

GBCA hosts greener events

At this event:

- Venues are selected in the CBD or other areas close to public transport
- Carbon offset is nominated for all flights
- Podcasts are made available after the event so those not within the state can access the information.
- PowerPoint presentations are provided for download instead of printed copies
- An online event evaluation system is used to reduce printing
- Speakers are given Oxfam vouchers at the event, removing the requirement for a courier and wrapping materials for alternate gifts such as wine.

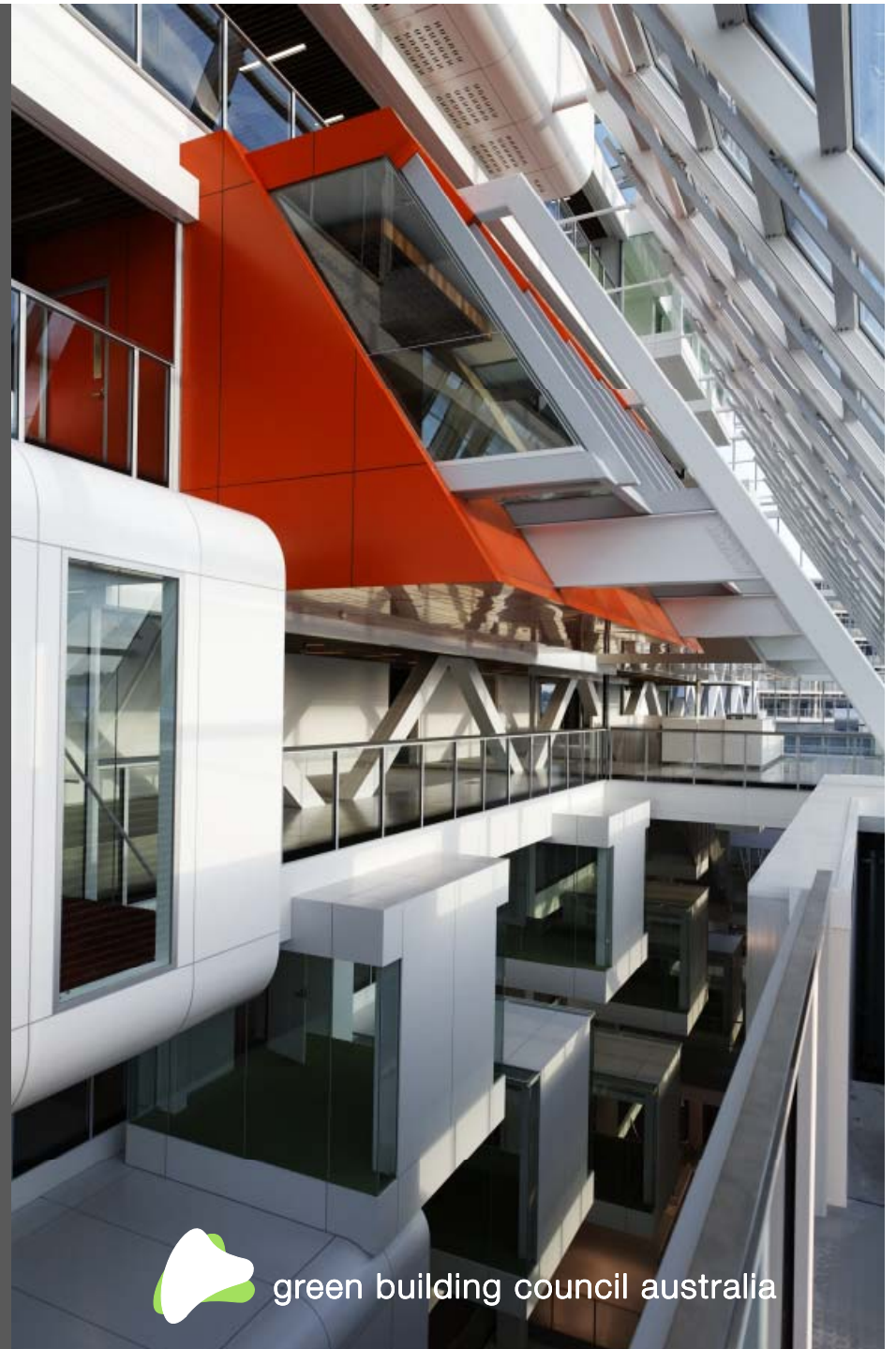


MEET THE STARS

Workplaces of the future

Event Sponsored by

GBCA Corporate Sponsor



green building council australia

**TAKE
YOUR GREEN
BUILDING
QUALIFICATIONS
TO A NEW
LEVEL**



**JOIN THE CONTINUING PROFESSIONAL DEVELOPMENT PROGRAM
VISIT WWW.GBCA.ORG.AU/EDUCATION-COURSES/CPD FOR MORE DETAILS**



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**BOOK EVENTS &
WIN**



**A RETURN TRIP
TO THE**

USA



Join us at a GBCA event between 1 March and 31 August 2010 and you could be on your way to US Greenbuild 2010!

GBCA events include Leading Green Thinkers, Meet the Stars and Member evenings in your state or territory. The more of these events you attend, the greater your chance of winning!
Details at www.gbca.org.au



green building council australia

SPEAKER

David Cresp,
Colliers International



green building council australia



Colliers International Office Tenant Survey

2010

Colliers International Research

**back to business -
office tenants get set for growth**

future drivers of building choice

► MAY 2010

COLLIERS
INTERNATIONAL



AGENDA

Sample Profile

Impact of GFC on Leasing Decision-Making Plans

Workplace Relocation & Design

Importance of Building Selection in Staff Acquisition & Retention

Environmental Sustainability

Summary of Key Findings

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Objectives & Methodology

- **Objective**
 - To understand tenants' expectations for office accommodation now and into the future
- **Data Collection**
 - Independent research compiled by ACA Research
 - Quantitative research involving 351 telephone interviews with decision makers leasing commercial properties
 - 274 Australian tenants and 77 New Zealand tenants surveyed comprising 1.9 million sqm of net lettable area
 - Minimum net lettable area of at least 500m², 26% of tenants occupied 5,000+m²
 - Tenants surveyed across Sydney, Melbourne, Brisbane, Perth, Adelaide, Canberra, Auckland and Wellington in both CBD and suburban office markets
- **Research Period**
 - 15th February – 19th March 2010



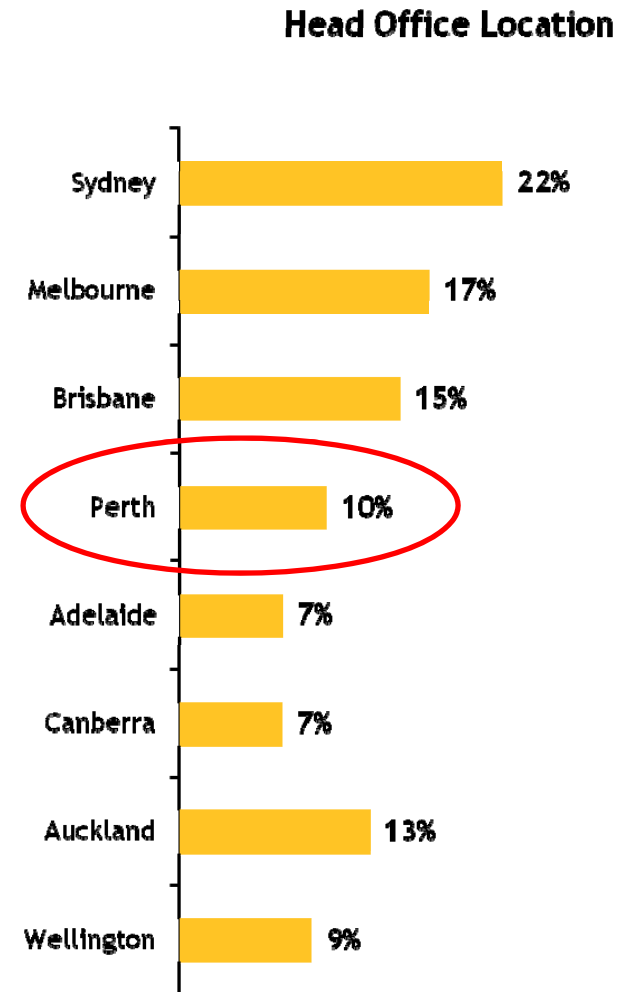
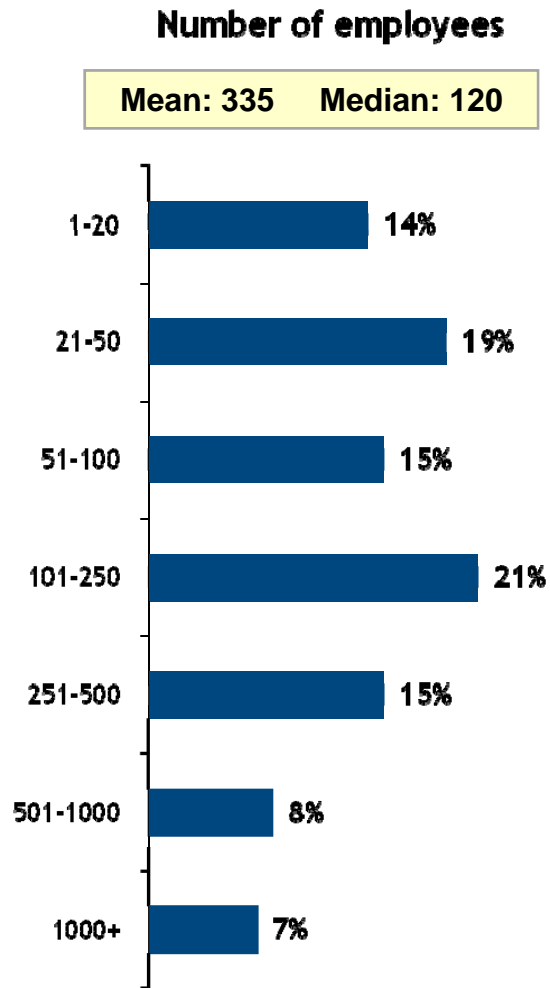
SAMPLE PROFILE



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Sample Profile



Q1. How many staff are employed at your organisation's head office/main location?

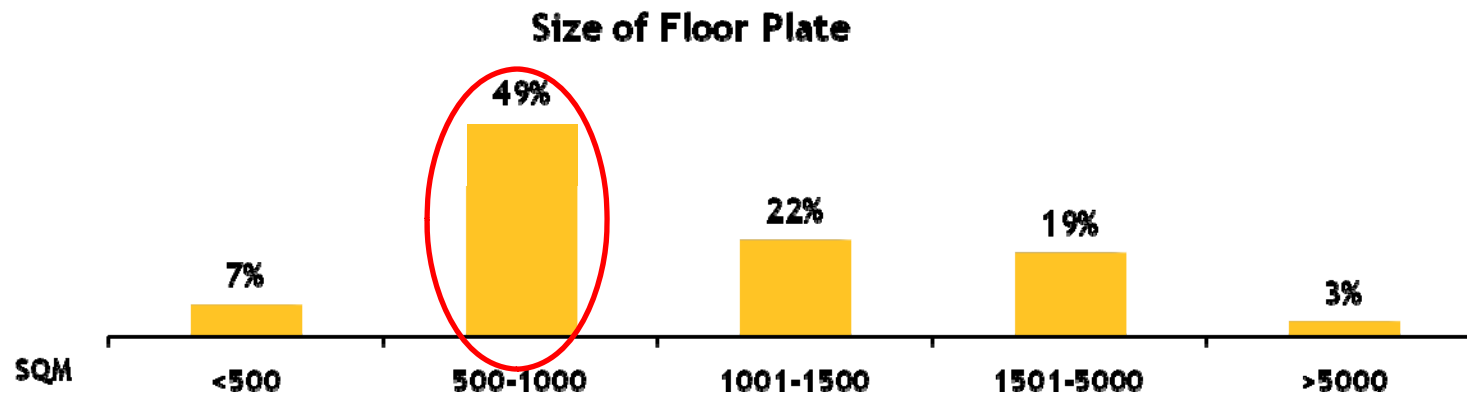
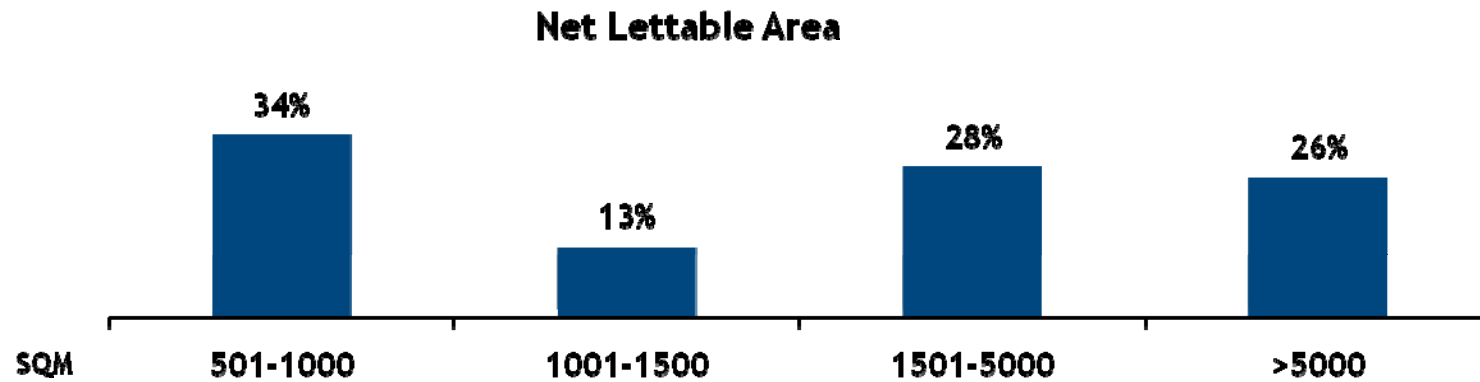
QC. Where is your organisation's head office or main location?

Base: All respondents (n=351)



[HOME](#)

Sample Profile



S1. What is the approximate net lettable area leased by your organisation at your head office or main location?

Q0. What is the size of the floor plate leased by your organization at your head office or main location ?

Base: All respondents (n=351)



Impact of GFC on Leasing Decision- Making Plans



Impact of GFC

“Did the GFC affect your plans with respect to your leasing decision-making?”



- 23% of tenants claim the GFC had an impact on their leasing decision-making plans.
- Cost savings, putting expansion plans on hold and consolidating space requirements were the main ways leasing decision making plans were affected.
- 10% of tenants also saw the GFC as an opportunity to take the flight to quality.

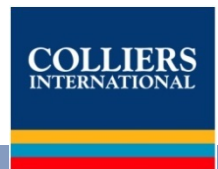
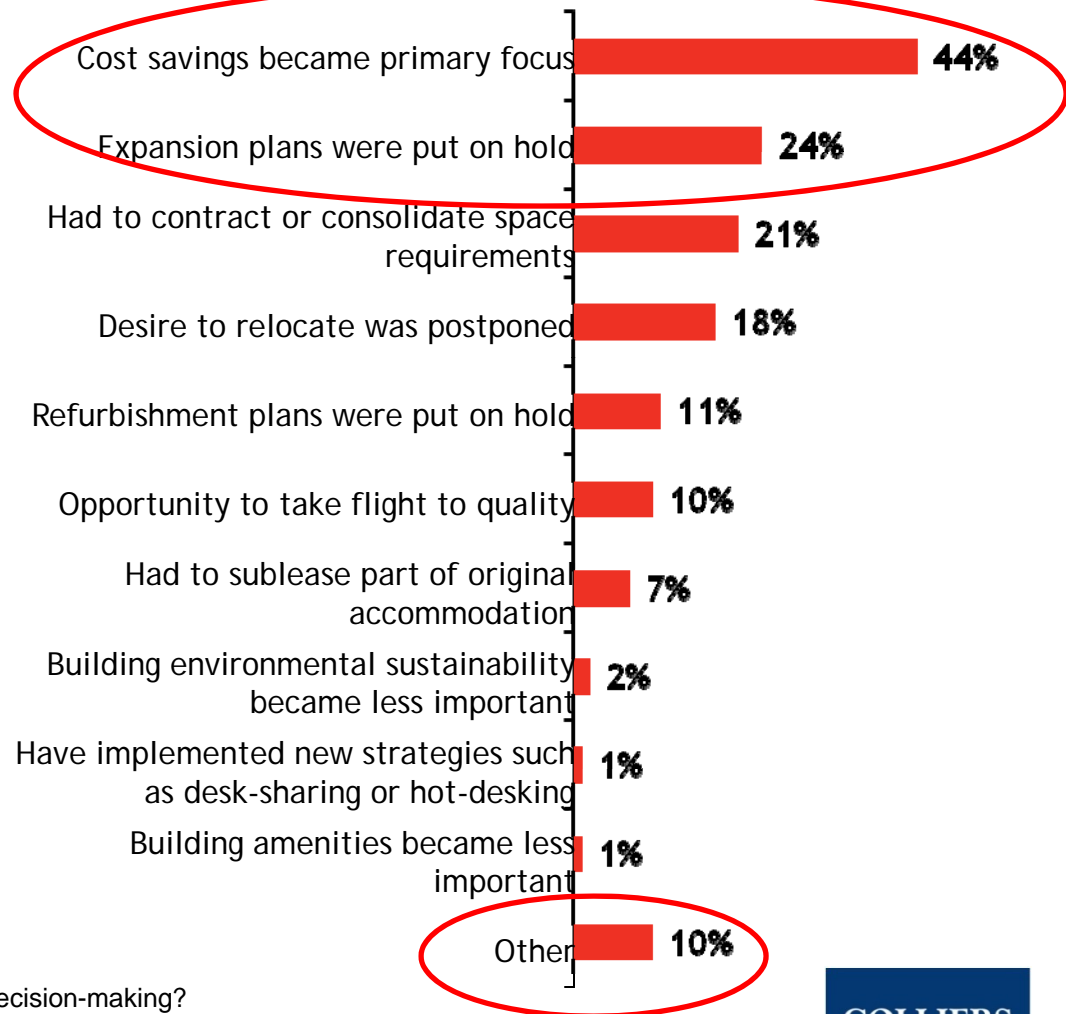
Q4. Did the GFC affect your plans with respect to your leasing decision-making?

Q5. In what way(s) were your leasing decision-making plans affected?

Base: All respondents (n=351)

N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results

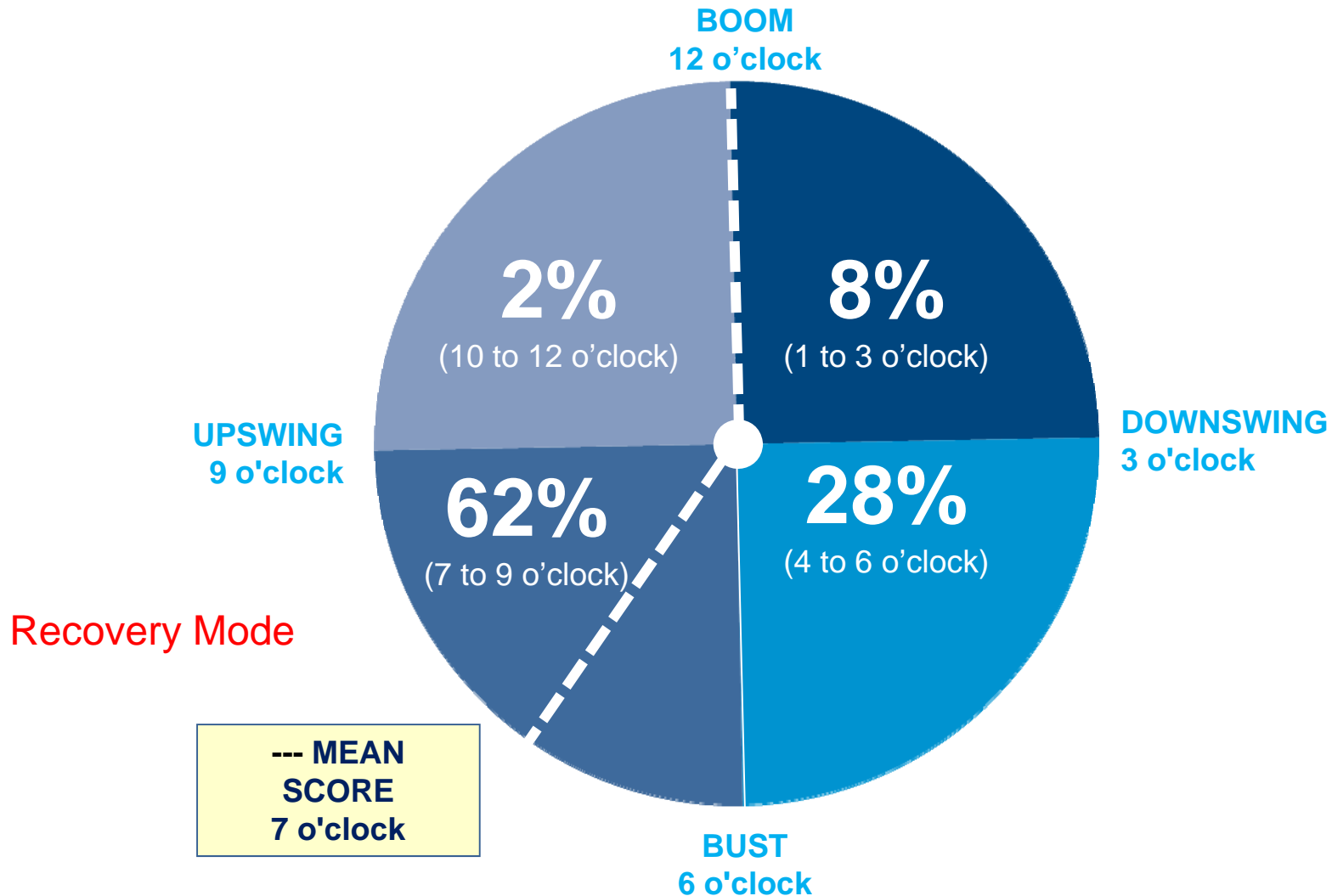
In what way(s) were your leasing decision-making plans affected? (N=82)



HOME

Impact of GFC - Australia

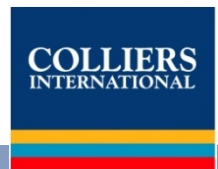
“Where is the market now sitting on the property cycle?”



Q7. In your opinion and taking into consideration your current leasing decision-making plans, where is the market now sitting on the property cycle?

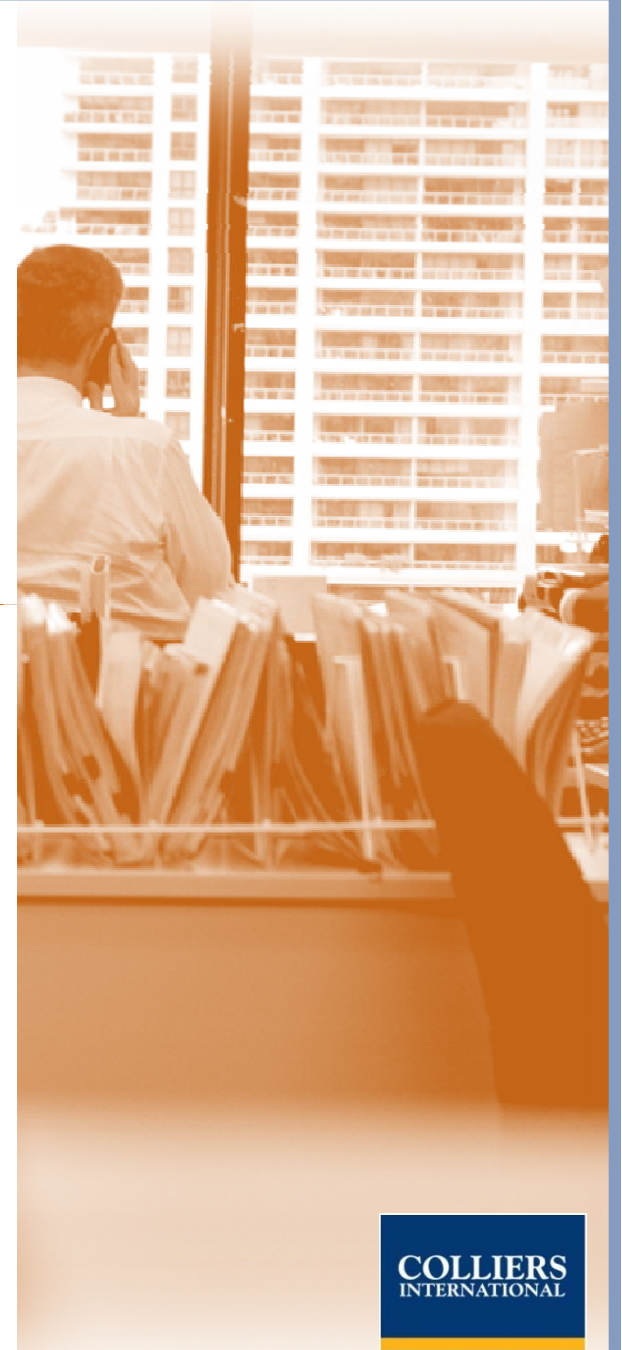
Base: Australian respondents (n=274)

N.B: Not asked in 2008 and 2005



HOME

Workplace Relocation and Design



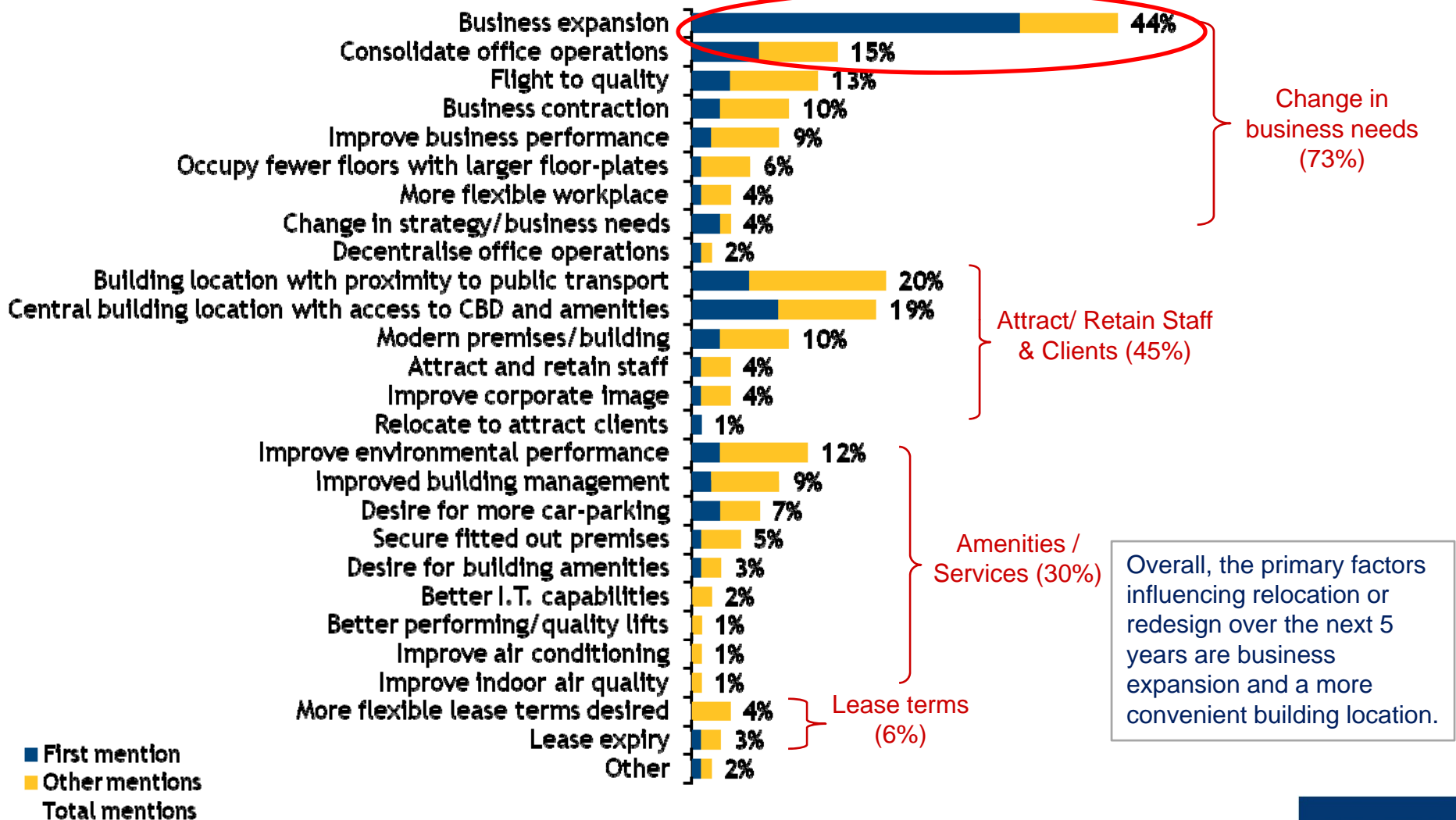
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Workplace Relocation & Design

Factors Encouraging Relocation or Redesign



Q8. What are the 3 main factors, other than cost, that would make you relocate or redesign your head office within the next 5 years?

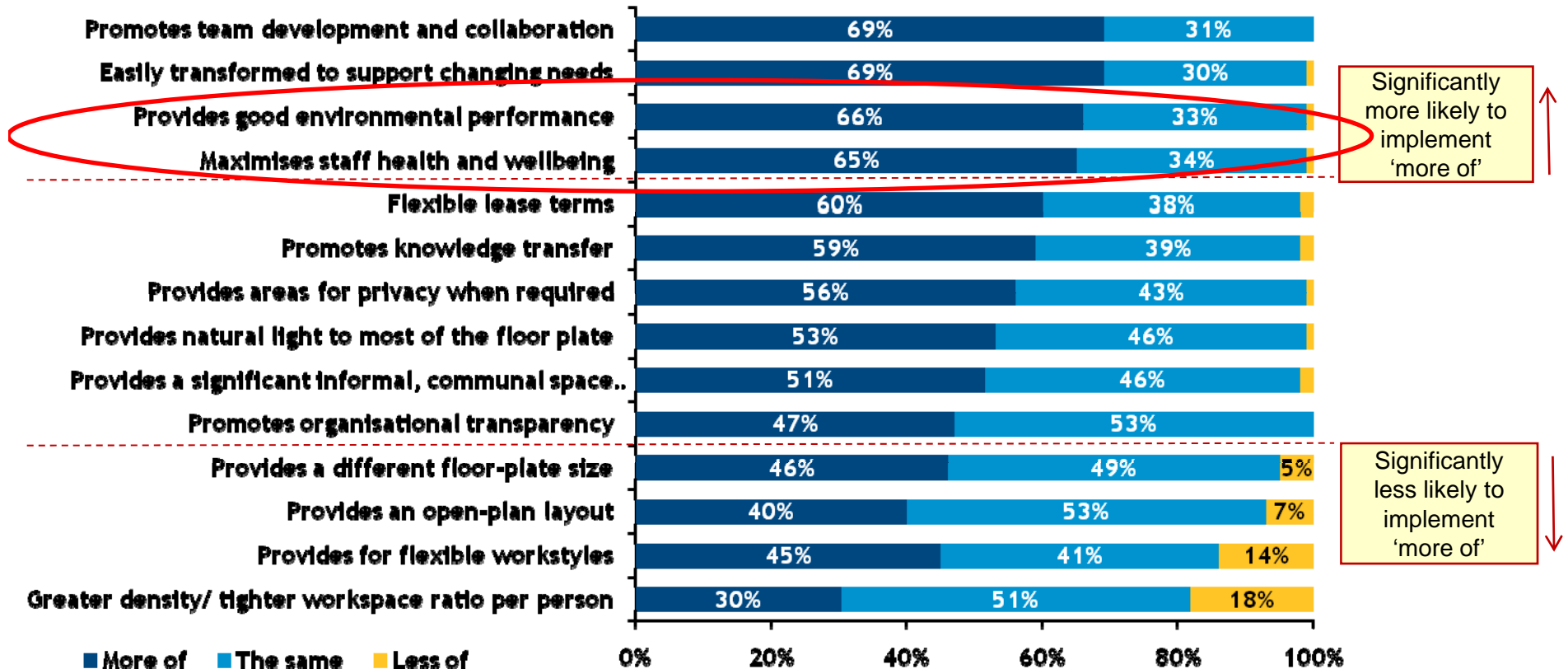
Base: All respondents (n=351)

N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results



Workplace Relocation & Design

“In your most recent or upcoming redesign, did you/will you implement More of, the Same, or Less of a workplace that...”



More than 6 in 10 organisations have implemented or intend to implement initiatives that promote team development & collaboration, flexibility to support changing needs, good environmental performance and health & wellbeing of staff.

Q14. Giving thought to your most recent redesign, or a future redesign, can you tell me if you have implemented or would implement 'more of', 'the same' or 'less of' the attributes in your new workplace redesign

Base: All respondents (n=351)

N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results

Workplace Relocation & Design

Workplace Redesign – Australian Tenants

(Attributes organisations have implemented/plan to implement “More of”)

	Year		
	2010	2008	2005
Promotes team development & collaboration	69%	70%	65%
Easily transformed to support changing needs	69%	70%	59%
Provides good environmental performance	66%	77%	49%
Maximises staff health and wellbeing	65%	71%	56%
Flexible lease terms	60%	59%	42%
Promotes knowledge transfer	59%	61%	59%
Provides areas for privacy	56%	50%	46%
Provides natural light to most of the floor plate	53%	59%	50%
Provides significant informal, communal space for staff	51%	55%	51%
Promotes organisational transparency	47%	44%	44%
Provides for flexible work styles	45%	44%	51%
Provides an open-plan layout	40%	44%	57%
Provides a different floor-plate size	46%		
Greater density or a tighter workspace ratio per person	30%		

***Not asked in 2008 and 2005**

Q14. Giving thought to your most recent redesign, or a future redesign , can you tell me if you have implemented or would implement ‘more of’, ‘the same’ or ‘less of’ the attributes in your new workplace redesign

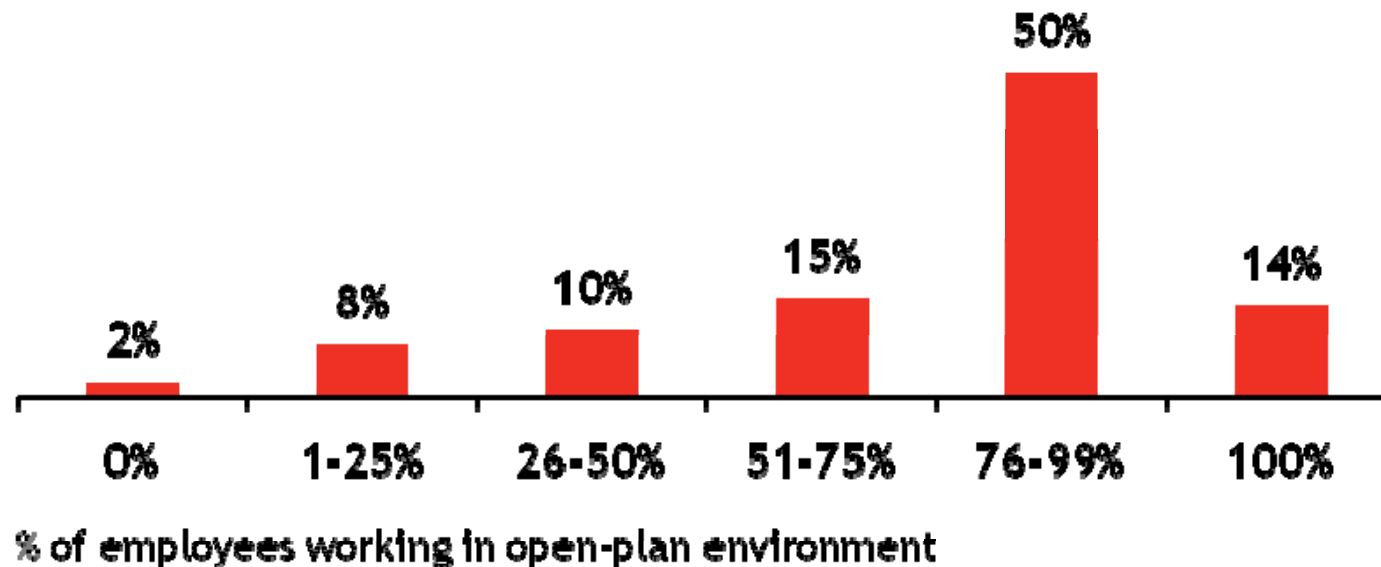
Base: Australian respondents (n=274)



Workplace Relocation & Design

Open-Plan Working

- On average, 75% of an organisation's employees tend to work in an open-plan environment.
- Larger organisations with more than 50 staff tend to have a larger proportion of their employees working in an open-plan environment.



Mean: 75% Median: 80%

Q3. What percentage of employees work in an open plan environment versus enclosed offices in your current workplace?

Base: All respondents (n=351) *N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results*



Importance of Building Selection in Staff Acquisition & Retention



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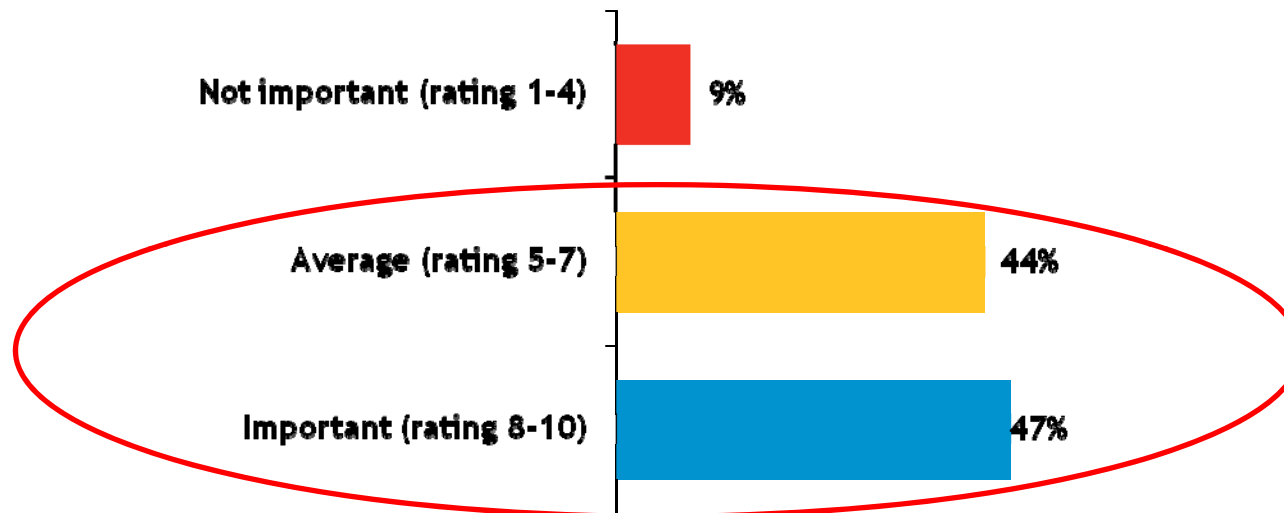


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Building Selection in Staff Acquisition & Retention

Overall Importance of Building Choice

Mean: 7.0 / 10



- It appears that the building plays an important role in an organisation's staff acquisition and retention strategies.
- Smaller organisations (<50 employees) tend to feel the building choice is less important.
- Organisations with a longer lease term (10+ years) and larger net lettable area (over 5000m²) rated building importance significantly higher.

Q10. How important is the choice of building, in terms of your organisation's ability to attract and retain staff?
Please rate on a scale of 1 to 10, where 1 means 'not at all important' and 10 means it is extremely important

Base: All respondents (n=351)

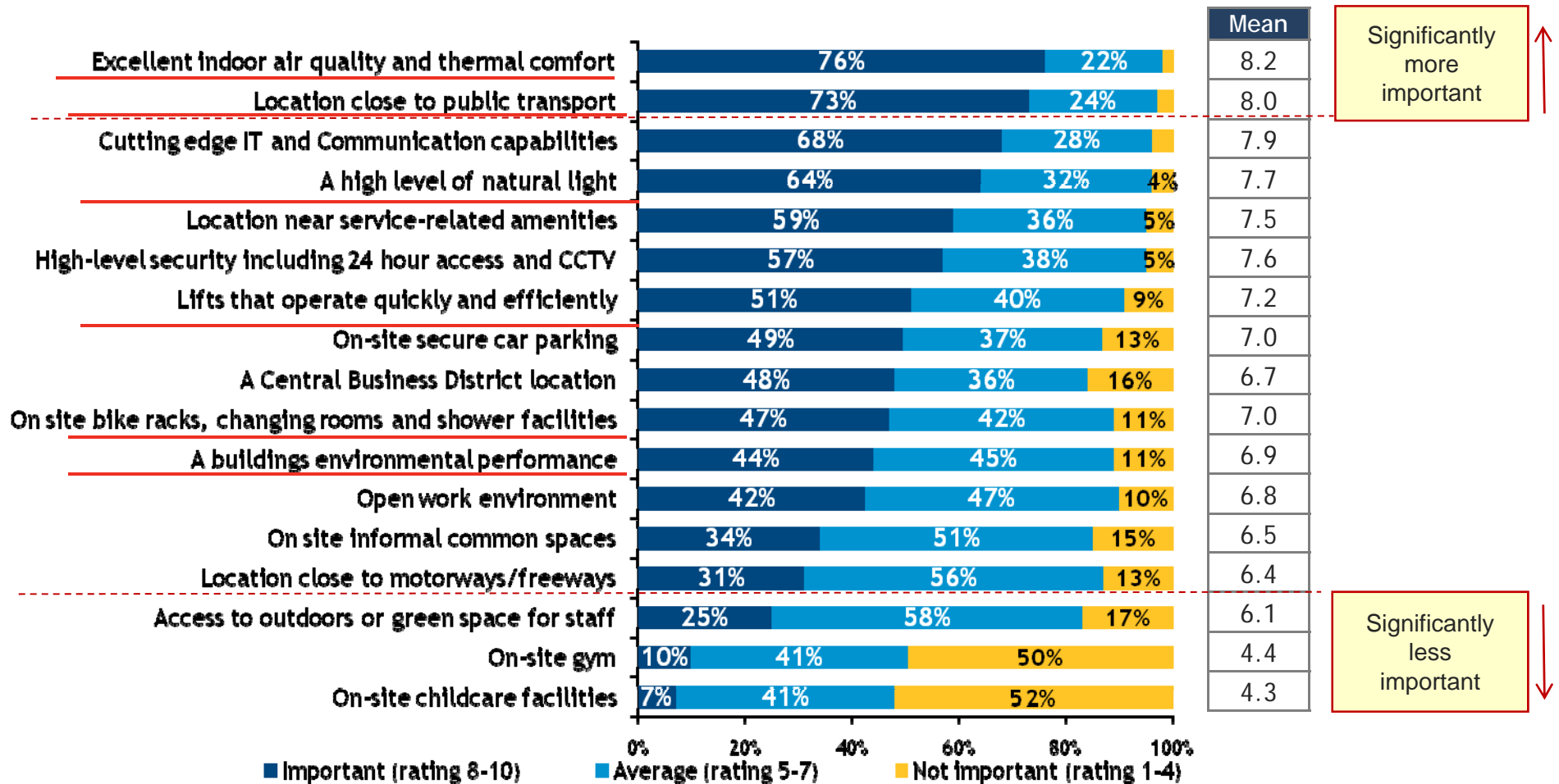
N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results



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Building Selection in Staff Acquisition & Retention

Importance of Building Attributes in Attracting & Retaining Staff



Significantly more important

Significantly less important

- Air quality and a location close to public transport are significantly more important than all other building attributes.
- Non-standard facilities such as childcare facilities, on-site gym and access to green space are significantly less important.

Q12. Can you tell me how important you think each factor is in terms of attracting and retaining staff by using a scale of 1 to 10, where 1 is 'not at all important' and 10 is 'extremely important'

Base: All respondents (n=351)

N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results

Building Selection in Staff Acquisition & Retention

Importance of Building Attributes – Australian Tenants

	Year		
	2010	2008	2005
Location close to public transport	8.3	8.4	8.2
Excellent indoor air quality and thermal comfort	8.3	8.3	8
Cutting edge ICT	7.9	7.8	7.4
A high level of natural light	7.7	7.9	7.9
High-level security	7.7	7.8	7.4
Location near service-related amenities	7.6	7.5	7.3
Lifts - quick and efficient	7.3	7.5	7.4
On-site secure car parking	7.2	7.1	6.8
On site bike racks, changing rooms and shower facilities	7.1	6.9	6.3
A buildings environmental performance	7.0	7.3	5.4
Open work environment*	6.9	6.9	*
CBD location	6.6	6.9	6.8
On-site Informal common spaces	6.4	6.8	6.2
Location close to motorways/freeways*	6.4	*	*
Access to outdoors or green space	6.2	6.2	5.9
On-site gym	4.5	5.0	4.4
On-site childcare facilities	4.4	5.0	4.4

*Not asked in 2008 and/or 2005

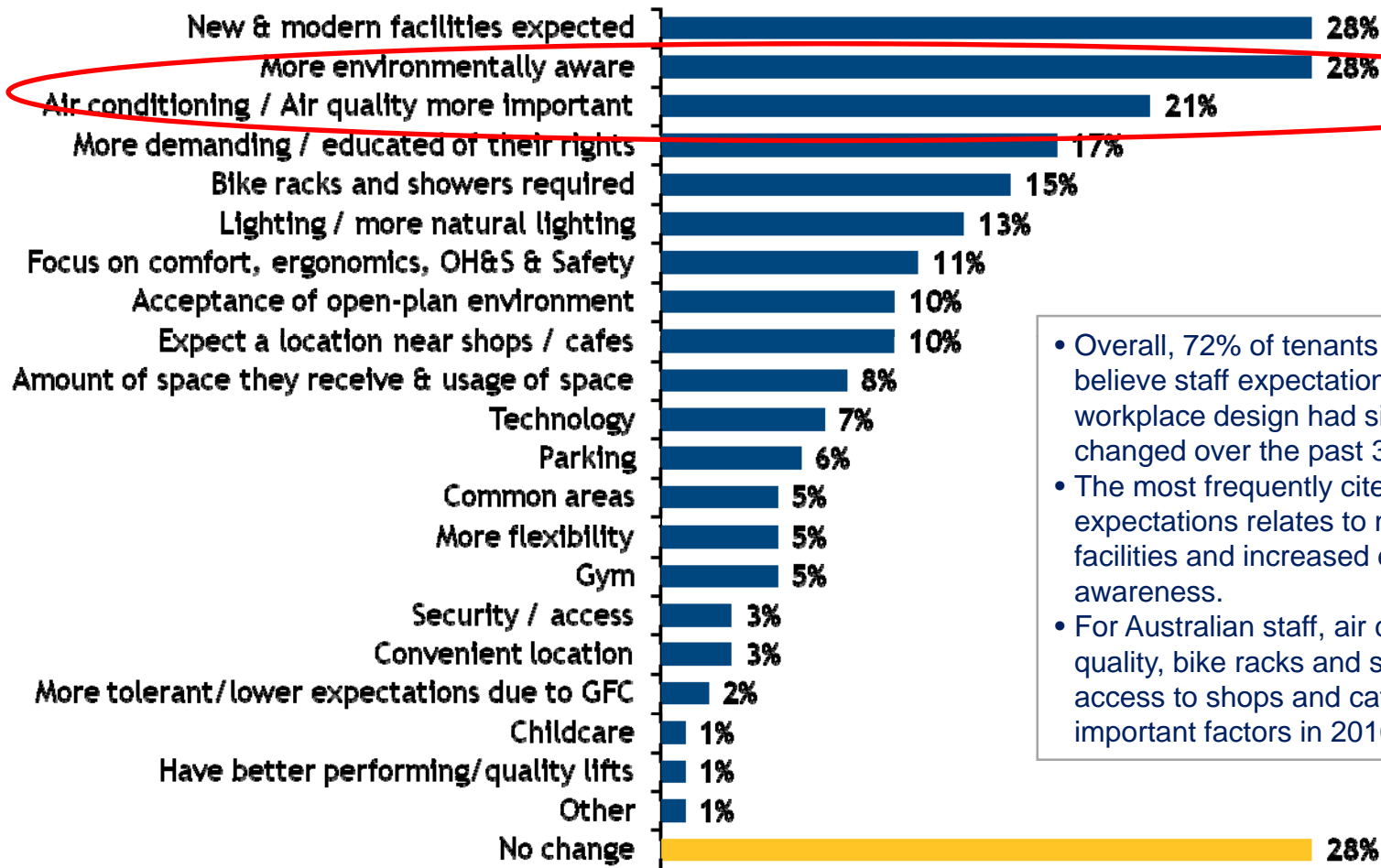
Q12. Can you tell me how important you think each factor is in terms of attracting and retaining staff by using a scale of 1 to 10, where 1 is 'not at all important' and 10 is 'extremely important'

Base: Australian respondents (n=274)



Changes in Staff Culture

Changes in Staff Expectations Over Last 3 Years



- Overall, 72% of tenants indicated they believe staff expectations regarding workplace design had significantly changed over the past 3 years.
- The most frequently cited change in expectations relates to new & modern facilities and increased environmental awareness.
- For Australian staff, air conditioning/air quality, bike racks and showers, and access to shops and cafes were more important factors in 2010 than 2008.

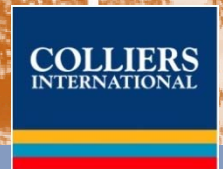
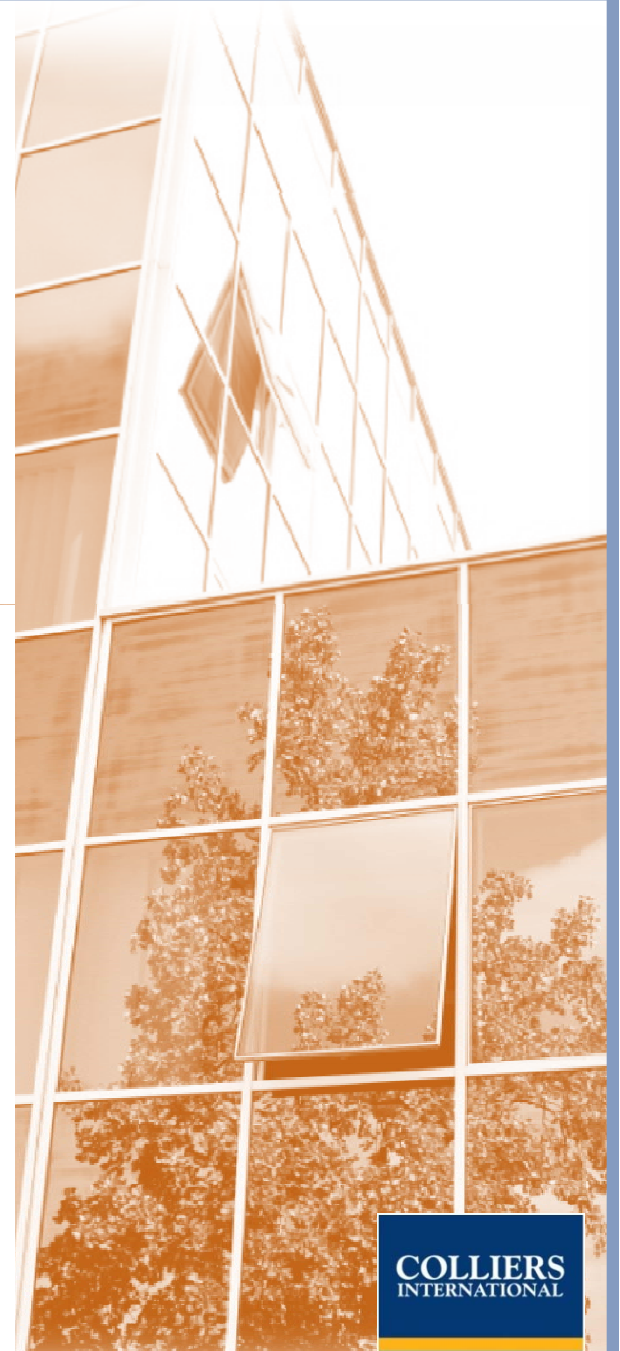
Q13. In what ways have the expectations of your staff changed over the last 3 years in terms of what they now expect from their workplace environment?

Base: All respondents (n=351)

N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results



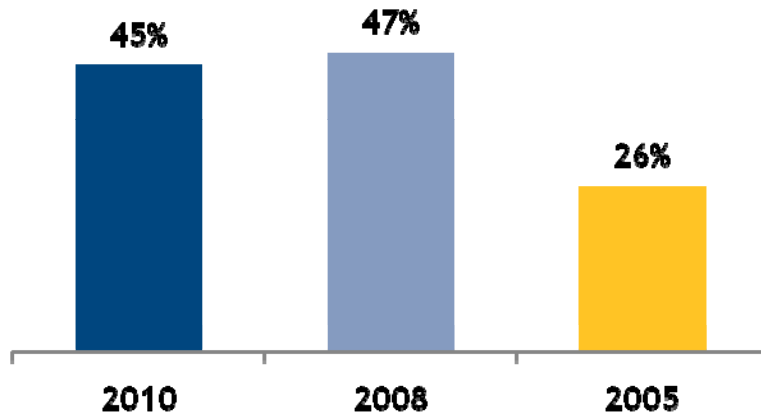
Environmental Sustainability



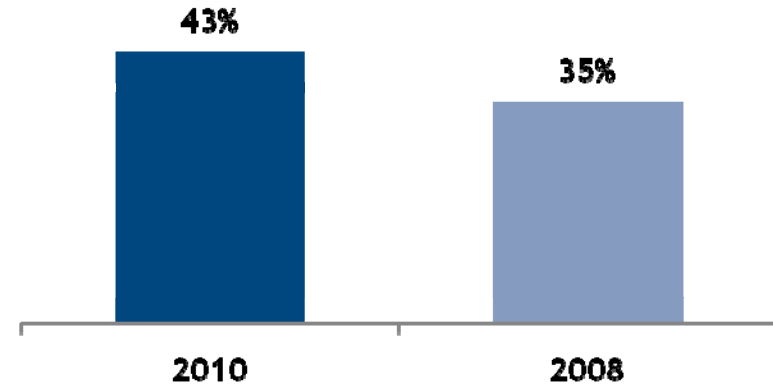
Environmental Sustainability

Current Practices – Australian Tenants

Organisation has a process for evaluating environmental performance when selecting buildings



Organisation reports environmental performance publicly*



*Not asked in 2005

Q16. Does your organisation report its environmental performance publicly?

Q17. Does your organisation have a process for evaluating environmental performance when selecting buildings for occupancy?

Base: Australian respondents (n=274)

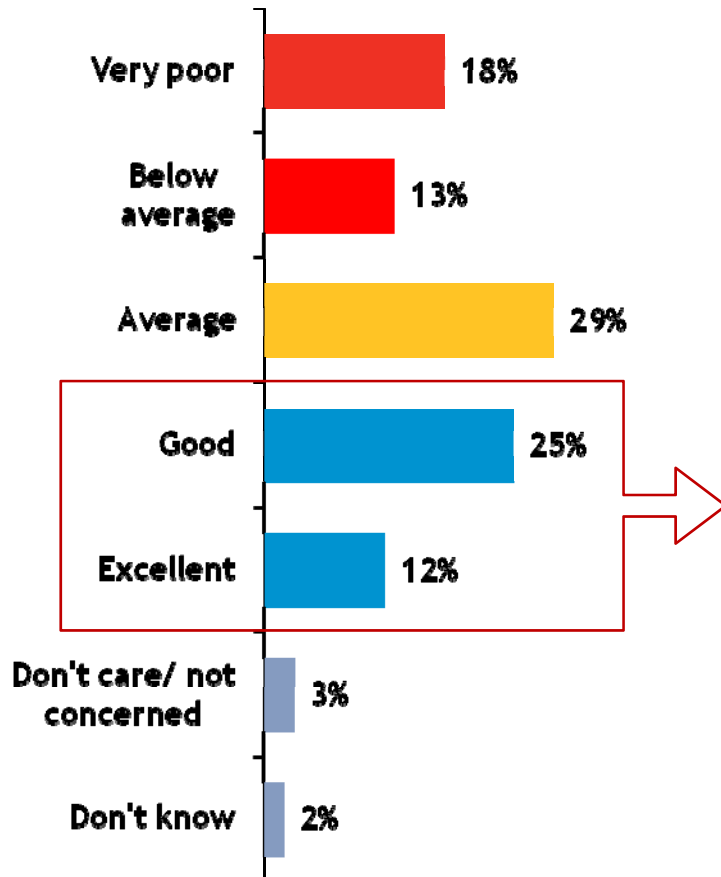


Environmental Sustainability

Landlord's Effort

Rating of Landlord's effort to improve environmental performance*

Mean: 3.0 Median: 3.0



*Mean rating on a scale of 1-5, where 1 is 'Very poor' and 5 is 'Excellent'

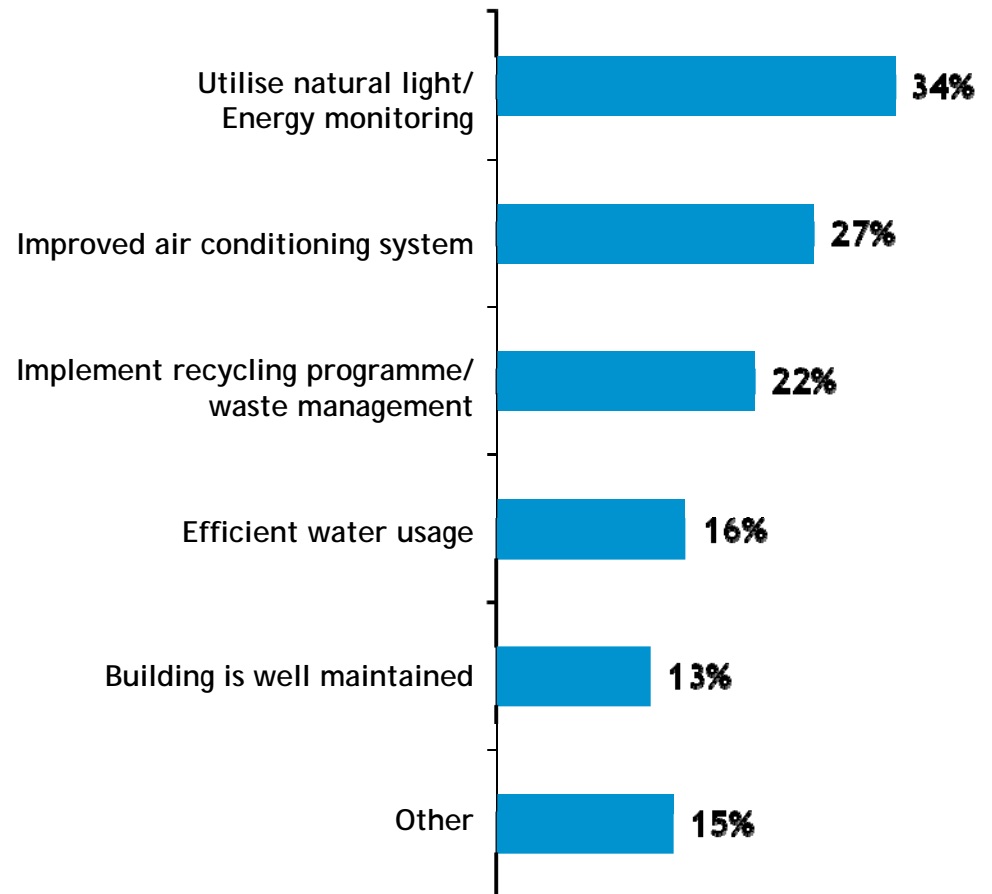
Q24. How do you rate the efforts of the landlord of the building you currently occupy to improve your building's environmental performance?

Q24b. What is your landlord doing to improve your building's environmental performance?

Base: All respondents (n=351)

N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results

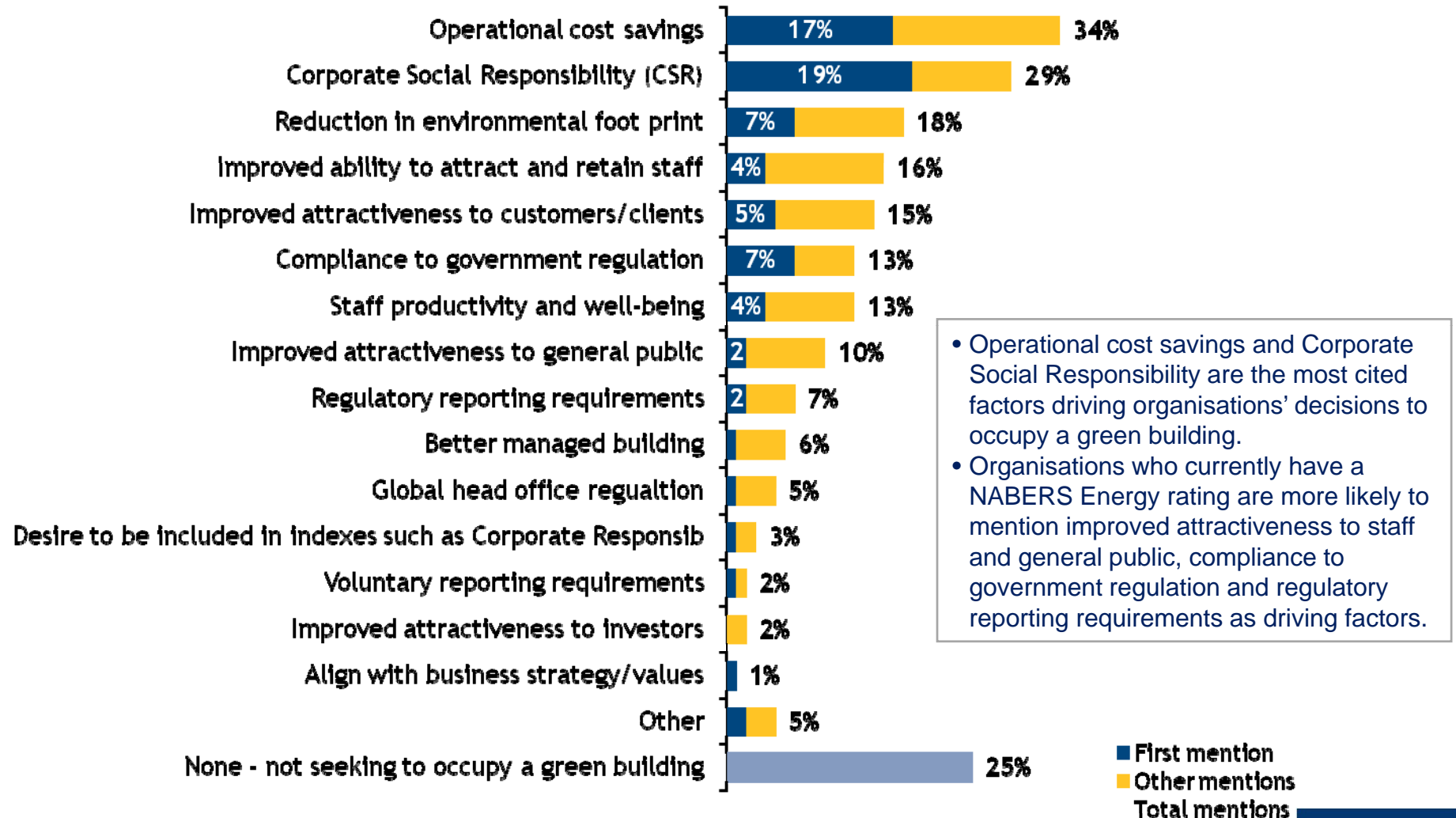
What is your landlord doing to improve your building's environmental performance? (N=128)



HOME

Environmental Sustainability

“What are the factors driving your organisation’s decision to occupy a green building?”



Q18. What are the factors driving your organisation's decision to occupy a green-rated building?

Base: All respondents (n=351)

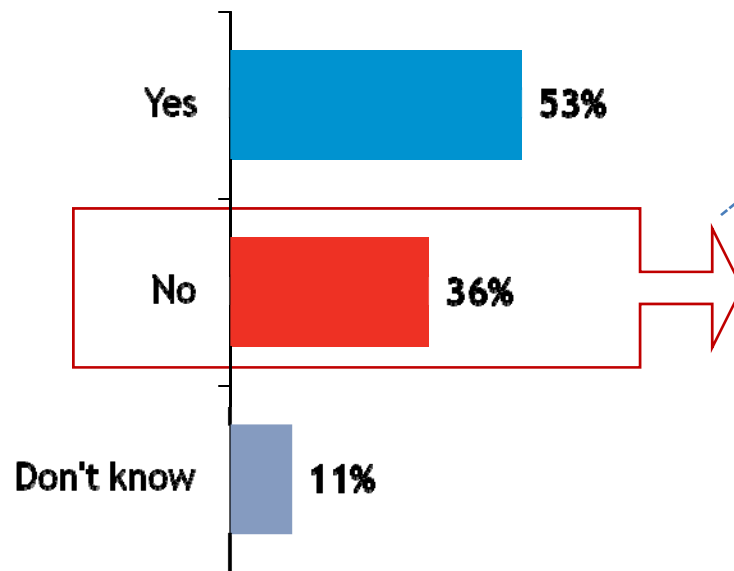
N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results



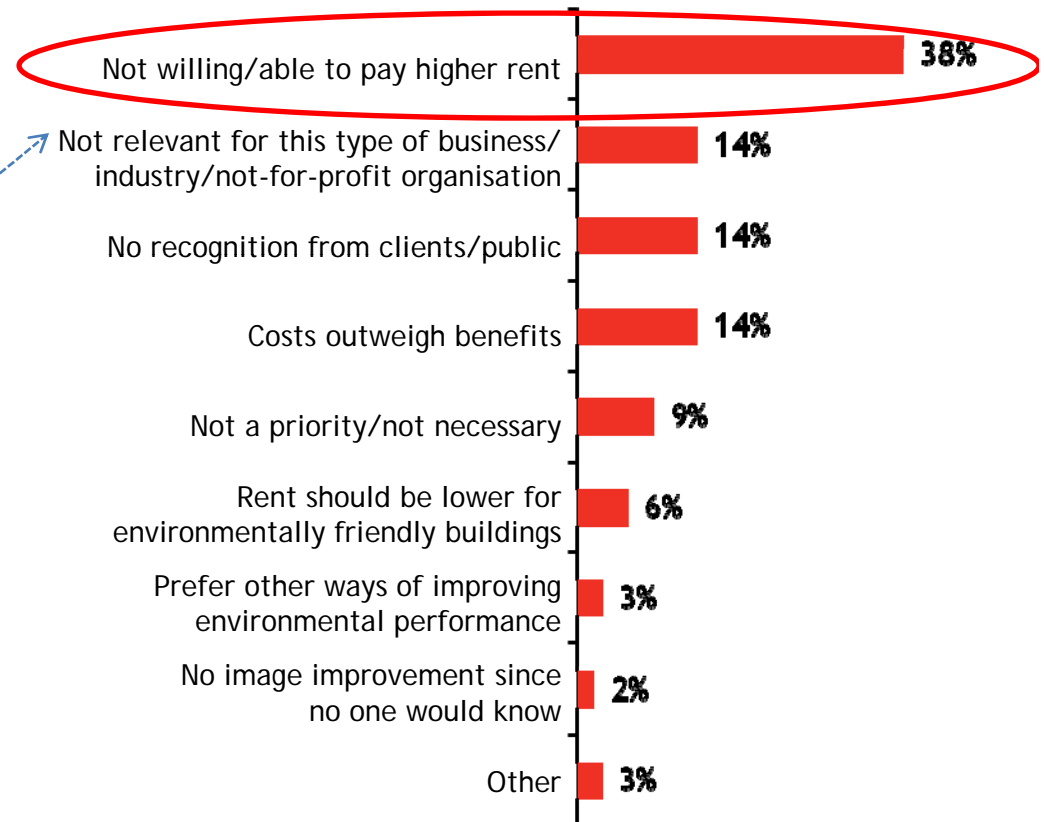
Environmental Sustainability

Strategic Value of Occupying a Green Building

“Do you think there is strategic value to your organization in occupying a green building and would you be prepared to pay more rent for this value?”



“Why is there no strategic value?” (N=125)



Q20. Do you believe there is strategic value to your organisation in occupying a green-rated building and would you be prepared to pay more rent for this value? Q20b. Why not?

Base: All respondents (n=351)

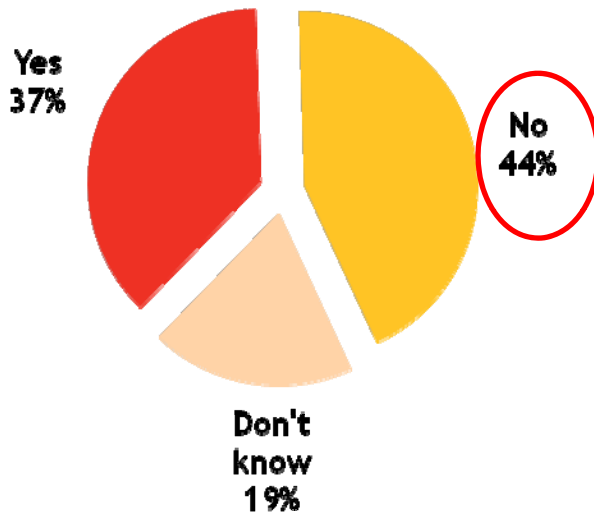
N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results



Environmental Sustainability

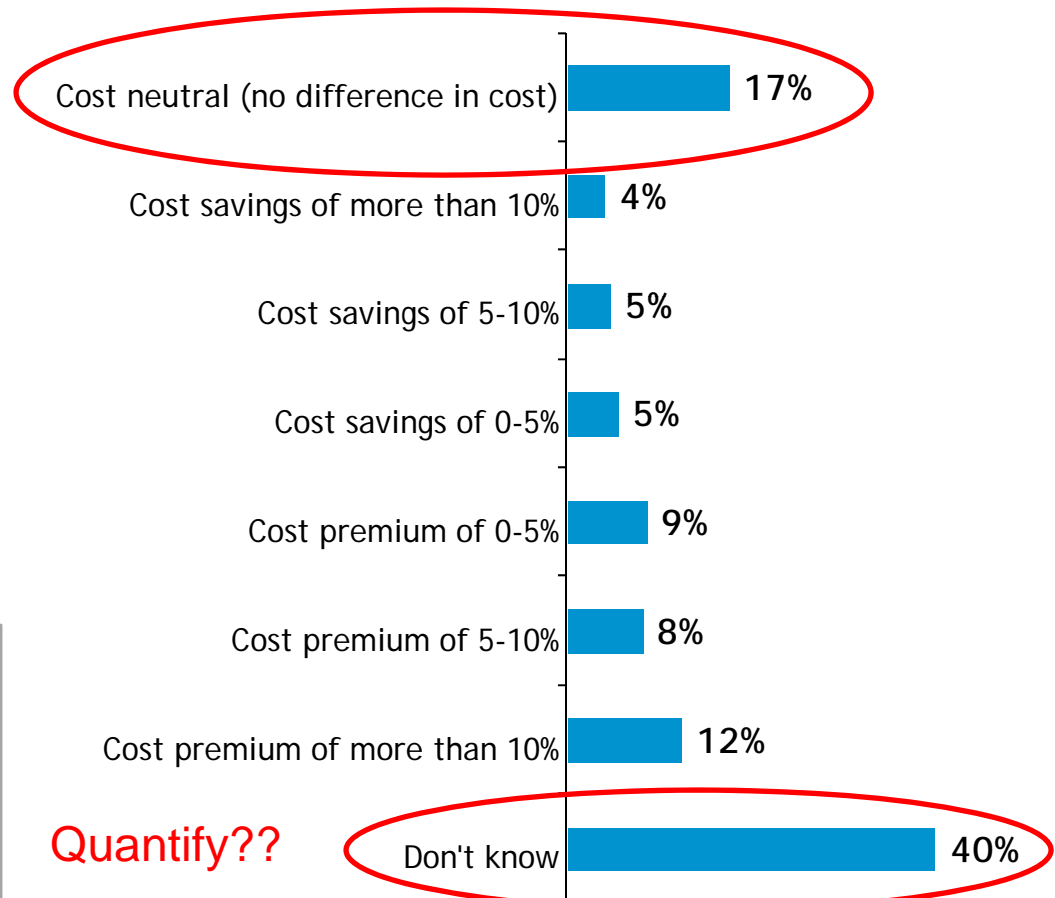
Costs savings to occupy a green building

Do you believe it costs more to occupy a green building once cost savings from reduced energy consumption are accounted for?



- The majority of tenants (40%) are not sure if there is a cost premium or a cost savings in occupying a green building.
- The next highest group (17%) believe it will be cost neutral once energy savings are accounted for.

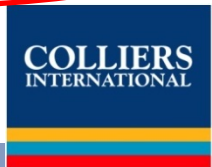
Approximate cost premium or cost savings in rent to occupy a green building



Quantify??

Q19a. Do you believe it costs more to occupy a green building once the cost savings from reduced energy consumption are accounted for?
Q19b. Approximately how much is the cost premium or cost savings in rent to occupy a green building when you account for the energy savings?

Base: All respondents (n=351)



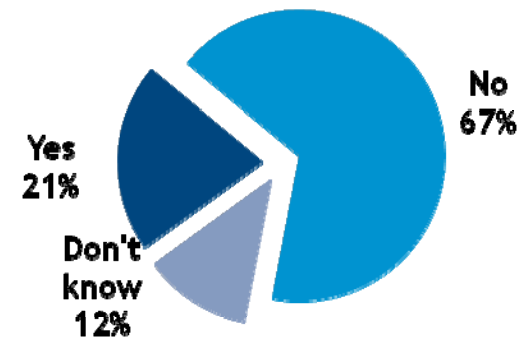
Environmental Sustainability

NABERS Energy Rating – Australian Tenants (formerly ABGR Rating)

Familiar with NABERS Energy
(formerly ABGR) Rating (N=274)



Currently occupy building with
NABERS building rating (N=274)



- 55% of tenants surveyed were familiar with the NABERS Energy Rating.
- 21% of organisations currently occupy a NABERS Energy rated building.

Q21. Are you familiar with the NABERS rating scheme?
Q22. Do you currently occupy a NABERS rated building?

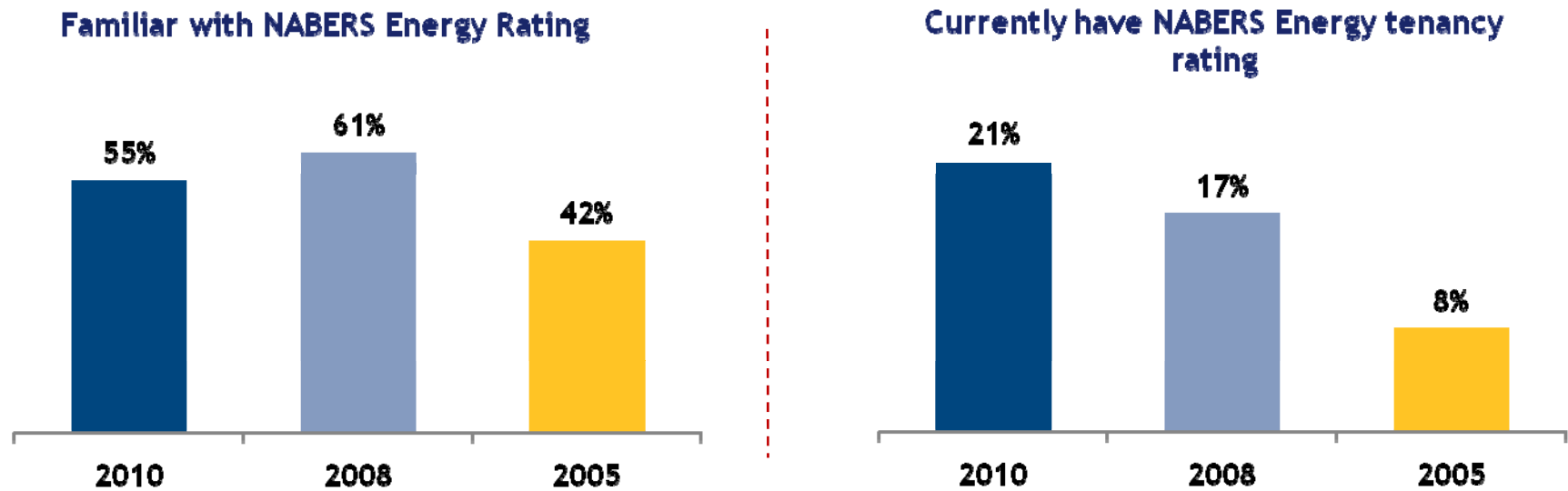
Base: Australian respondents (n=274)

N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results



Environmental Sustainability

NABERS Energy Rating – Tracking (formerly ABGR Rating)



More Australian tenants now have a NABERS tenancy rating.

Q21. Are you familiar with the NABERS rating scheme?
Q22. Do you currently occupy a NABERS rated building?

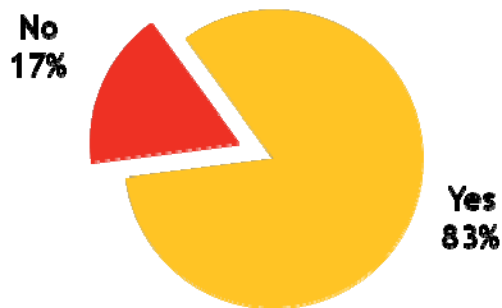
Base: Australian respondents (n=274)



Environmental Sustainability

Green Star Rating – Australian and New Zealand Tenants

Familiar with Green Star Rating
(N=351)



Currently occupy building with
Green Star rated building (N=351)



- 83% of respondents surveyed were familiar with the Green Star Rating.
- 17% of organisations said they currently occupy a Green Star rated building.

Q21. Are you familiar with the Green Star rating scheme?
Q22. Do you currently occupy a Green Star rated building?

Base: All respondents (n=351)

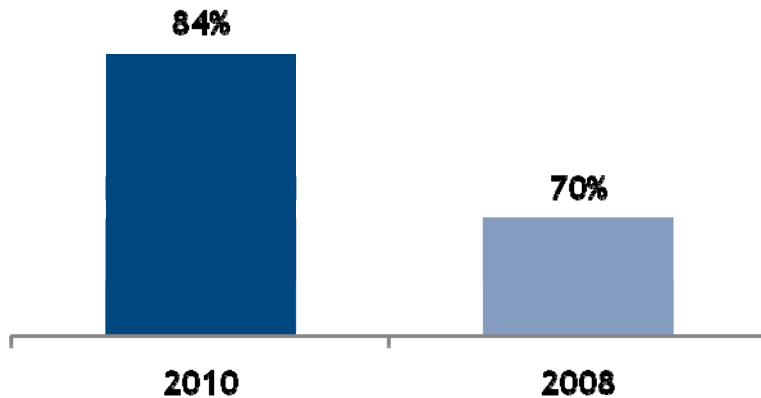
N.B: Please refer to Appendix 1 & 2 for Australia and New Zealand results



Environmental Sustainability

Green Star Rating – Australian Tenants Tracking

Familiar with Green Star Rating



Currently occupy building with Green Star rating



Q21. Are you familiar with the Green Star rating scheme?
Q22. Do you currently occupy a Green Star rated building?

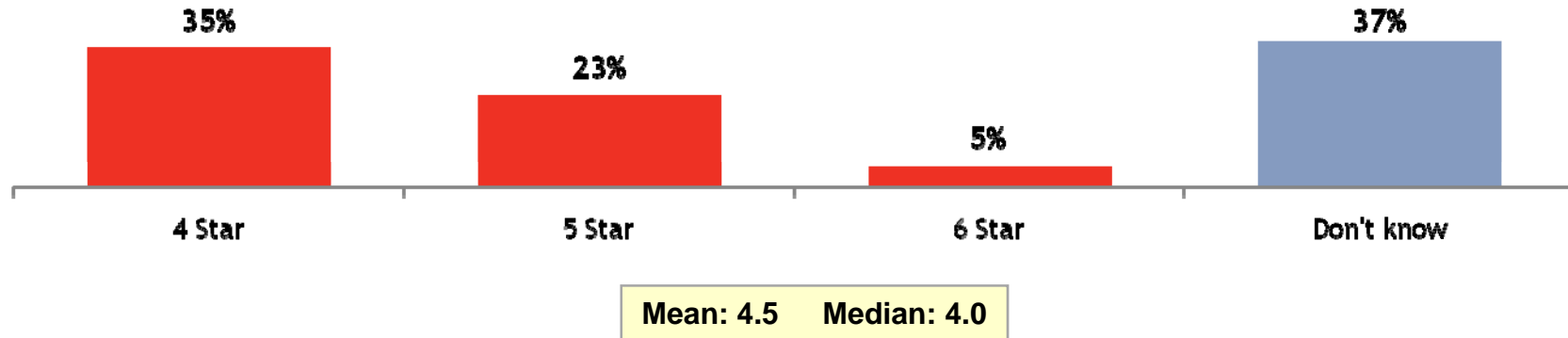
Base: Australian respondents (n=274)

N.B: Not asked in 2008 and 2005

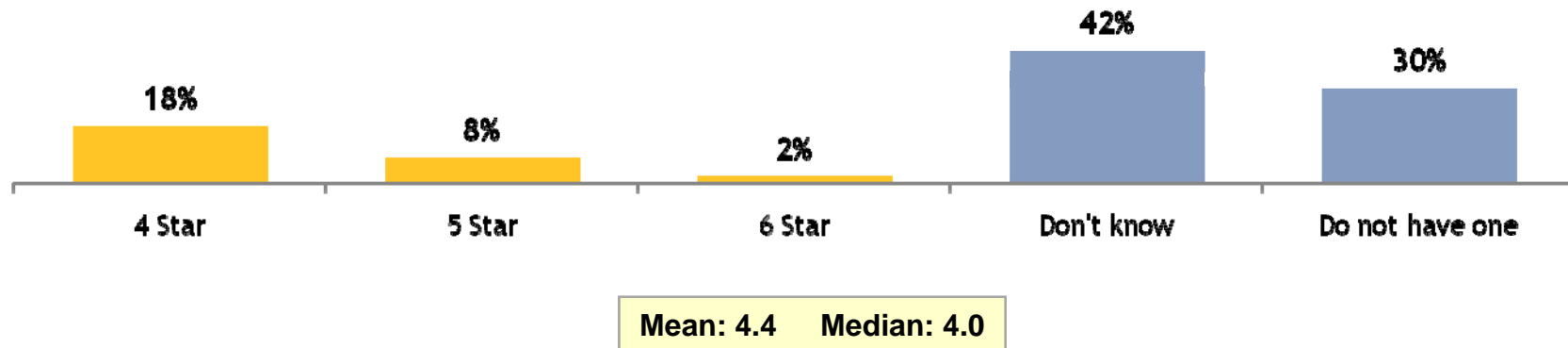


Environmental Sustainability

Current Green Star Rating (N=60)*



Current Green Star fit-out Rating (N=60)*



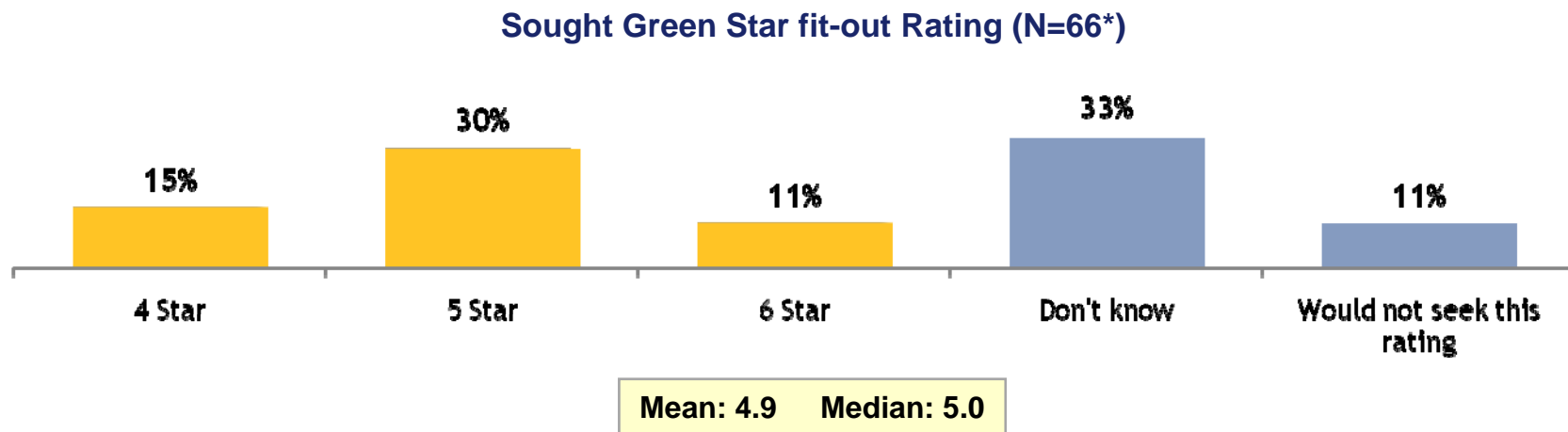
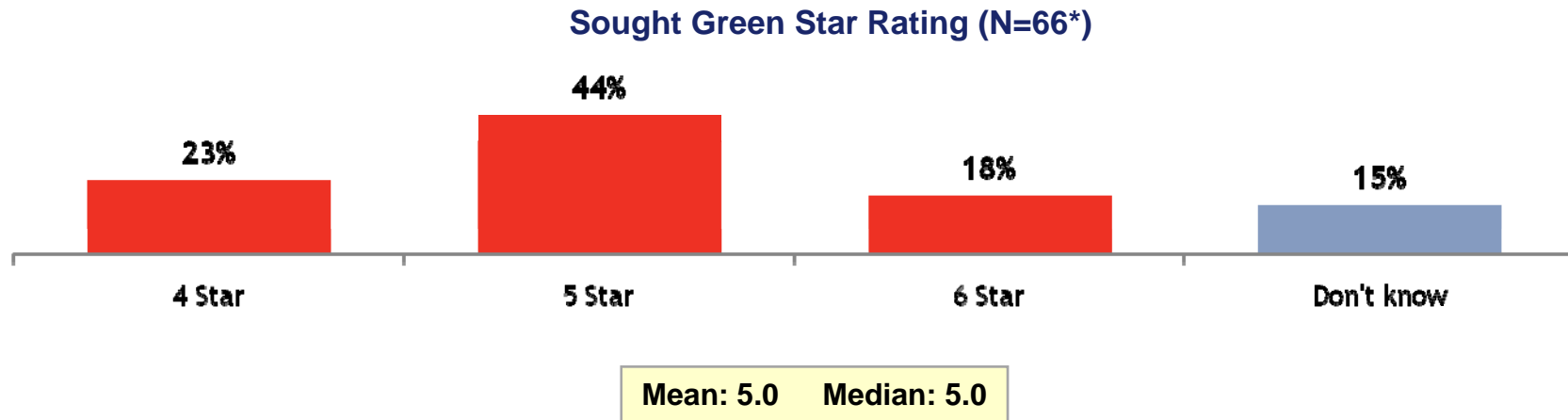
Q22bb. What is the Green Star rating you currently occupy?

Q22cc. What is the Green Star fitout rating you currently occupy?

*Base: Australian respondents currently occupying a Green Star rated building (n=60)



Environmental Sustainability



Q23bb. What is the Green Star rating you would be seeking?

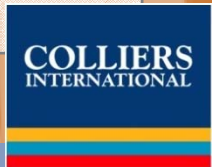
Q23cc. What is the Green Star fitout rating you would be seeking?

***Base: Australian respondents who do not currently have a Green Star rated building and are seeking one (n=66)**



Key Findings

- 57% of Australian and New Zealand tenants believe **the property market is improving**. Confidence is higher in Australia (mean: 7 o'clock) than New Zealand (mean: 6 o'clock).
- 23% of tenants claim the GFC had an impact on their leasing plans; **17% believe the GFC is still hindering their decisions**. An increased focus on **cost** and **delaying relocation/expansion plans** have been the main impacts.
- **Main drivers for relocation in the future** will be **business expansion**, **access to public transport** and proximity to a central location with **access to CBD and amenities**.
- **Consolidation**, **flight to quality**, seeking improved building **environmental performance** and **improved property management** were also key reasons tenants noted would drive their relocation in the future.
- When designing their workspace, tenants' top priorities are **team collaboration**, **a flexible fitout**, **environmental performance** and maximising staff health and wellbeing.
- To attract and retain staff, **the top 3 building attributes** tenants look for include excellent indoor air quality, proximity to public transport and cutting edge ICT.
- 45% of tenants now have a process for evaluating the **environmental performance** of a building before deciding on occupation.
- Tenants indicated the main factors driving environmental sustainability include **operational cost savings** and **corporate social responsibility**.



SPEAKER

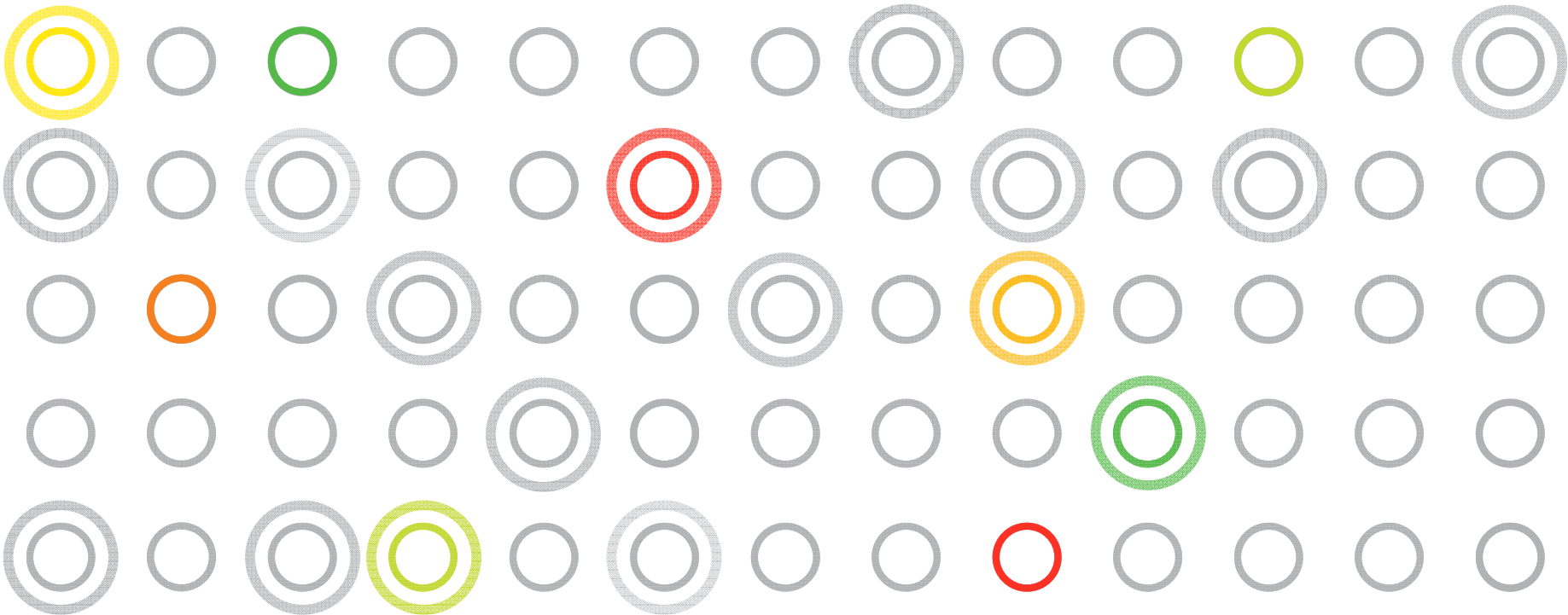
Neil Dickson,
Davis Langdon



green building council australia

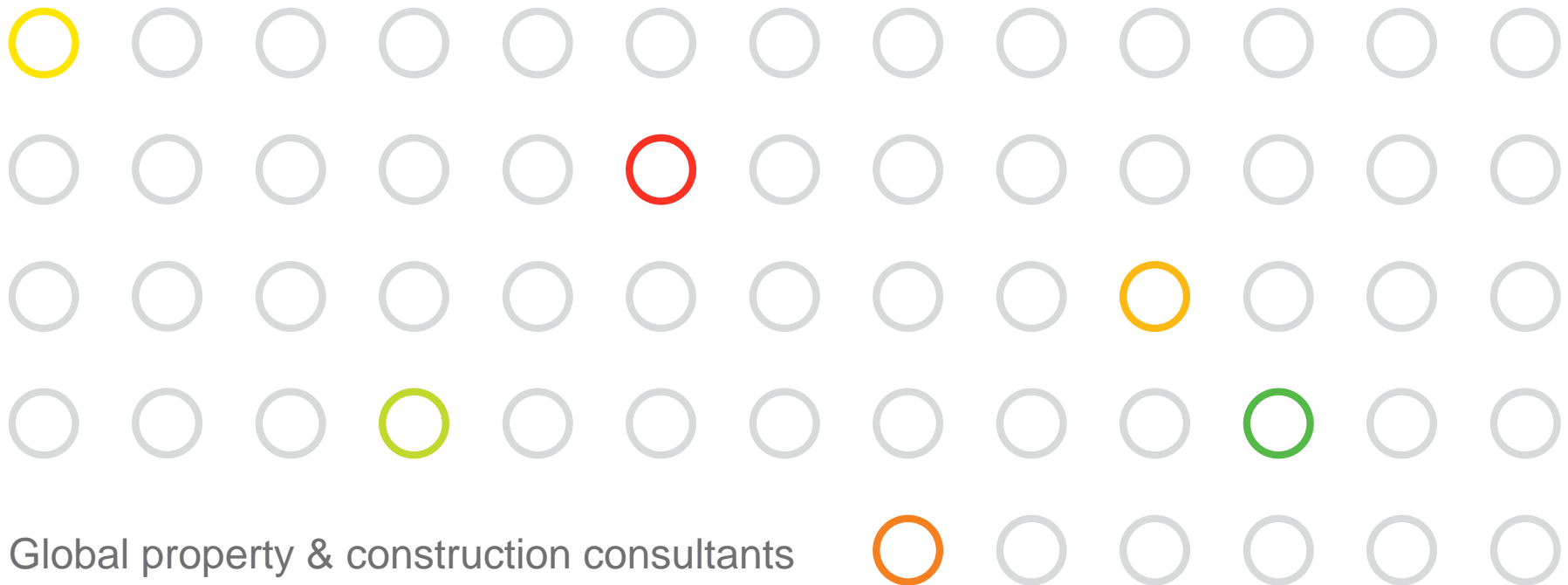


GLOBAL PROPERTY
& CONSTRUCTION
CONSULTANTS



WORKPLACES OF THE FUTURE

effective, expressive & exciting



■ Agenda

■ Shift in Thinking

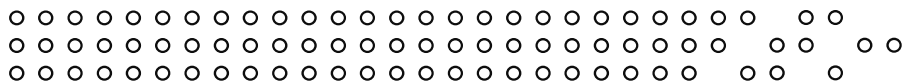
■ Why invest in Workspace ?

■ Indicative Costs

■ Case Study / Business Case

■ The Future of Workplaces

■ Conclusion

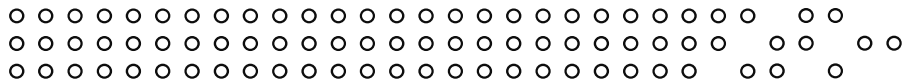


■ Shift in Thinking...



Colliers International Office Tenant Survey

91% of respondents indicated that
workplace design had an impact on
business success

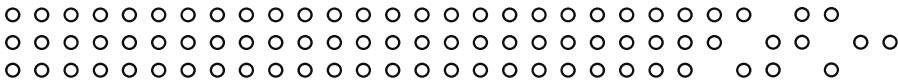


Why Invest in Your Workplace

Soft Issues

1	2	3	4	5	6
Company Image	Employee Satisfaction	Cultural shift	Operation efficiency	Rapid speed of change	Improved employee satisfaction
Team Working	Increased productivity	Ease of change	Working relationships		Ease of organisational change
Cultural Reinforcement		Ease of growth			
Space efficiency					

Survey of 6 Global Businesses

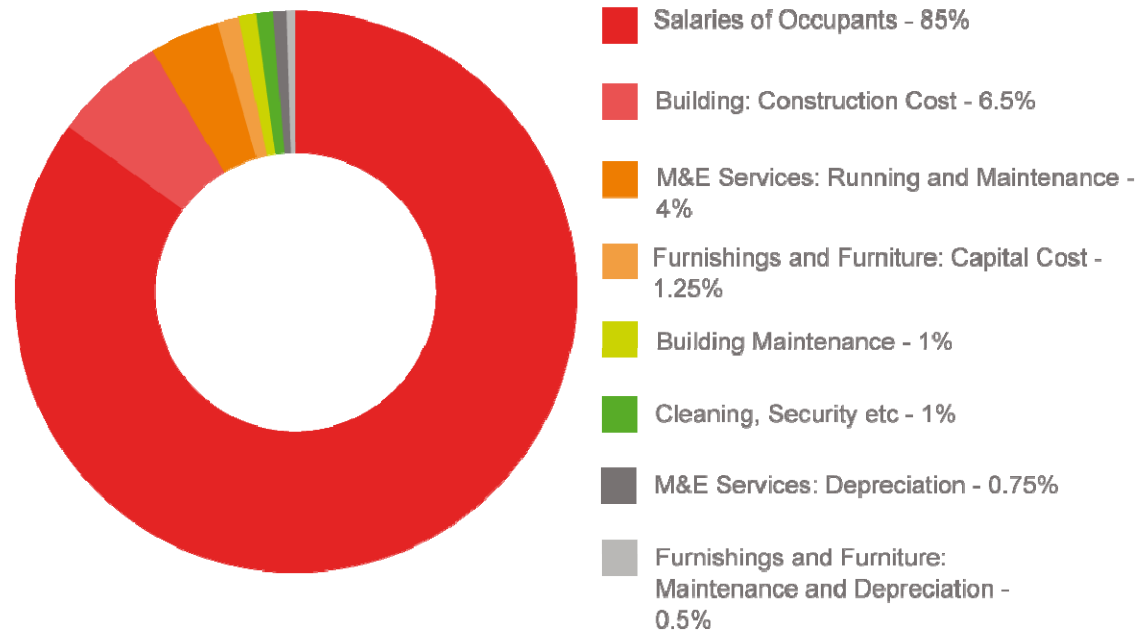


■ Why Invest in Your Workplace

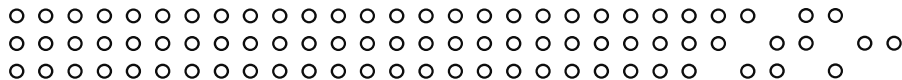
■ **Hard Issues**

○ Business Costs

A breakdown of business costs

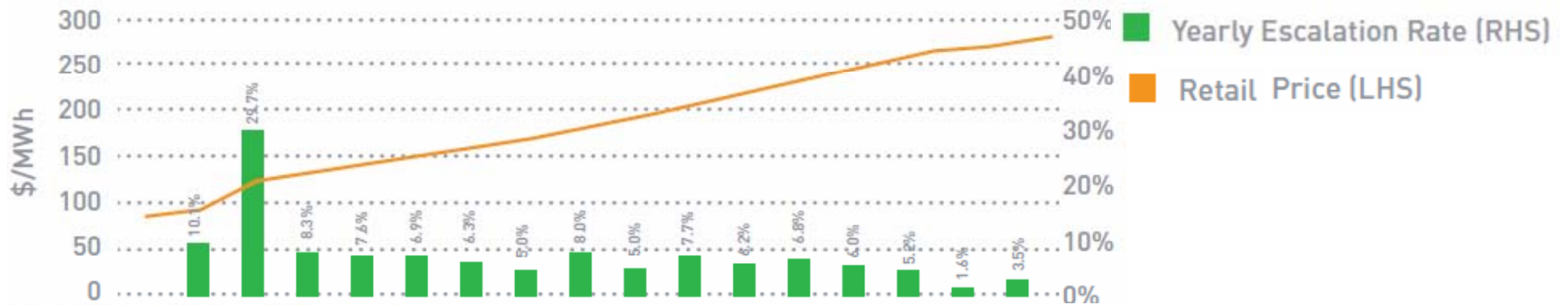


Source: CABE & BCO

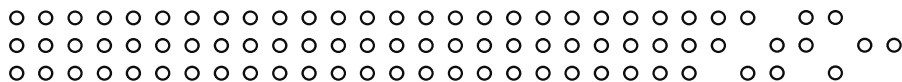
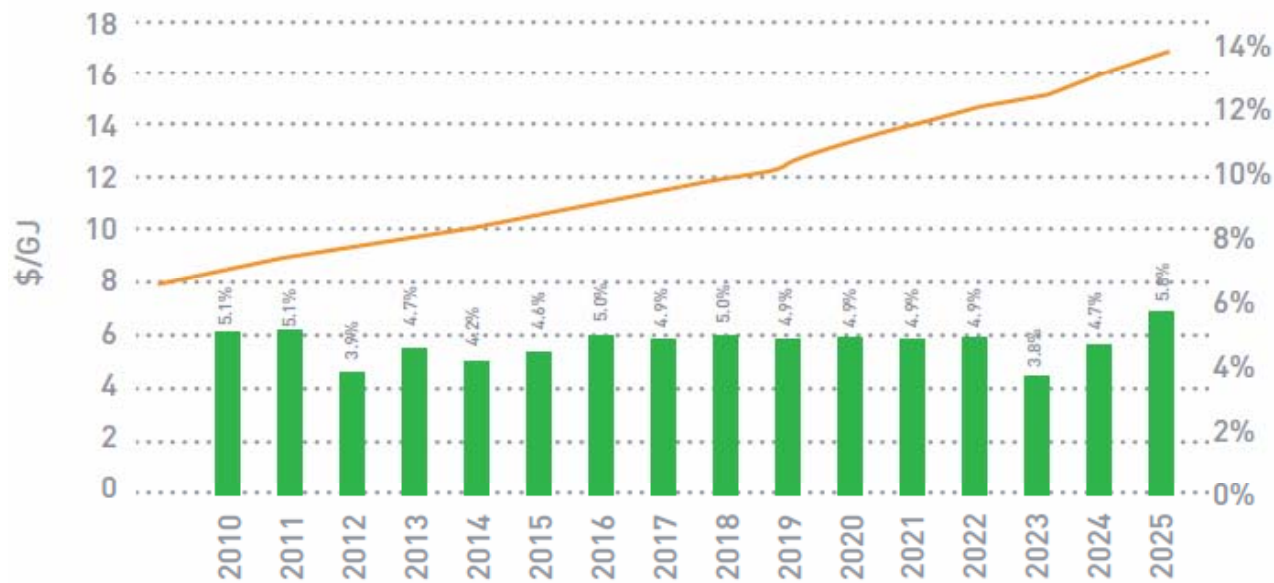


Why Invest in Your Workplace

Retail Electricity Price Forecast –
Federal Treasury



Retail Gas Price Forecast

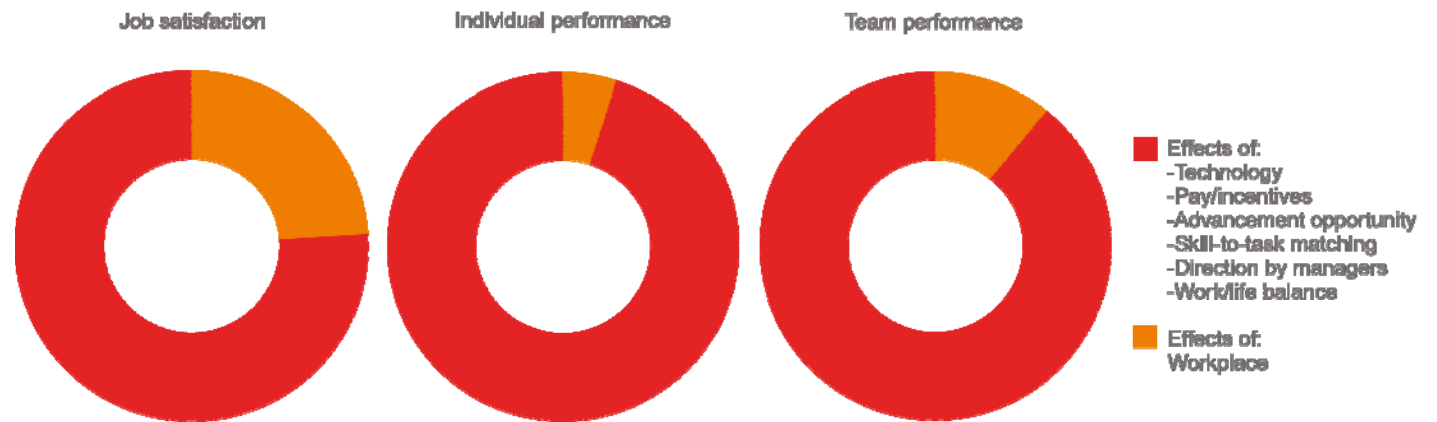


■ Why Invest in Your Workplace

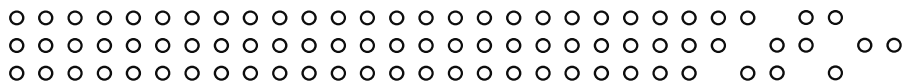
■ **Hard Issues**

○ Business Costs

○ Productivity



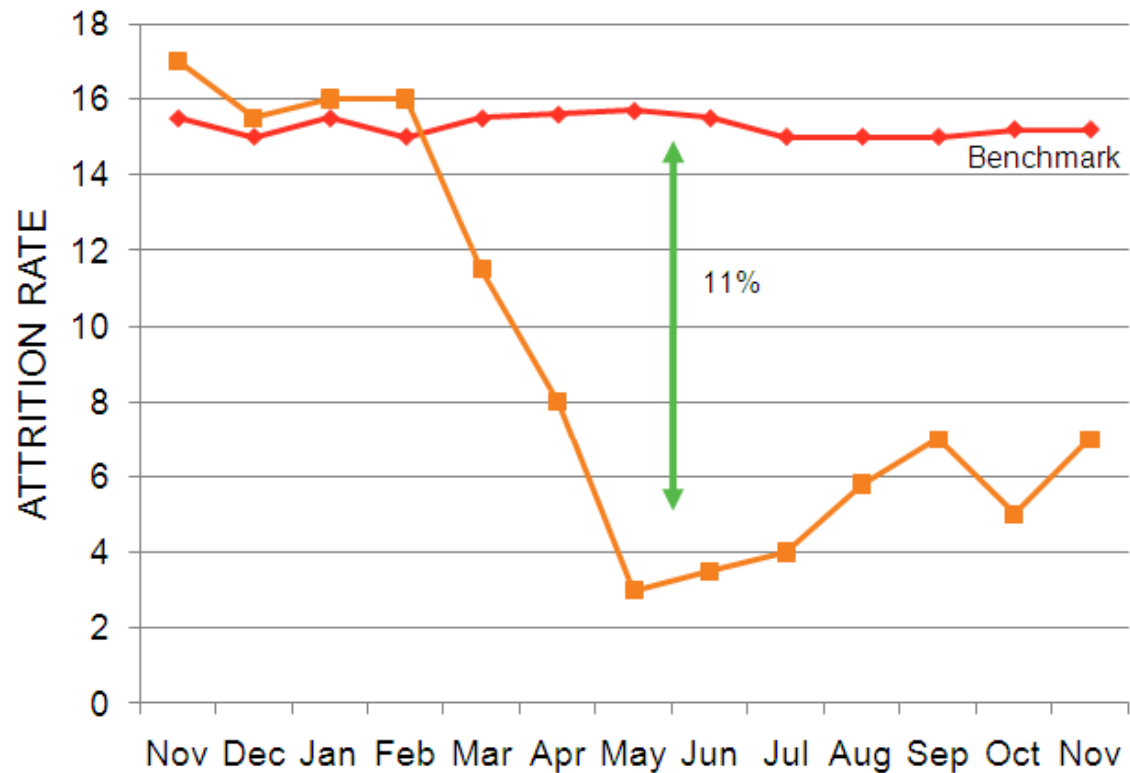
Source: CABB & BCO



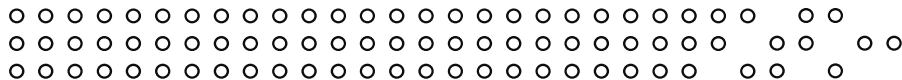
■ Why Invest in Your Workplace

■ Hard Issues

- Business Costs
- Productivity
- Staff Turnover



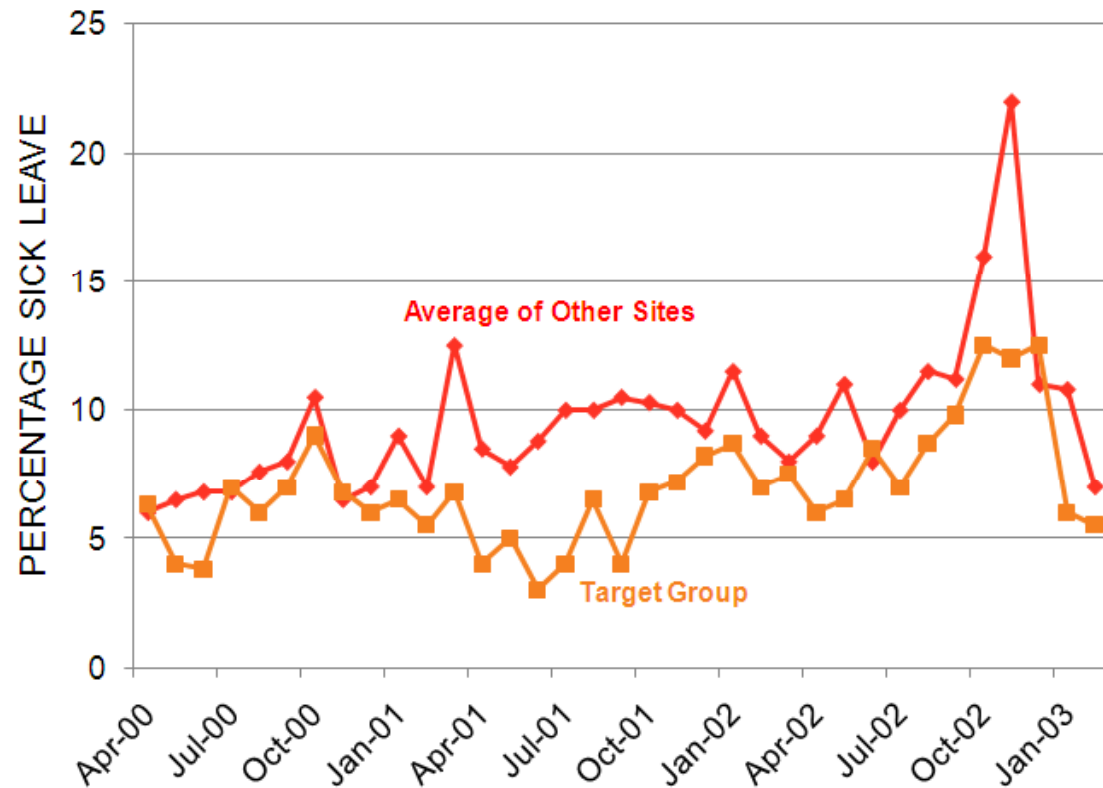
Source: CABE & BCO



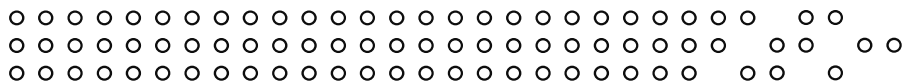
■ Why Invest in Your Workplace

■ Hard Issues

- Business Costs
- Productivity
- Staff Turnover
- Sick Leave



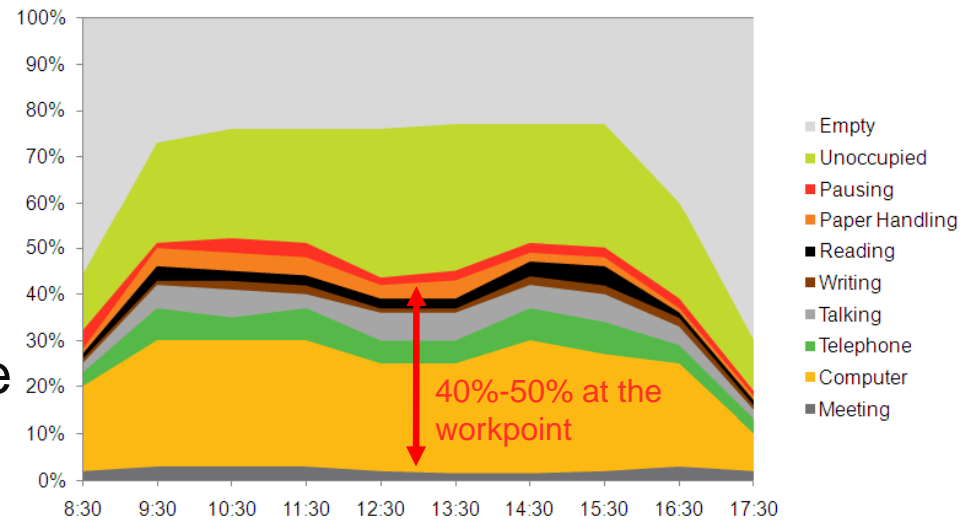
Source: CAGE & BCO



■ Why Invest in Your Workplace

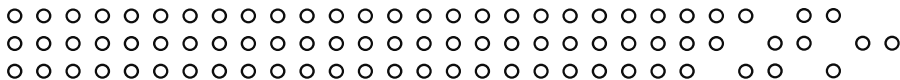
■ Hard Issues

- Business Costs
- Productivity
- Staff Turnover
- Sick Leave
- Cost of Ineffective Use of Space



Most work points only occupied 40%-50% of the time – We need to support the other workplace activities.

Source: DEGW



Creating a successful Workplace

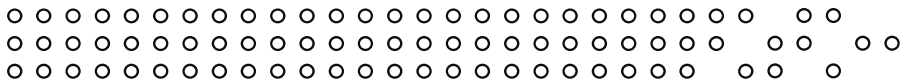
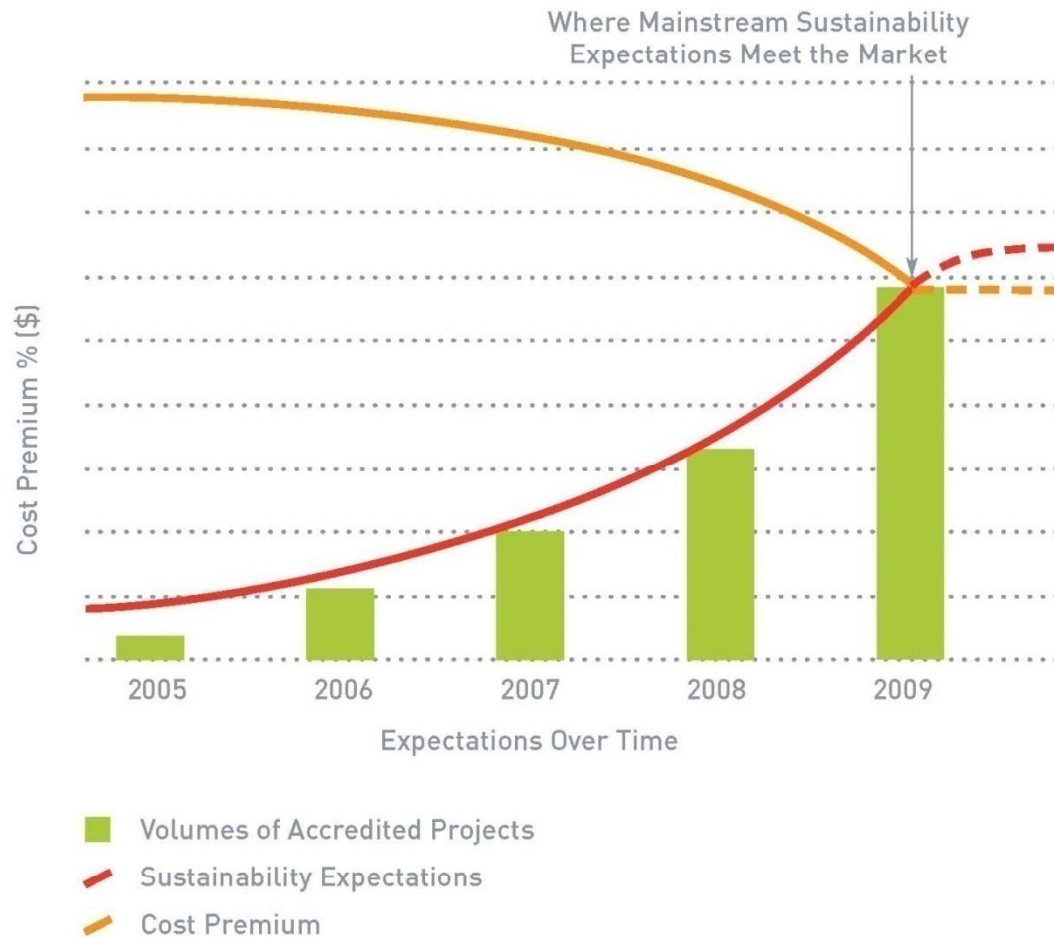
Indicative Building Costs

Business Sector	Cost per Net Lettable Area (NLA)
Government departments	\$1,000 - \$1,300/m ²
Professional firms	\$1,200 - \$1,450/m ²
Corporations	\$1,200 - \$2,000/m ²
Cost of Green Initiatives	0% to 5%



■ Creating a successful Workplace

Overlay with Green Building Council of Australia (GBCA) for Green Star Projects



■ Why Invest in Your Workplace

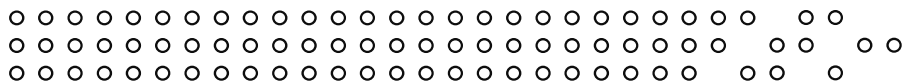
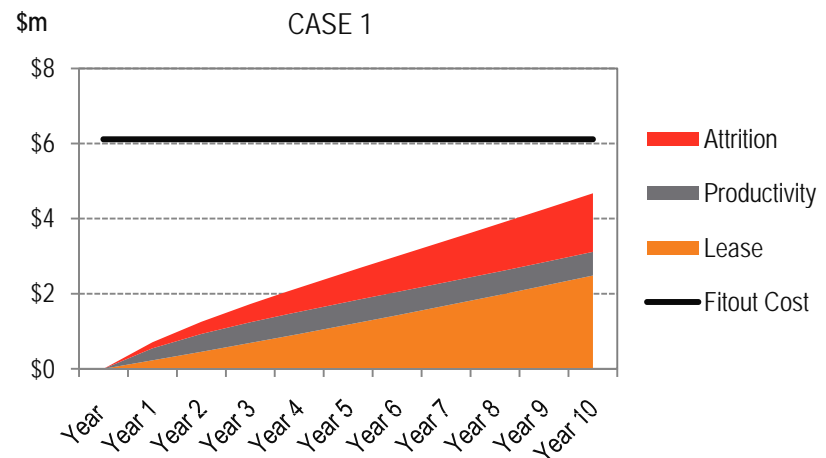
Case Study

■ Baseline Assumptions

- Current office area of 4,000m² NLA
- 200 staff (1 per 20m²)
- Rental @ \$600/m²
- Ave. Staff Cost \$160k p.a
- Ave. cost to recruit \$16.5k p.p
- Attrition at 20% p.a

New Workplace

- Increased efficiency of 10%
- Office space of 3,600m²
- 200 staff (1 per 18m²)
- Saving of 400m² on fitout
- Productivity Gain of 1%
- Attrition rate reduced to 15%p.a



■ Why Invest in Your Workplace

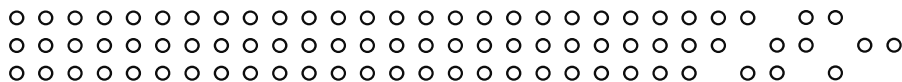
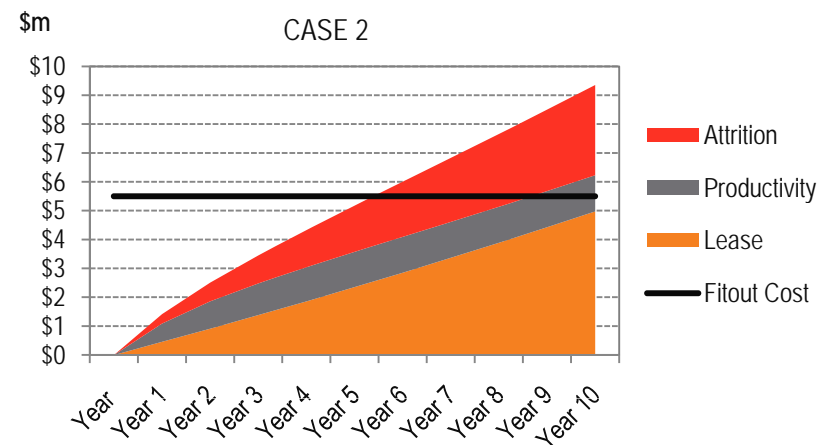
Case Study

■ Baseline Assumptions

- Current office area of 4,000m² NLA
- 200 staff (1 per 20m²)
- Rental @ \$600/m²
- Ave. Staff Cost \$160k p.a
- Ave. cost to recruit \$16.5k p.p
- Attrition at 20% p.a

New Workplace

- Increased efficiency of 20%
- Office space of 3,200m²
- 200 staff (1 per 16m²)
- Saving of 800m² on fitout
- Productivity Gain of 2%
- Attrition rate reduced to 10%p.a



■ Why Invest in Your Workplace

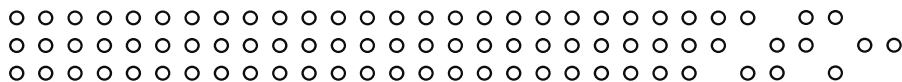
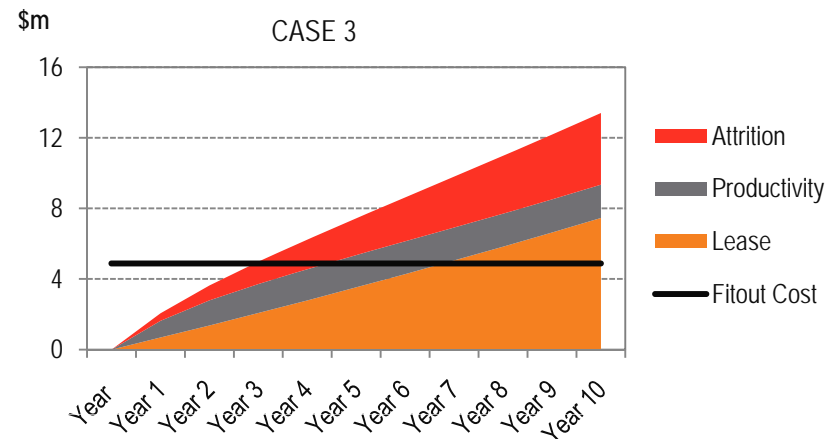
Case Study

■ Baseline Assumptions

- Current office area of 4,000m² NLA
- 200 staff (1 per 20m²)
- Rental @ \$600/m²
- Ave. Staff Cost \$160k p.a
- Ave. cost to recruit \$16.5k p.p
- Attrition at 20% p.a

New Workplace

- Increased efficiency of 30%
- Office space of 2,800m²
- 200 staff (1 per 14m²)
- Saving of 1,200 fit-out
- Productivity Gain of 3%
- Attrition rate reduced to 7%p.a



■ Creating a successful Workplace

Green Fit-out

○ Recycled material

○ Views and daylight

○ Zoning, controls

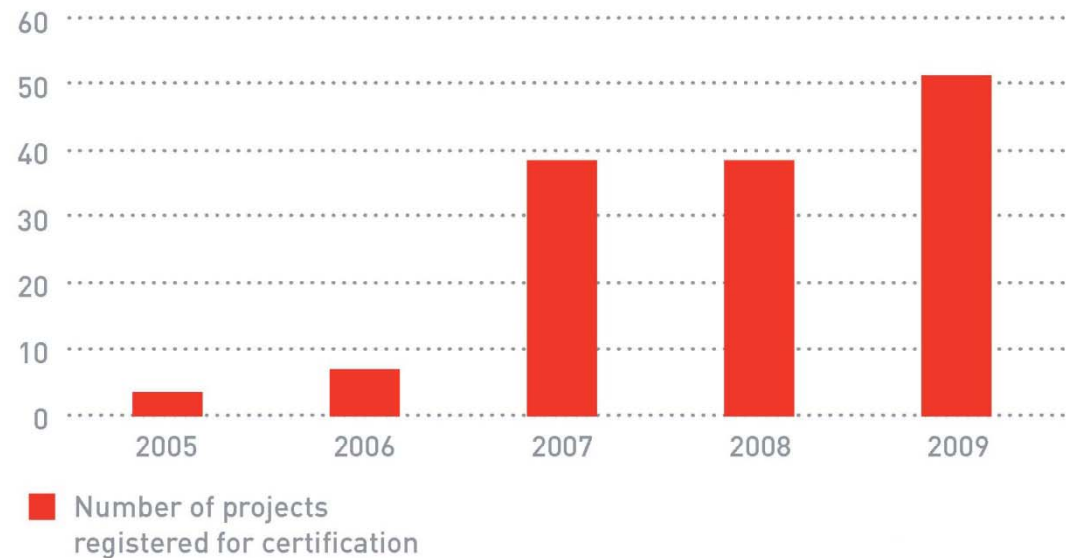
○ Impact of IT

○ Tenancy sub-metering

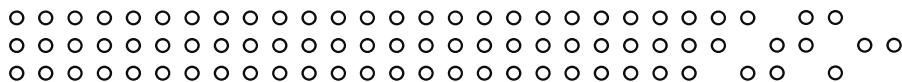
○ City Switch Programme

○ Green Leases

Green Star Office Interior Projects



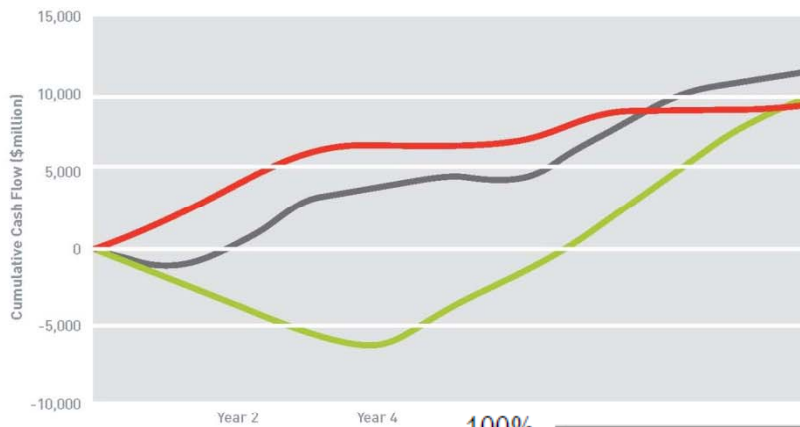
Source: GBCA



■ Creating a successful Workplace

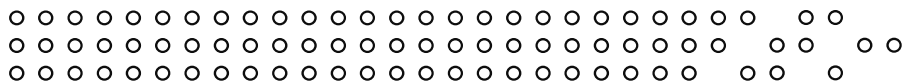
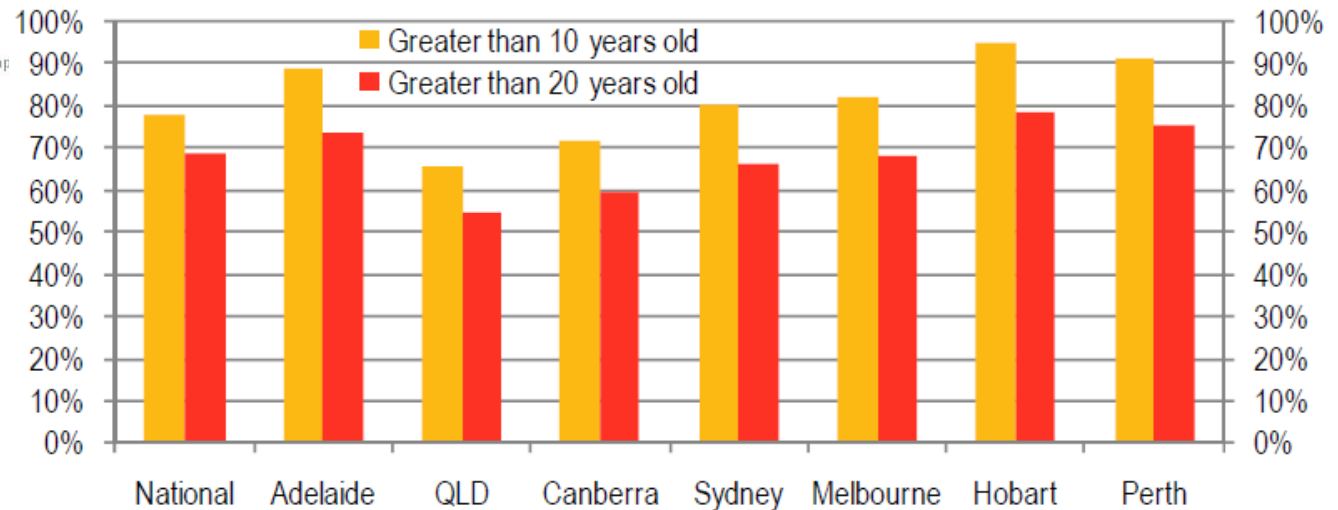
...and for Landlords

■ CBD Tower - Payback Compared to Business As Usual (BAU) Building Valuation



— BAU - High Vacancy, Low Capitalised Value, Non Comp
— Level 2 Upgrade - Less Market Appeal
— Level 3 Upgrade - Higher Asset Value

	Market Value	Increase from Base Case [%]
Base	\$58.4m	—
Level 1	\$59.3m	1.5
Level 2	\$62.2m	6.5
Level 3	\$64.4m	10.3
Level 4	\$63.2m	8.2



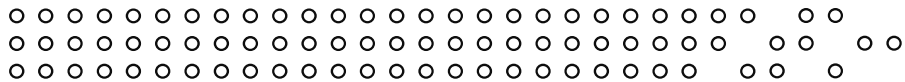
▀ The Future of Workplace Fit-outs...



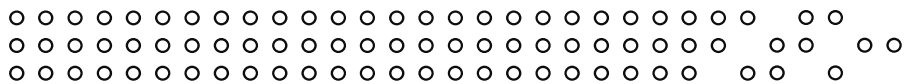
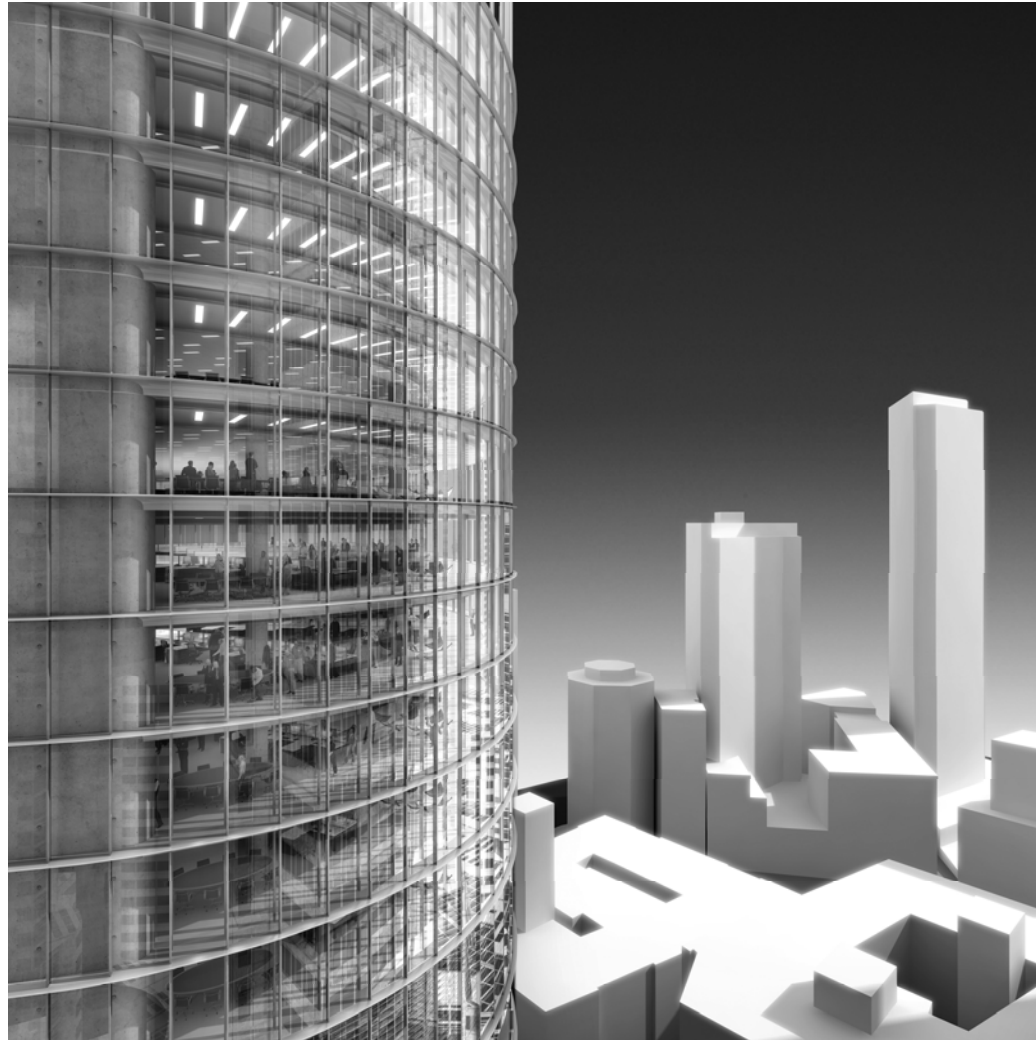
THE PAST



THE FUTURE



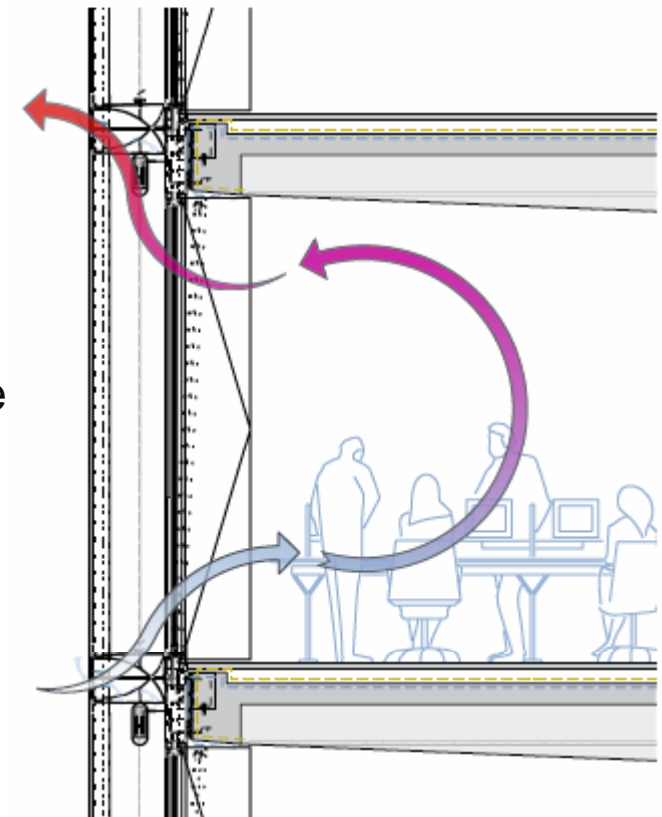
■ The Future of Workplace Fit-outs – 1 Bligh St



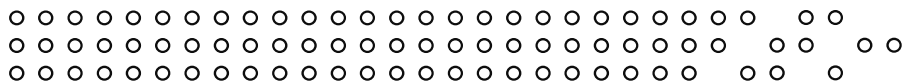
■ The Future of Workplace Fit-outs – 1 Bligh St

- 6 Star Green Star Office Design v2 Certified
 - Australia's first high rise double skin facade
 - Solar cooling system
 - Concrete use minimised
 - First use of a black water recycling in a high rise office
 - Water efficient fittings & rainwater harvesting
 - FSC accredited recycled timber and plywood
 - High proportion of recycled content in steel

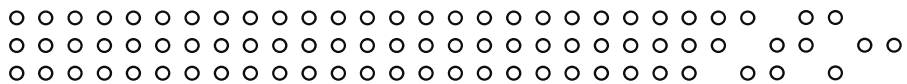
Passive circulation



Source: Architectus & Ingenhoven Architects



■ The Future of Workplace Fit-outs



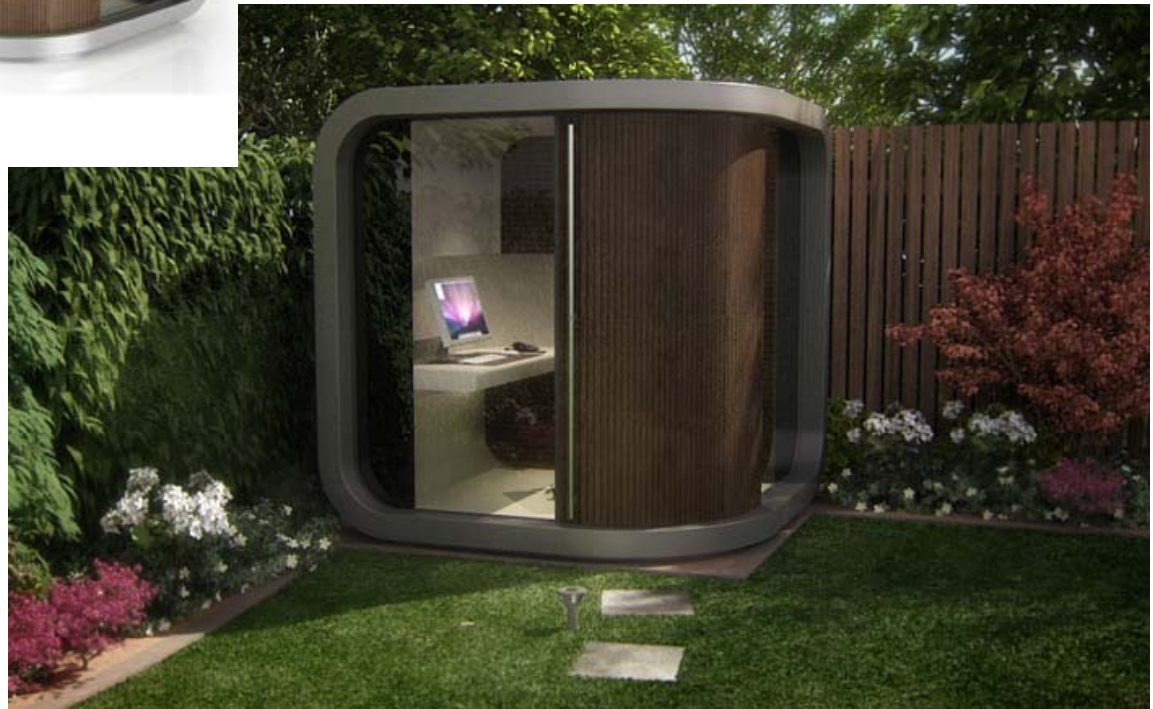
■ The Future of Workplace Fit-outs



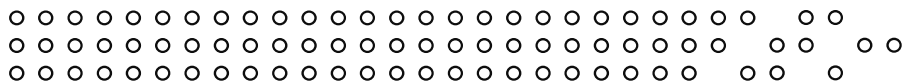
■ The Future of Workplace Fit-outs



■ The Future of Workplace Fit-outs

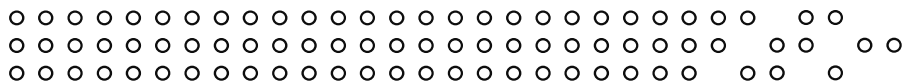


Images courtesy of Woods Bagot



■ Conclusions

- - Workspaces can be linked to business performance
 - Payback on initial capital investment
 - Staff looking for flexibility of workplace
 - Technology is there to support
 - For Landlords help minimize the effects of obsolescence, potential increased rents and value



WORKPLACES OF THE FUTURE

effective, expressive & exciting

■ Thank You

Neil Dickson

ndickson@davislangdon.com.au



SPEAKER

Vyt Garnys
CETEC



green building council australia





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



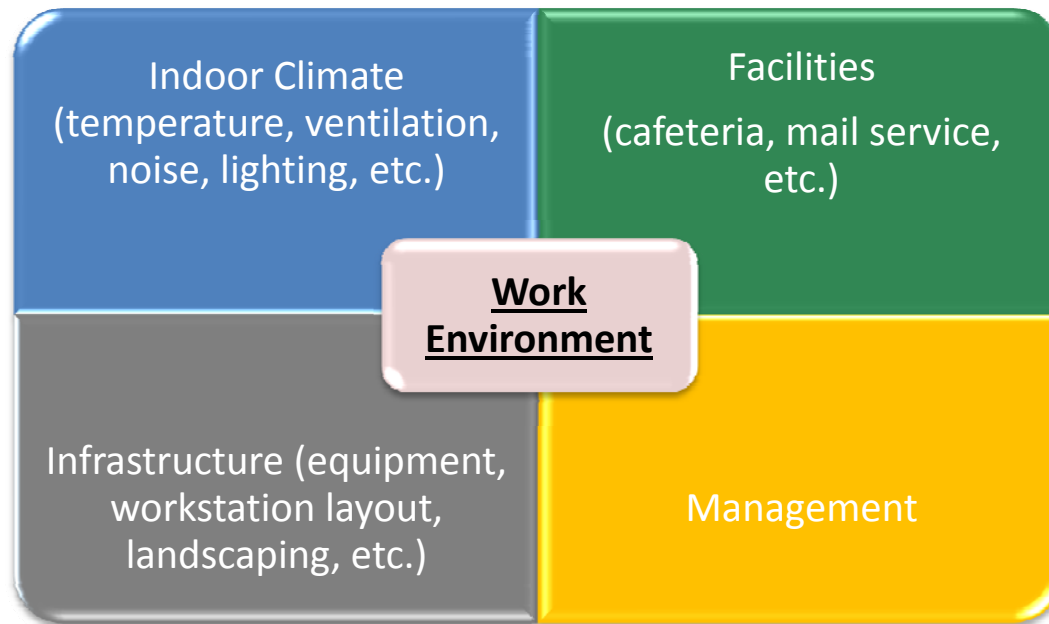
Why focus on the work environment?



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

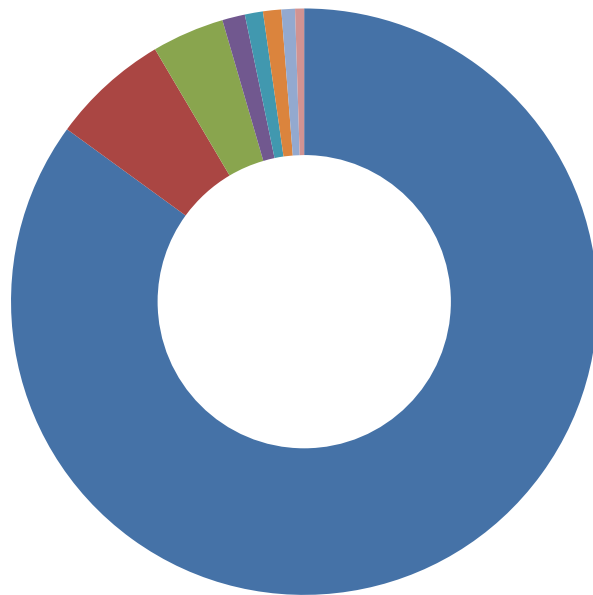


	Management / Communication	Implementation / Facilitation	Contaminants / Cleanliness	Ergonomics	Steady state / procedures	Future proof	Sickness	IAQ	IEQ
Health			√					✓	
Behaviour	√								✓
Work Stress		√							✓
Human Relations	√								✓
Comfort				√				✓	
Hygiene			√						✓
Predictability					√		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

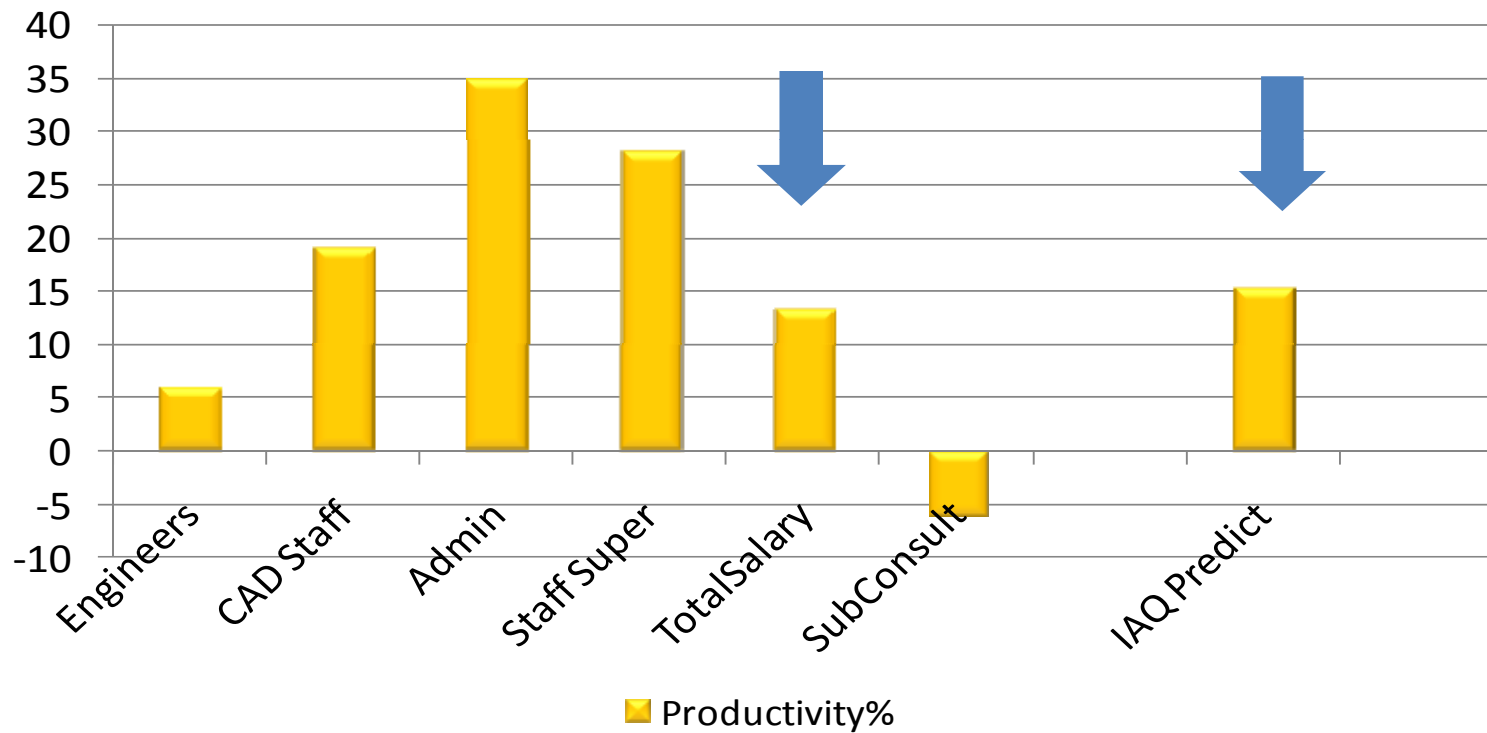
Projected by CETEC: 13%

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

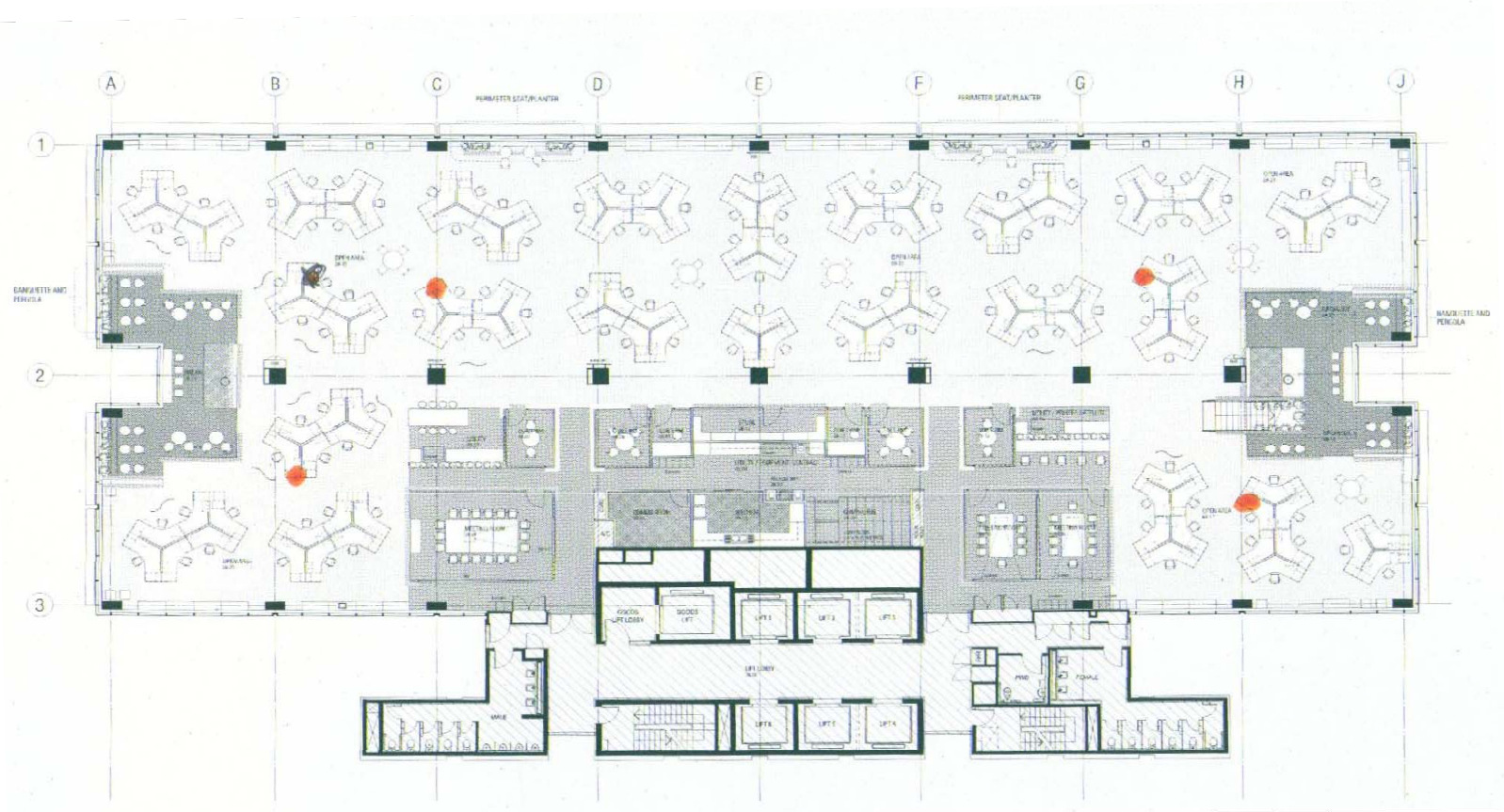
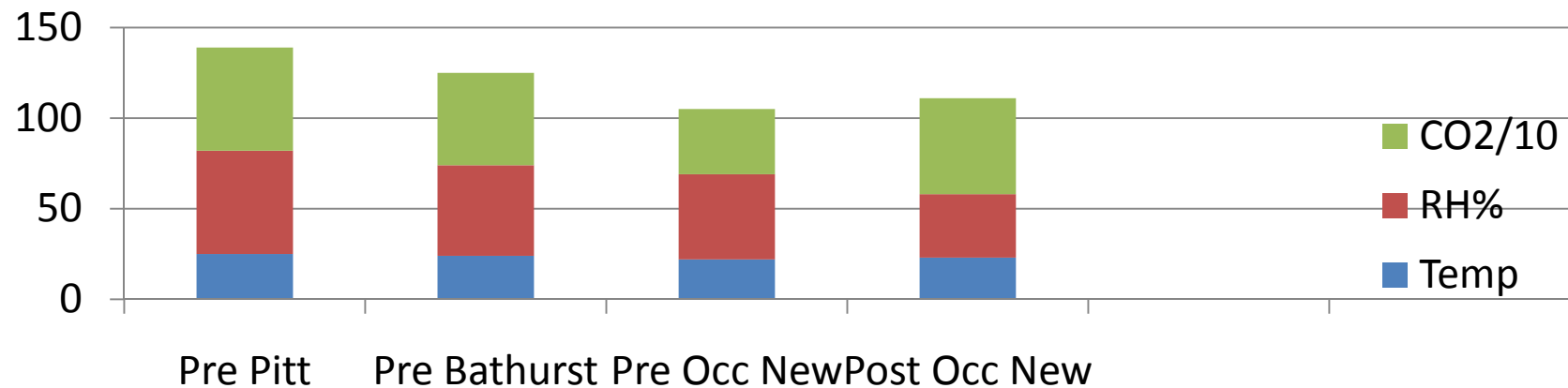


Figure 5B: Level 8, 1 Smith St, Parramatta NSW 2124 with sampling locations

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

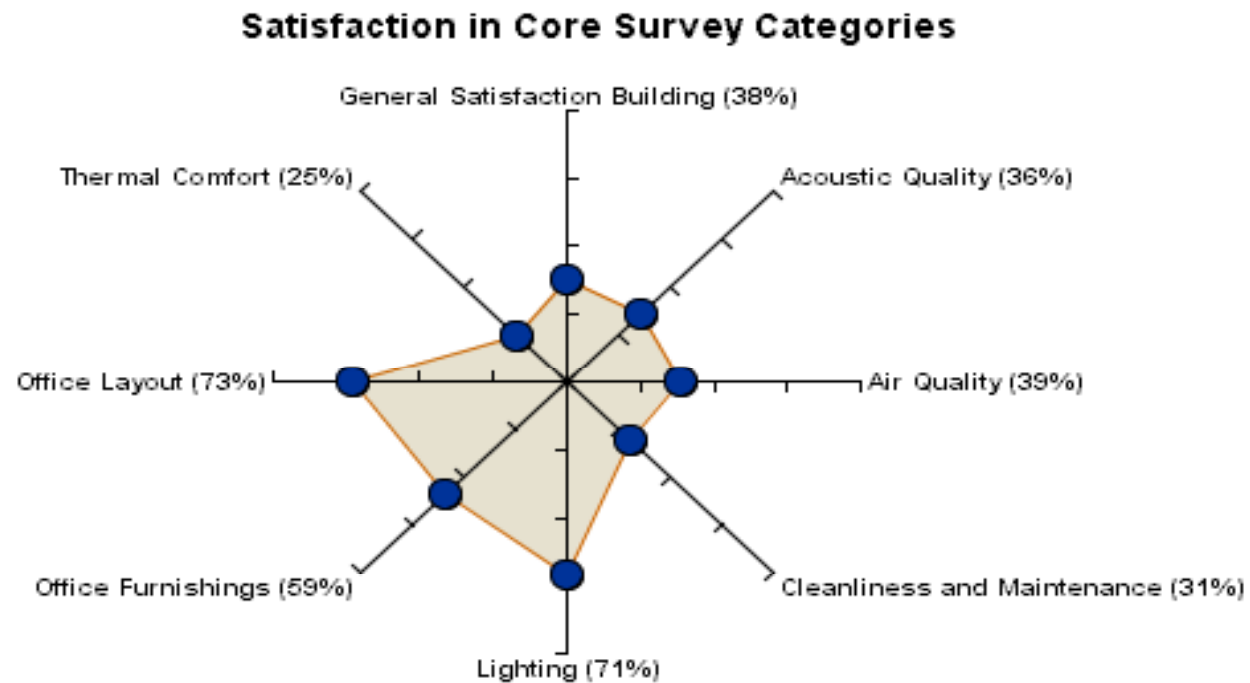
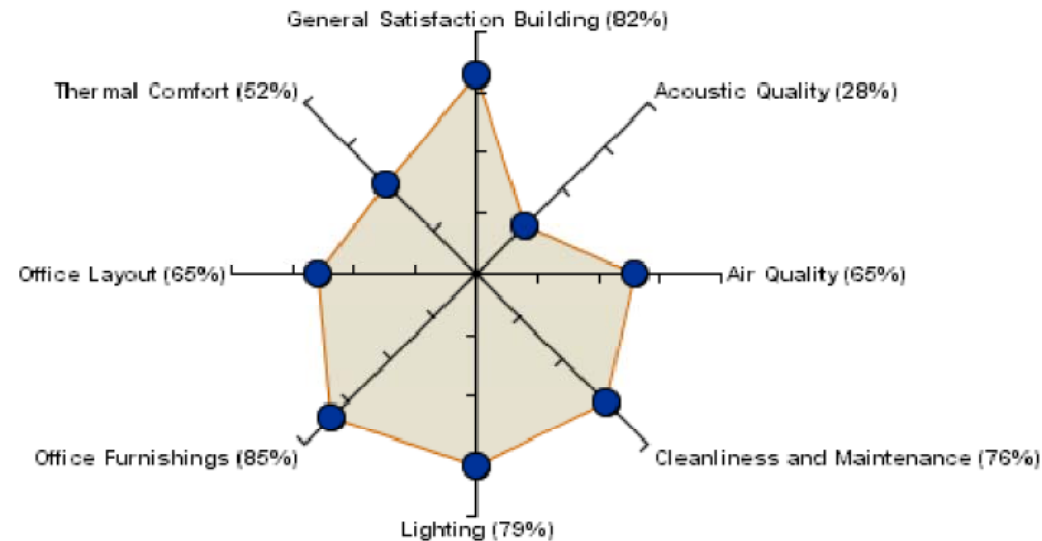


Figure 11: Building scorecard for 115 – 123 Bathurst Street, Sydney



Post Move – New 5* Location

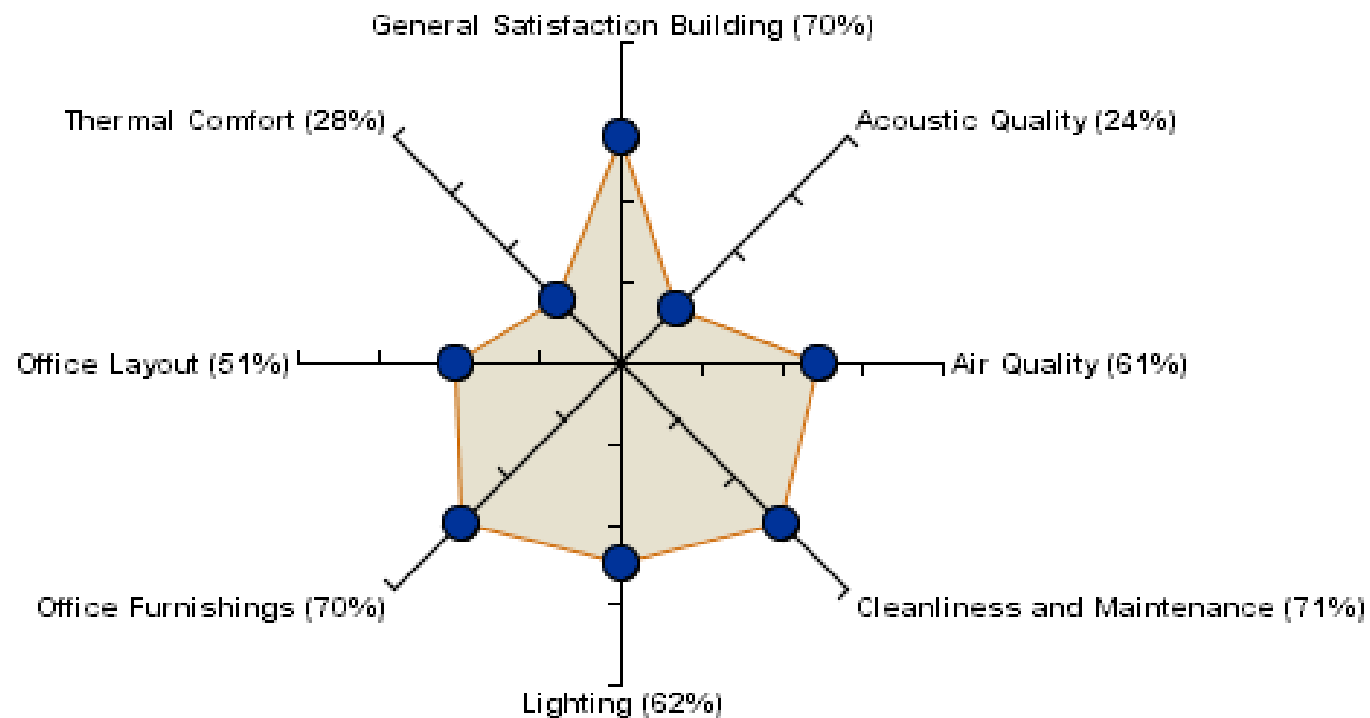
Satisfaction in Core Survey Categories



Current Government Productivity 5*project



Satisfaction in Core Survey Categories



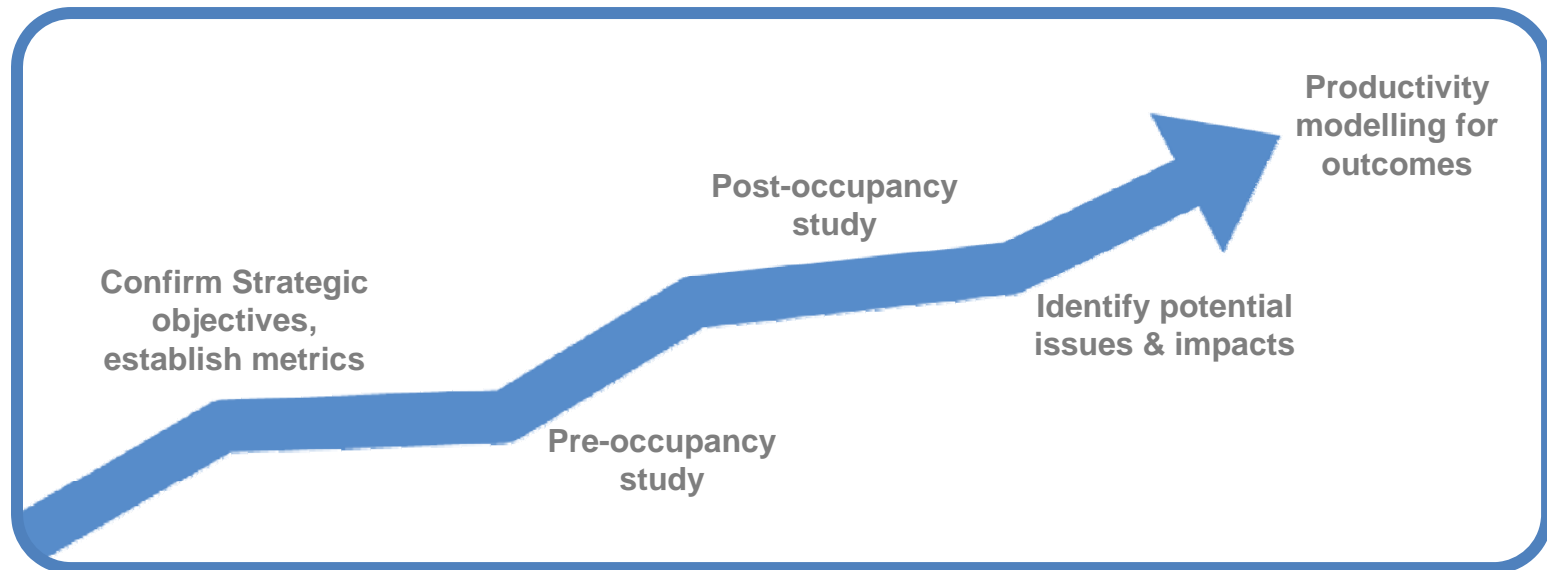


- **General Building Satisfaction**
- In general 82% of respondents were satisfied with the building.
- **General Workspace Satisfaction**
- In general 79% of respondents were satisfied with their workspace.

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



PANEL SESSION



Anthony Ewing
HBO+EMTB



David Cresp
Colliers International



Graham Agar
AECOM



Neil Dickson
Davis Langdon



Vyt Garnys
CETEC



green building council australia

THE EVENT

Perth Site Tour – 100 St George Terrace

Date: 20 July 2010

State: Perth



green building council australia



THE EVENT

Perth Members Networking Evening

The Greenhouse

Date: 15 September 2010

State: Perth



green building council australia

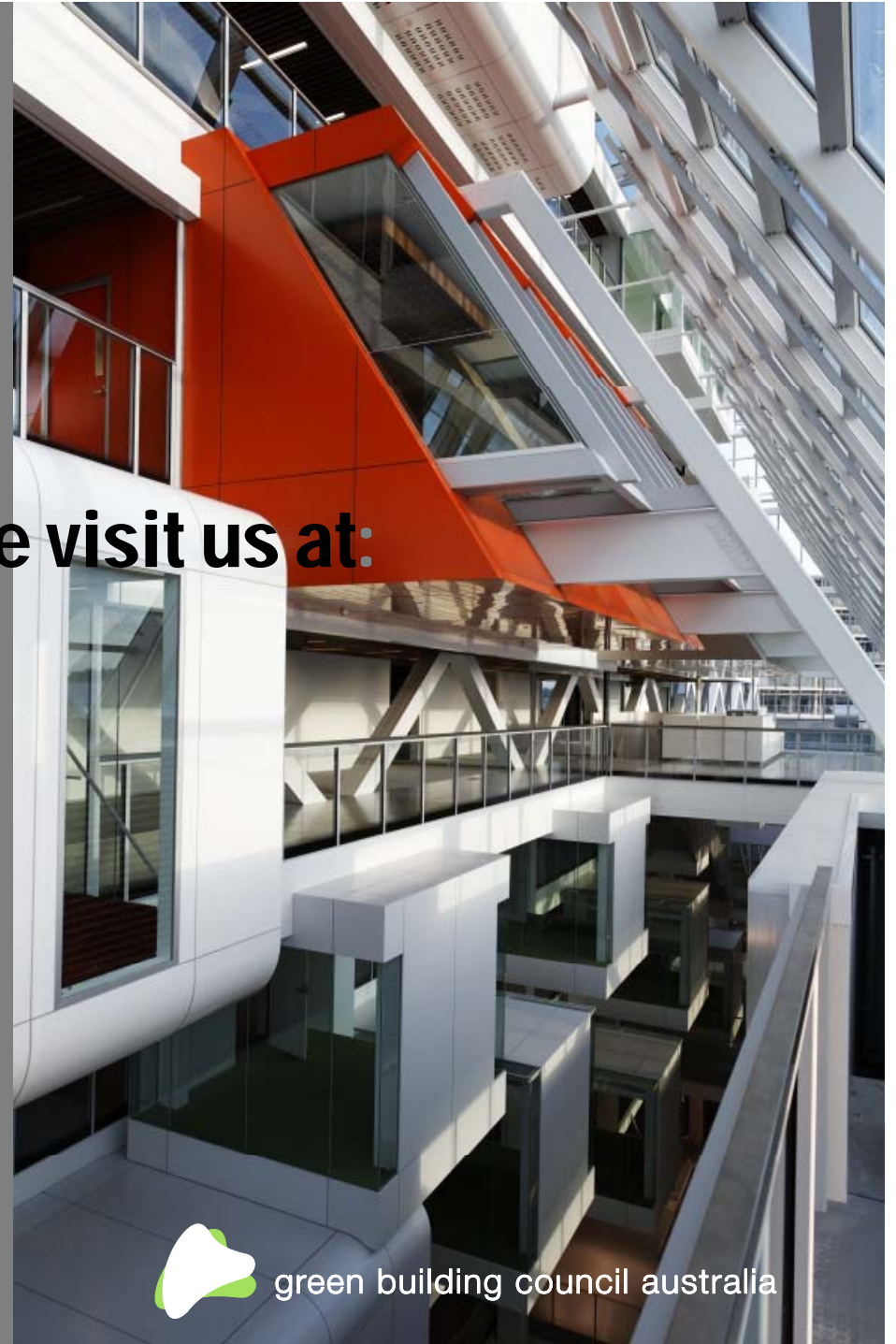


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www.gbca.org.au

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