air
- ✓ Delivered 744 kW of secondary cooling capacity for 38 l/s of chilled water flow
- ✓ Delivered 66% of sensible cooling capacity through secondary air cooling process of Active Chilled Beams for **NO ADDITIONAL FAN ENERGY REQUIREMENT**
- ✓ Provided load diversity control through control of secondary chilled water in ACB units