



**ENABLING MEASURED HIGH
PERFORMANCE AND
IMPROVED PRODUCTIVITY
THROUGH
THE WORK ENVIRONMENT**

Productivity is a priority issue for CEOs

A CEO survey of organisations with > \$100 million turnover

- **Majority of CEOs reported productivity initiatives** to improve the skills and capabilities of key workforces, investment in new back office technology and processes, and workforce or management restructuring are currently underway or planned for the next 12 months within their organisations.

CEO Pulse, March 2010,
Business Spectator Accenture and GA Research

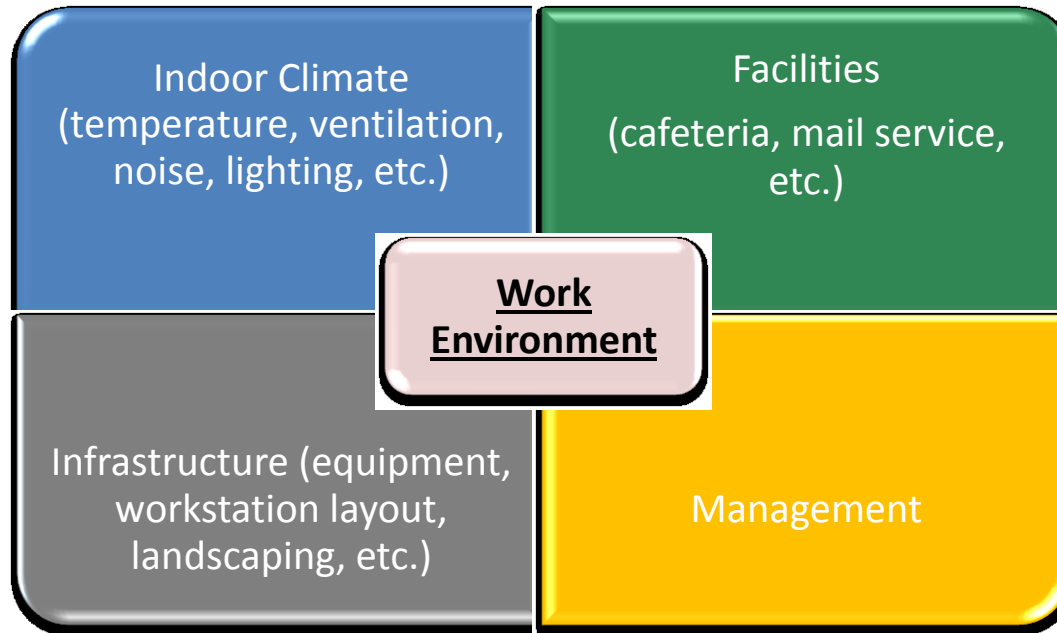


Why focus on the work environment?

Most working Australians now spend more than 70% of their working lives indoors (Environment Australia, 2001). Building design, its use, and management, influence their comfort, wellbeing and productivity.



Work environment



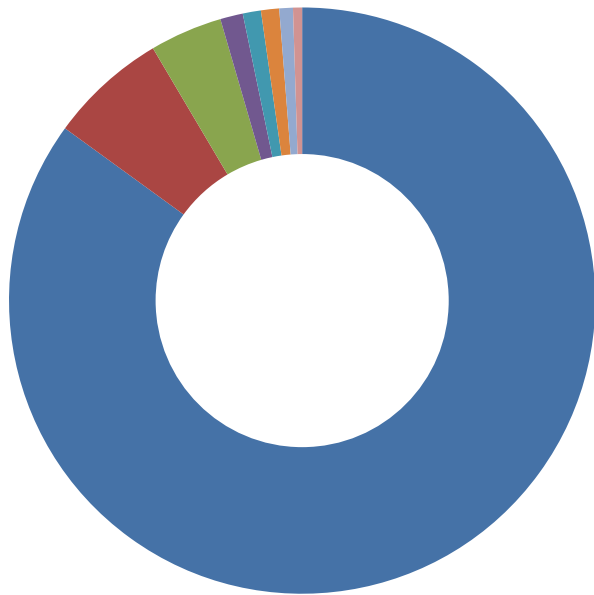
Weakness in any one of these factors
can render the business less effective/efficient

Components of work environment productivity

	Management / Communication	Implementation / Facilitation	Contaminants / Cleanliness	Ergonomics	Steady state / procedures	Future proof	Sickness	IAQ	IEQ
Health			√					✓	
Behaviour	√								✓
Work Stress		√							✓
Human Relations	√								✓
Comfort				√				✓	
Hygiene			√						✓
Predictability					√				✓
Training	√	√				√			✓

The drive for efficiency

- **80% of total costs goes to wages, salaries and benefits for staff**



■ Salaries of occupants

■ Building - construction costs

■ M&E services - running & maintenance

■ Furnishings & furniture - capital cost

■ Building - maintenance

■ Cleaning, security, etc

■ M&E services - depreciation

■ Furnishings & furniture - maintenance & depreciation

Productivity value of IEQ



2% office productivity gain can be worth \$2,000 per employee

	Higher productivity	Less absenteeism
Good overall indoor environment	10-15%	2.5%
No air pollution source	3-7%	1.5%
Adequate ventilation	1-2%	0.5%
Adjustable temperature	2-3%	0.5%
Temperature not too high, not too low	7%	
Cellular office (max. 4 people)	2-4%	Decrease
Good lighting	2-3%	
Daylight		0.5%
Good monitor	Gain	
Less noise nuisance	3.9%	

Leijten, J (2002), Binnenmilieu, productiviteit en ziekteverzuim (The inside environment, productivity and sick leave) FM (15) 103, pp 17-21

Case study : IEQ and Productivity

First 6 * Greenstar Office



**PRE & POST OCCUPANCY
Cetec Indoor
Environment Study for
Umow Lai Consulting
Engineers**

\$ PRODUCTIVITY GAINS from IEQ

Pre 2007 –Post 2009

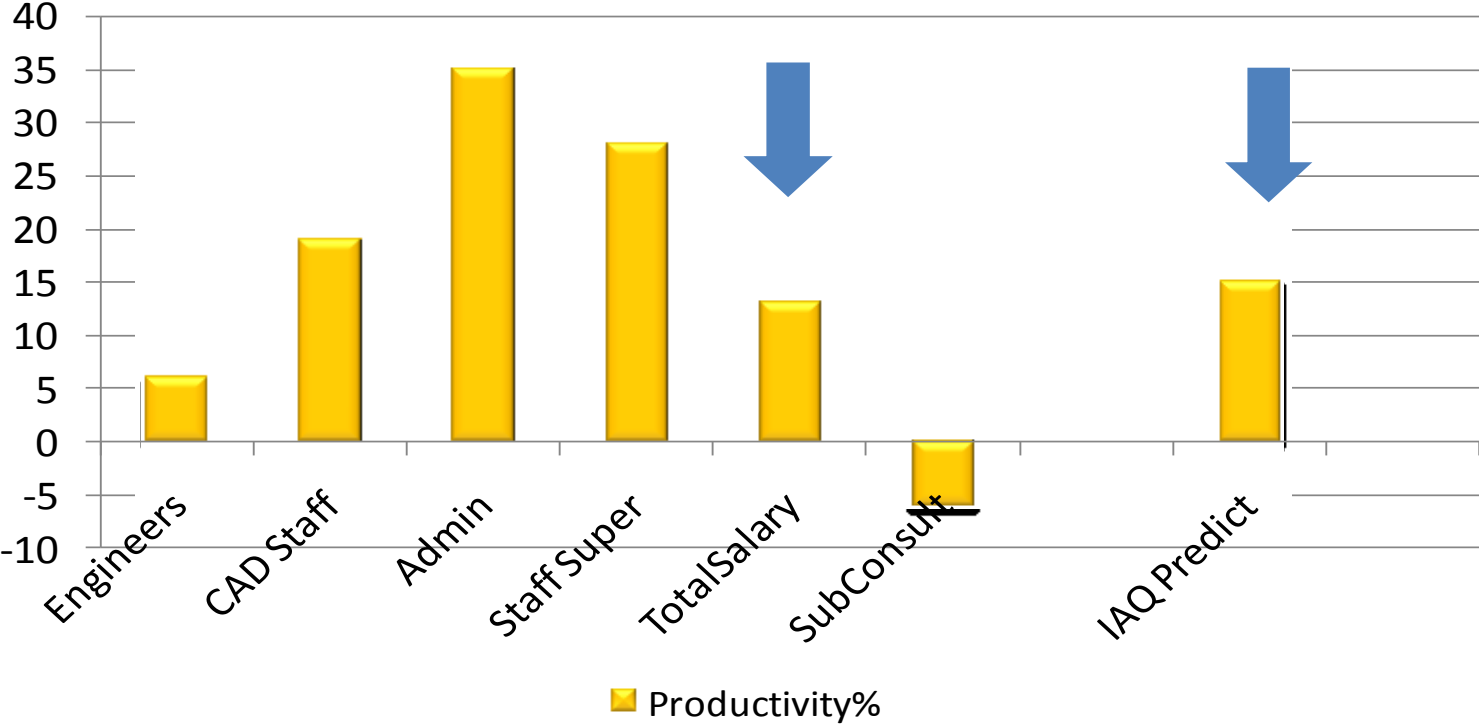
Projected by CETEC: 13%

Achieved by Client: 12.5%

**Value Gained: \$1m/year or
\$5,000/employee/year**



Predicted and actual productivity gains



Sydney Water - Productivity Study

- **Pre-move study in Sydney CBD location**
- **Pre-occupancy Study in new Brookfield-Multiplex 5*GBCA Sydney regional building**
- **Post-occupancy Study in new building**

Sydney Water Pre:Pitt Street, Sydney



Sydney Water Pre: Bathurst Street, Sydney



Figure 8: The high rise building of the Sydney Water headquarters.

Sydney Water Pre and Post: Smith St Parramatta



Sydney Water: New Floorplan, with sampling locations

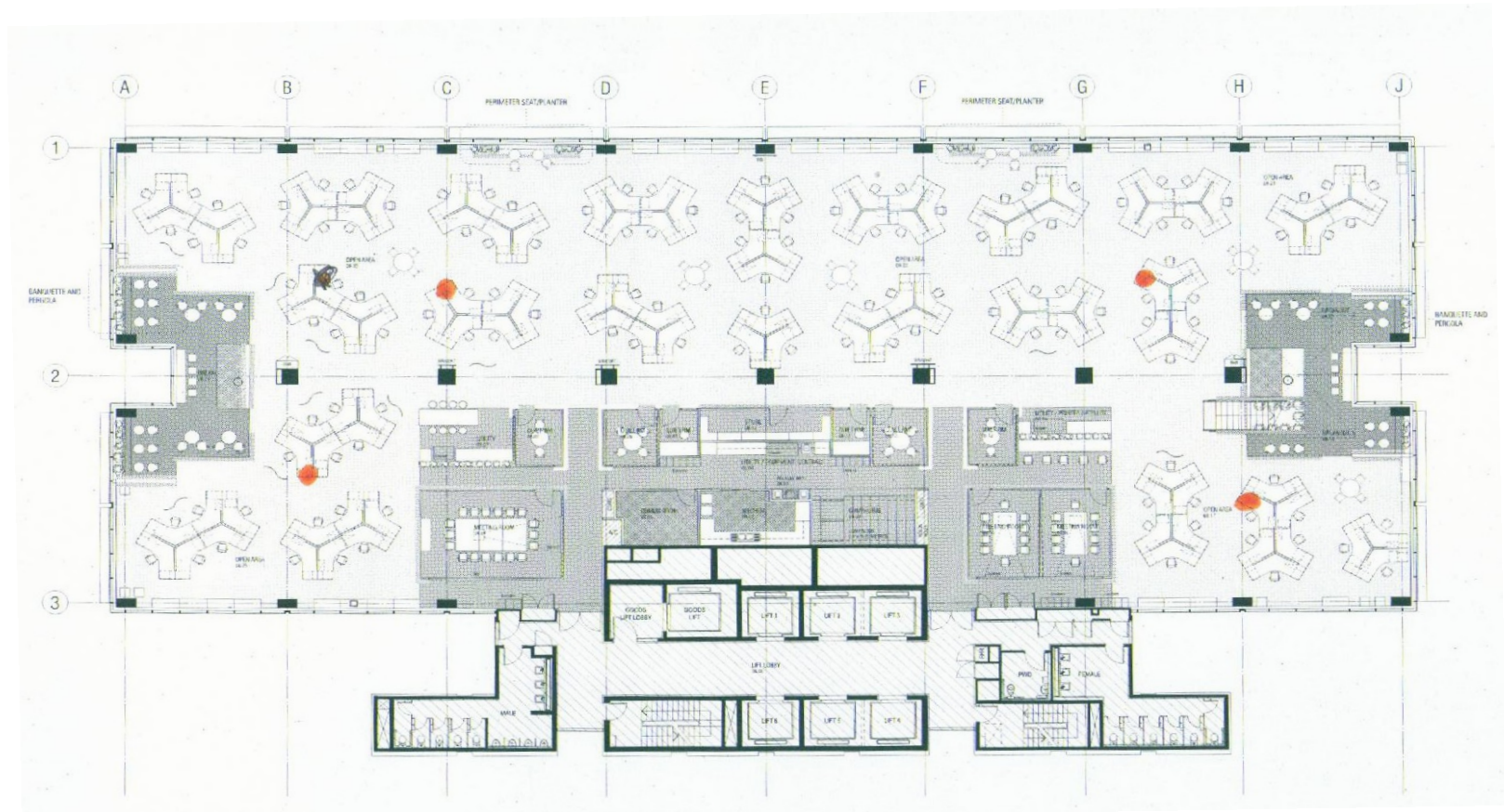
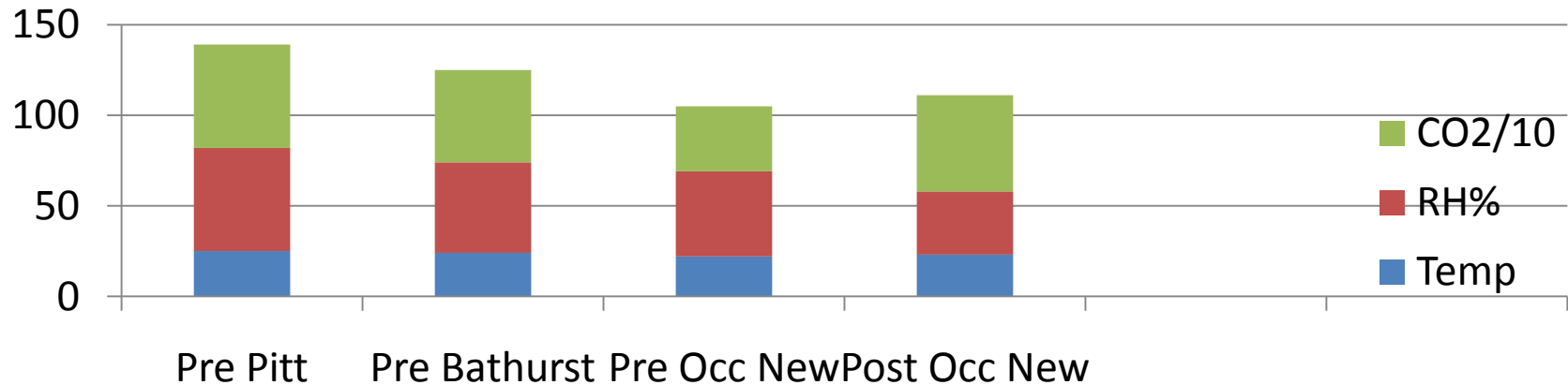


Figure 5B: Level 8, 1 Smith St, Parramatta NSW 2124 with sampling locations

IEQ MEASURED PARAMETERS

COMFORT-Temp, %RH
VENTILATION- CO2, CO, Air Flow
CONTAMINANTS – VOC, Particulates, Microbials
LIGHTING – Horizontal, Vertical
ACOUSTIC
INDOORS/OUTDOORS



Pre. Move from Old Location



Satisfaction in Core Survey Categories

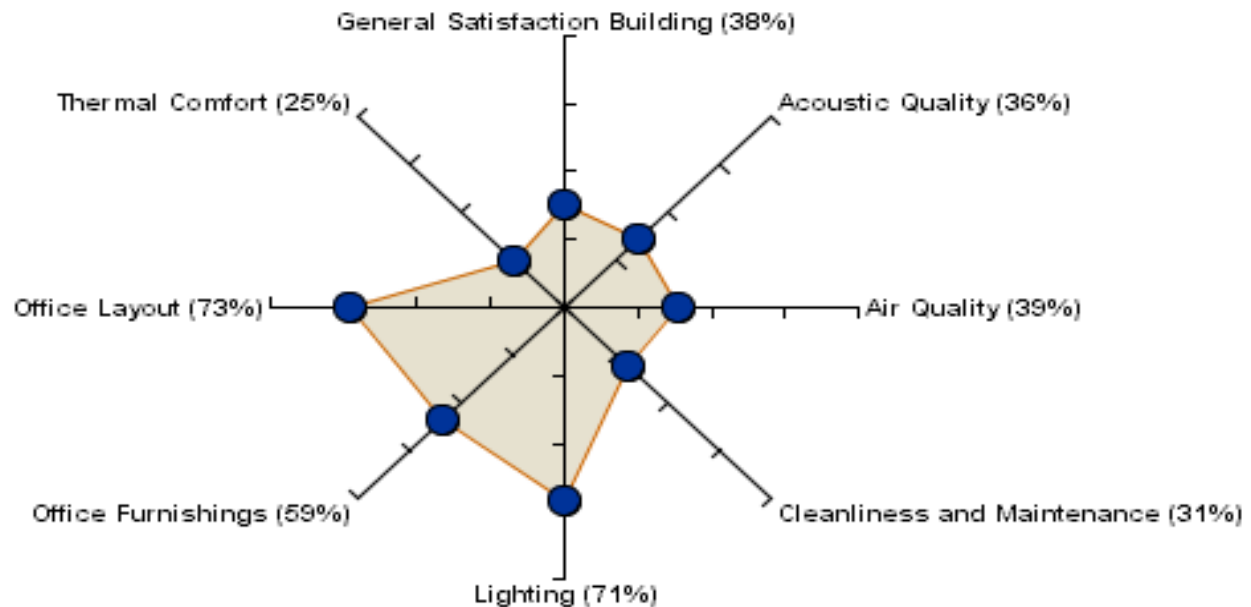
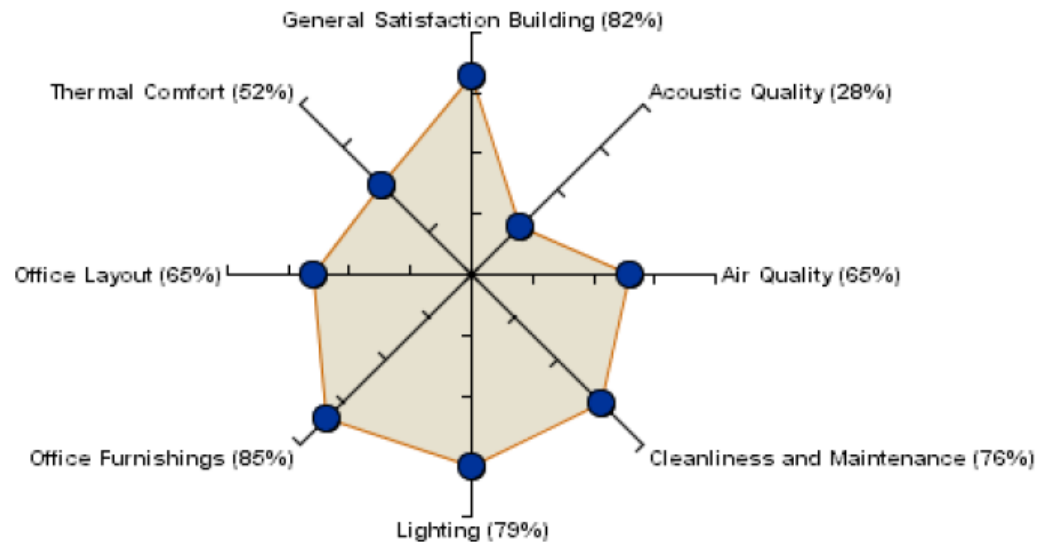


Figure 11: Building scorecard for 115 – 123 Bathurst Street, Sydney

Post Move – New 5* Location



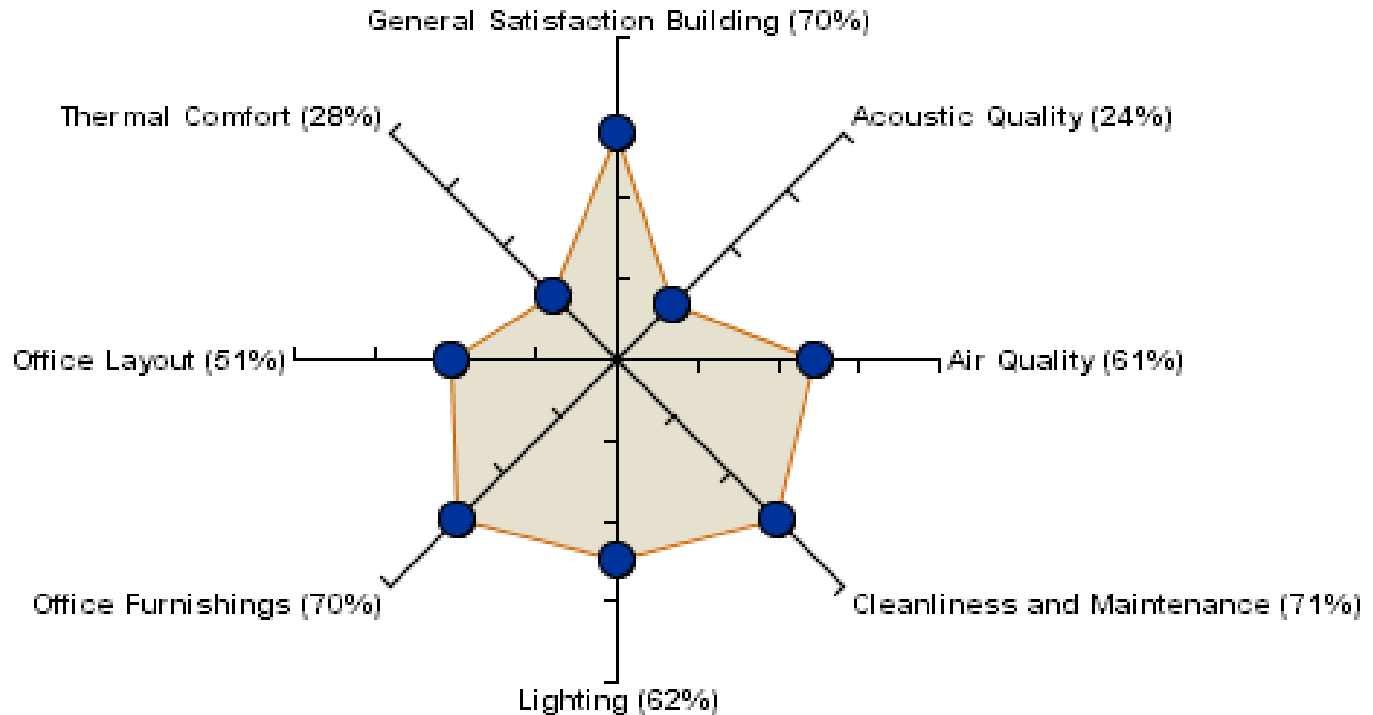
Satisfaction in Core Survey Categories



Current Government Productivity 5* project



Satisfaction in Core Survey Categories

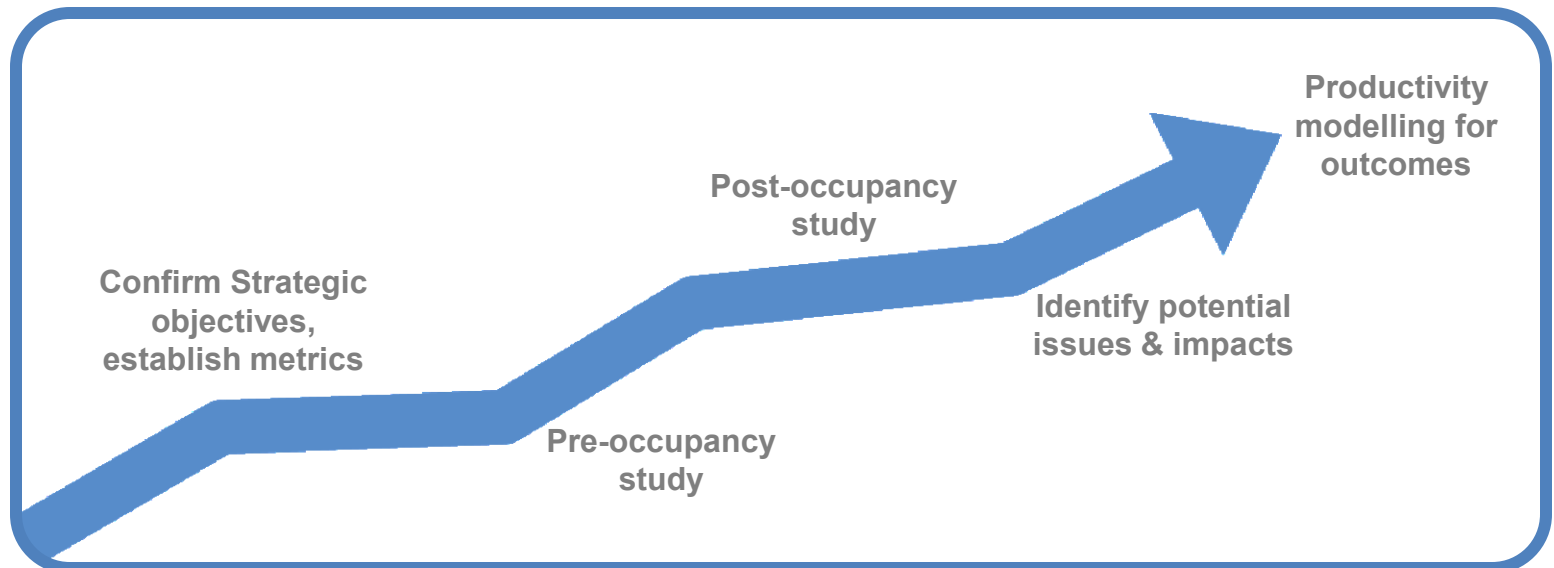




- **General Building Satisfaction**
- In general 82% of respondents were satisfied with the building.
- **General Workspace Satisfaction**
- In general 79% of respondents were satisfied with their workspace.

Productivity study methodology

- Involves collection of quantitative indoor environment parameters and occupant satisfaction assessments to evaluate overall well-being and productivity
- Demonstrate correlation between IEQ and productivity and resulting financial outcomes



General Uptake of IEQ and Productivity Studies

- **Widespread with Government and Private Projects**

- Commonwealth Department of Families Housing Community Services and Indigenous Affairs
- Singtel Optus
- NSW State Property Authority
- Centrelink
- CSIRO
- Queensland Transport
- Queensland Public Works
- Bovis Lend Lease
- UNSW,
- NSW Attorney General
- Melbourne Museum

GBCA Greenstar Rating and Productivity Studies

