

# Sustainability Aspects with the Built Environment

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PRRES

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Sydney



**WOODS  
BAGOT™**

## **those who don't**

**regulatory pressure  
poor staff engagement  
decreased societal support  
increased cost  
few rewards**

## **those who do**

**prosperity  
opportunity  
lower waste cost  
reduced risk  
brand value**



# 11<sup>TH</sup> LARGEST PRACTICE



16 OFFICES

5 REGIONS

3 SECTORS

1 GLOBAL STUDIO

全球第11大建築師事務所

16 間事務所

5 個區域

3 個功能性建築

1 間全球工作室

ABU DHABI	阿布达比
ADELAIDE	阿德莱德
BANGKOK	曼谷
BEIJING	北京
BRISBANE	布里斯班
CANBERRA	堪培拉
DUBAI	迪拜
HONG KONG	香港
KUALA LUMPUR	吉隆坡
LONDON	伦敦
MELBOURNE	墨尔本
NEW YORK	纽约
PERTH	珀斯
SAN FRANCISCO	三藩市
SHANGHAI	上海
SYDNEY	悉尼

# About Woods Bagot Eversheds, London, UK





# About Woods Bagot Qatar Science & Technology Park, Middle East



# SO LET'S GET GREENER



.....WITH 3 P's

## PEOPLE

Who we are, who we work with

## PLACE

Our studio, the public realm

## PRODUCT

Our work, our research

# Climate Change

## Who cares?



**69%** of Australians believe that climate change is "...a serious and pressing problem...and we should begin taking steps now even if this involves significant costs."

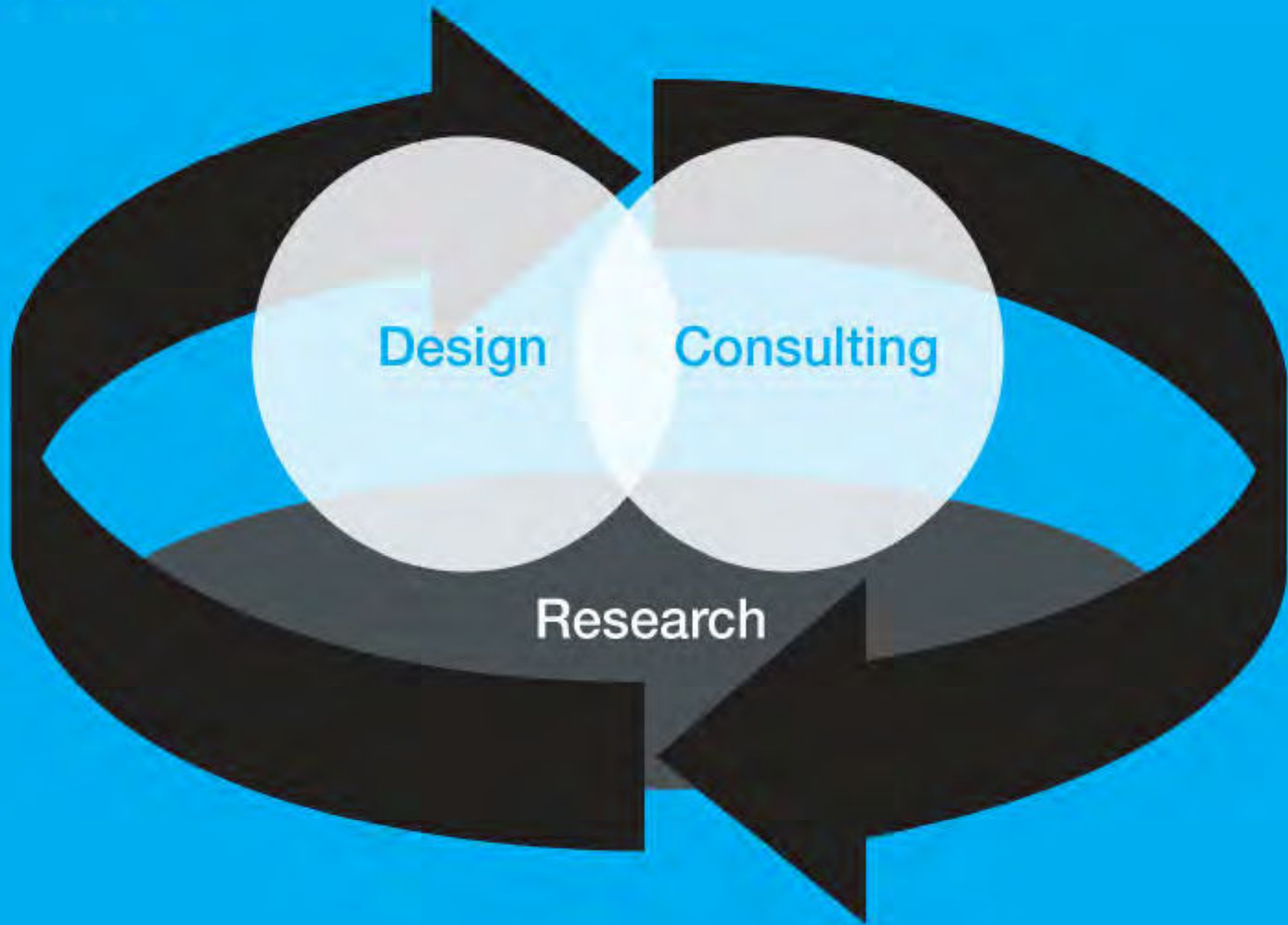
Chicago Council on Global Affairs, March 2007



**“Buildings represent 40% of global energy consumption, of which 33% is in commercial property and 67% in residential.”**

OECD Publishing, 2008





# PUBLIC RESEARCH

OUR FOCUS IS TO PROVIDE HIGH QUALITY ARCHITECTURE, DESIGN AND CONSULTING UNDERPINNED BY RESEARCH AND A 'PEOPLE FIRST' POLICY





# PUBLIC #5: A HUMAN THING

OUR AIM IS TO ENCOURAGE DEBATE AT A PUBLIC LEVEL WITH COLLEAGUES, CLIENTS AND THE INDUSTRY AT LARGE ... LAUNCHING JANUARY 2009



**Action 5  
Use social networks  
and peer pressure**

Working with social networks to influence action can be effective but takes time. Good change programs recognize this, developing long term strategies that understand the specific attitudes and needs of different stakeholders and how social networks can create an environment that supports and influences action.

*Reminder: buy those energy saving bulbs.*

*Earth hour dinner party at Kjetil was really fun.*

... 100% energy reduction across the city (with 75% of the reduction due to their other clean participation) in 2008.

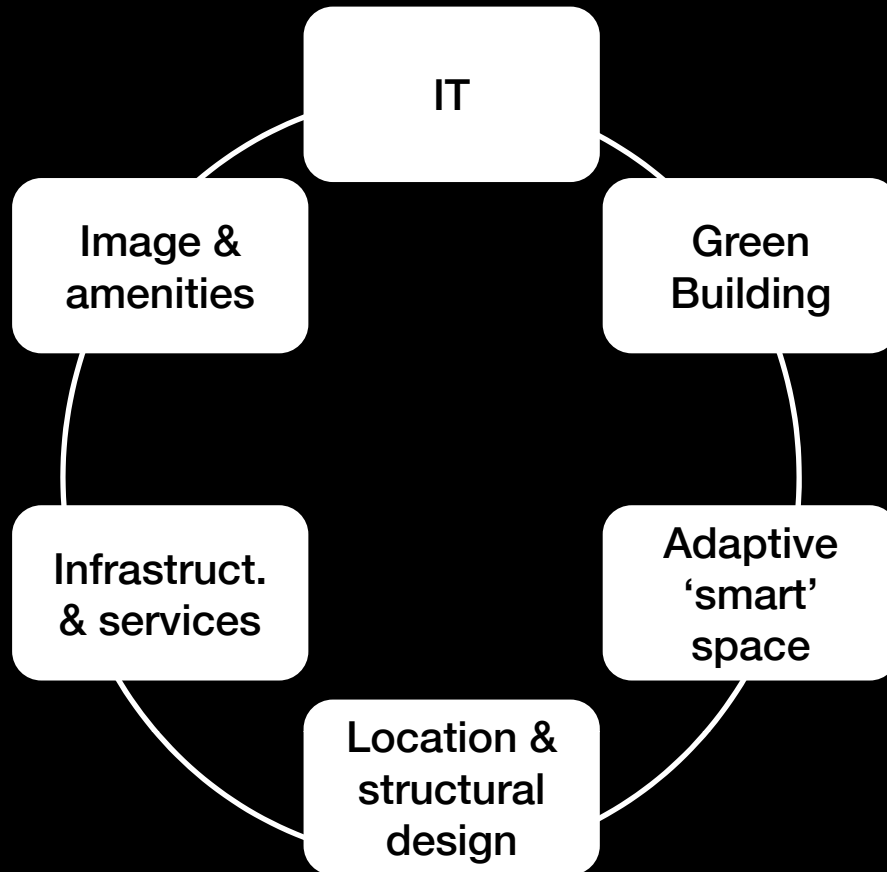
... In 2008, the United Nations (then on the front of the United Nations World Summit on the Environment) led by Pope Benedict XVI, and the United Nations Secretary-General Ban Ki-moon, called for a global effort to reduce greenhouse gas emissions and to combat climate change. The United Nations Secretary-General Ban Ki-moon, called for a global effort to reduce greenhouse gas emissions and to combat climate change. The United Nations Secretary-General Ban Ki-moon, called for a global effort to reduce greenhouse gas emissions and to combat climate change.

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# Research into Future Tenant Demand



**100 companies**  
**5 global industries**  
**5 global regions**

Getting the best from Real Estate comes from matching tenant demand against supply. This research project looks to develop typologies of both tenant requirements and built solutions. These typologies would then be cross-matched to show which built solutions best meet tenant requirements.



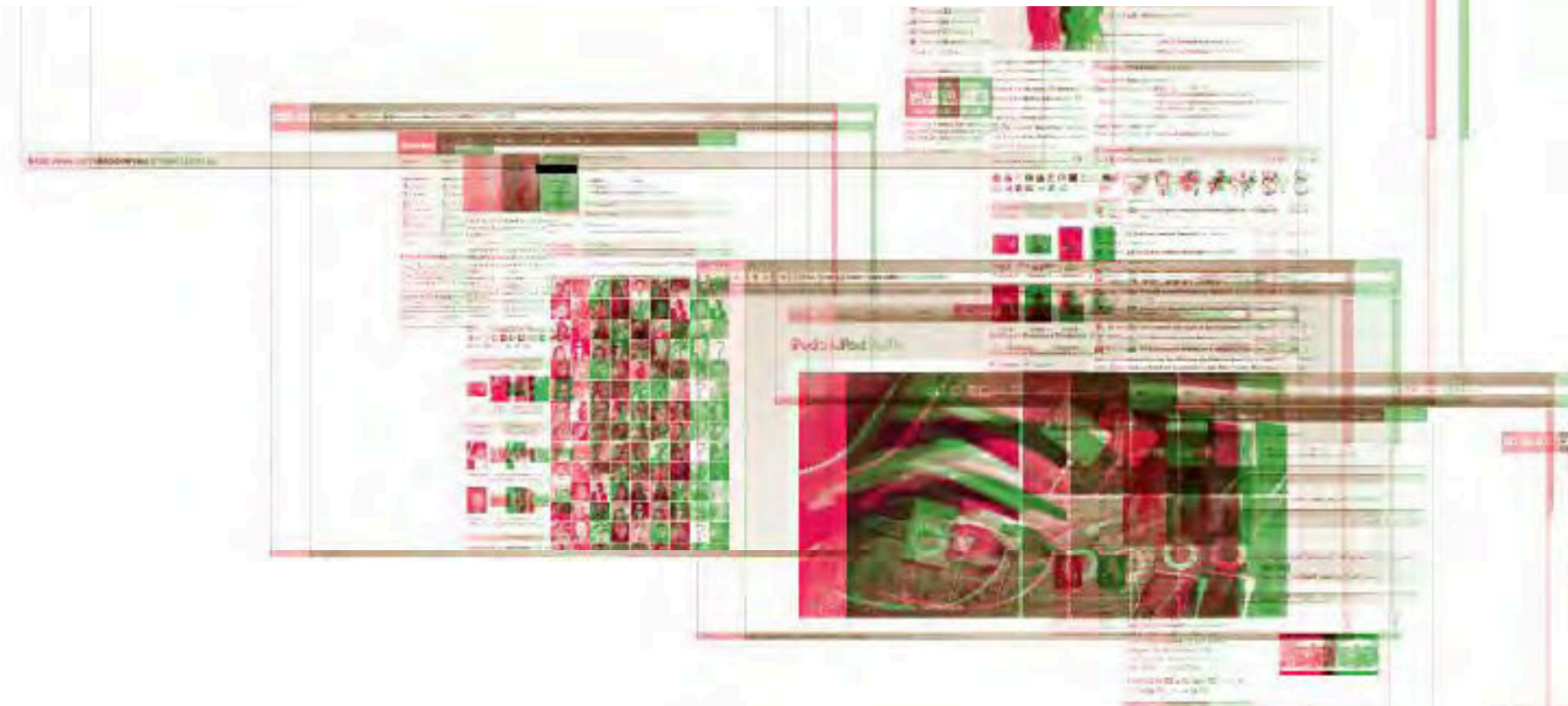
# Sustainable Cities

## VERTICAL CITIES

- Higher density, efficient land use
- Reduced travelling time and carbon emissions (assuming efficient public transport systems)
- Integrated parkland (green lungs of the city)



**WHILST NEW TECHNOLOGIES CAN TAKE ONLY A FEW MONTHS TO APPEAR AND BE SUCCESSFUL (WITNESS THE IPOD AND FACEBOOK), OUR CITY INFRASTRUCTURES AND SYSTEMS TAKE MUCH LONGER TO ADAPT TO THESE FUNDAMENTAL CHANGES.**



# The old models are unsustainable

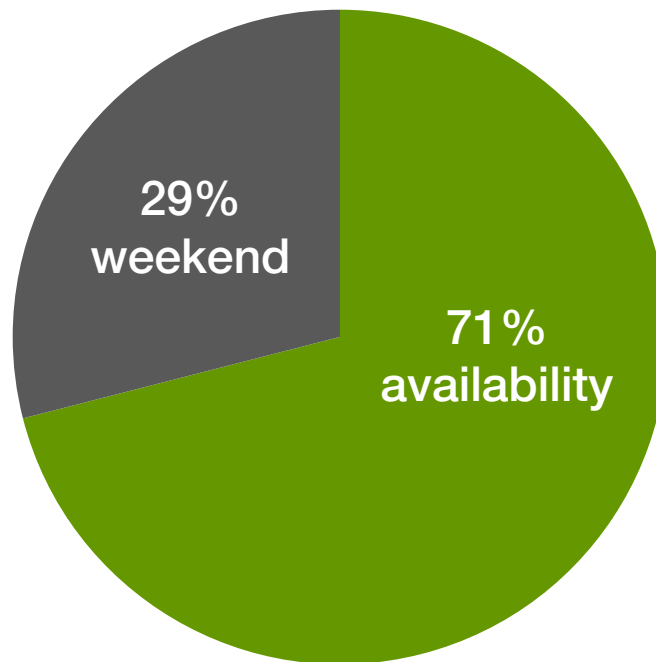
Potential utilisation  
of a desk in a CBD office



100% availability during the week

# The old models are unsustainable

## Potential utilisation of a desk in a CBD office

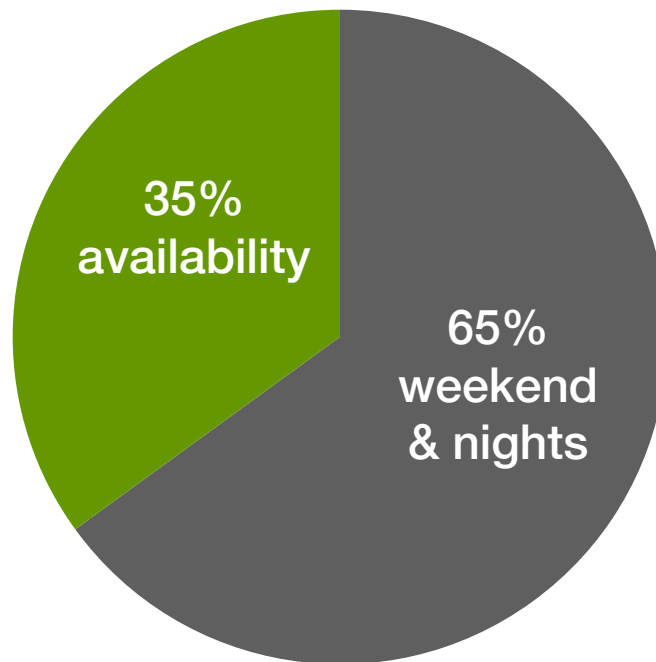


**71% availability excluding weekends**



# The old models are unsustainable

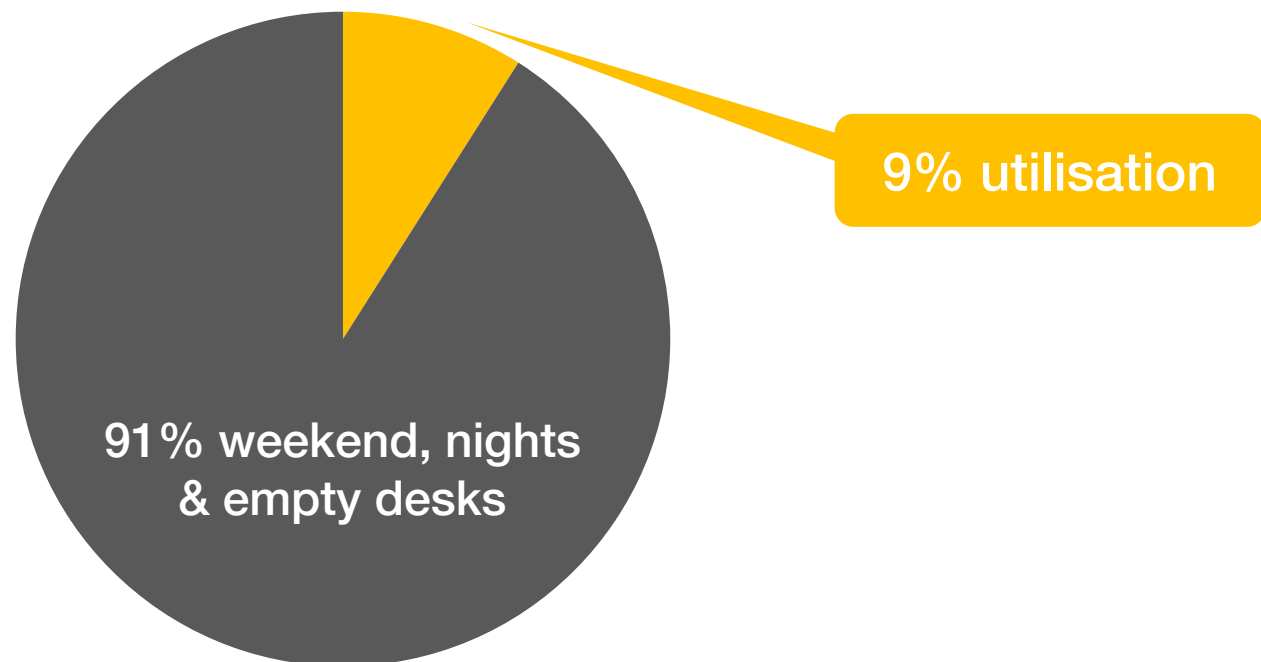
## Potential utilisation of a desk in a CBD office



35% availability excluding weekends & night time

# The old models are unsustainable

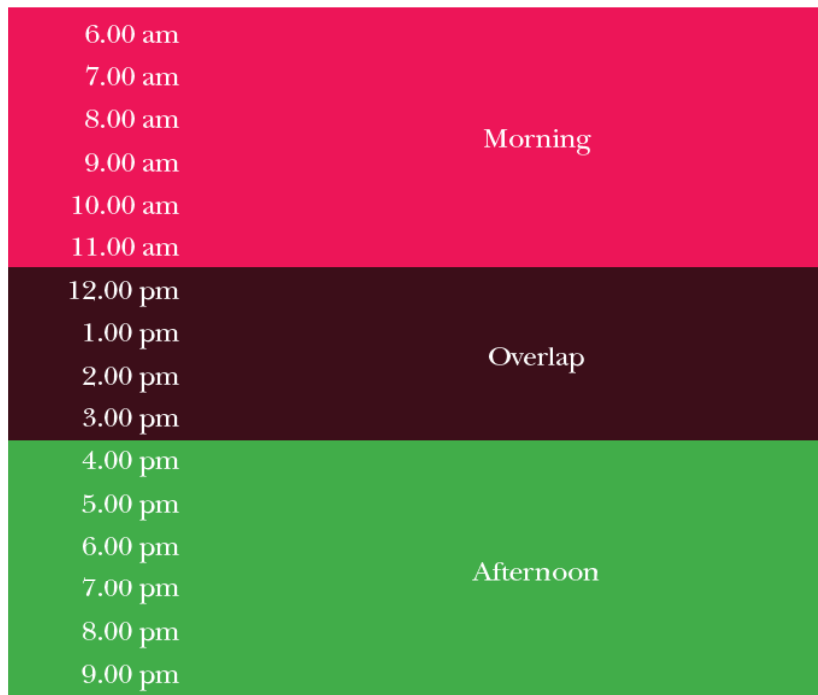
## Actual utilisation of a desk in a CBD office



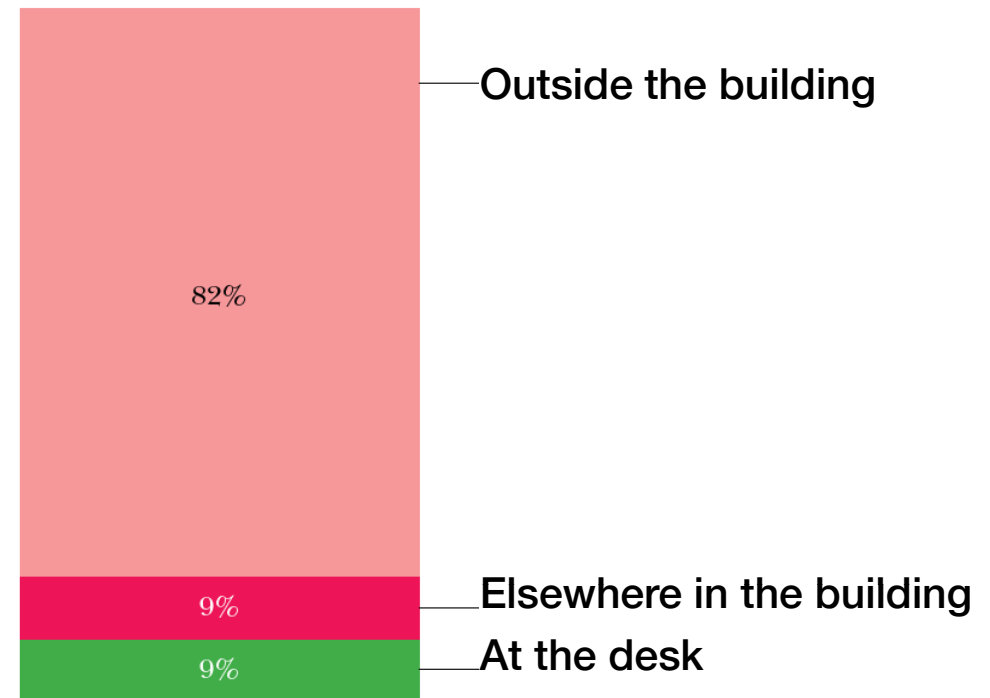
9% actual desk utilisation or 3 hours per weekday  
excluding weekends, nights and time when desks are empty

# The 14-hour City

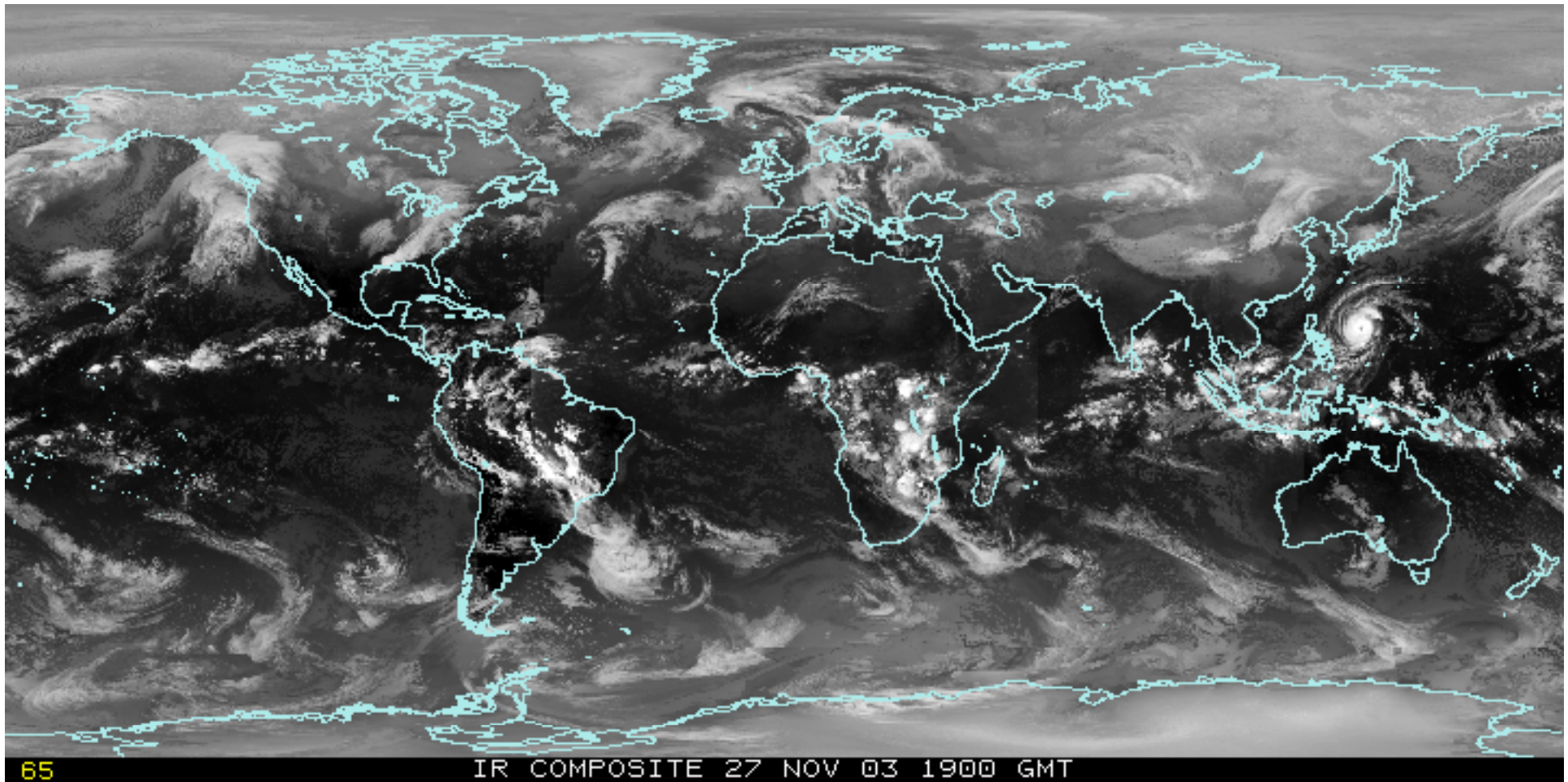
## The 14 Hour Day



## Utilisation of a typical office building



“The quality and contrast of light around the world varies and accordingly, the way we design workplaces in one city is not necessarily appropriate for another.”





# Climate influences the effect of daylight on occupants

“As architects practising across the globe, we have a unique opportunity to create a better workplace for people.”



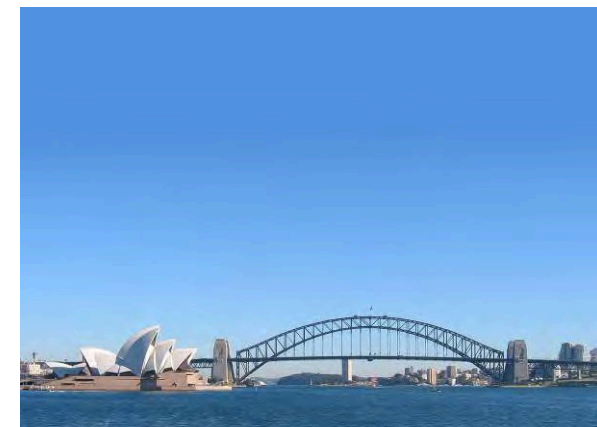
Dubai



London



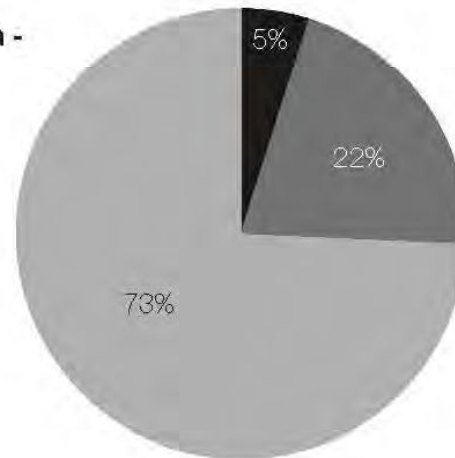
Singapore



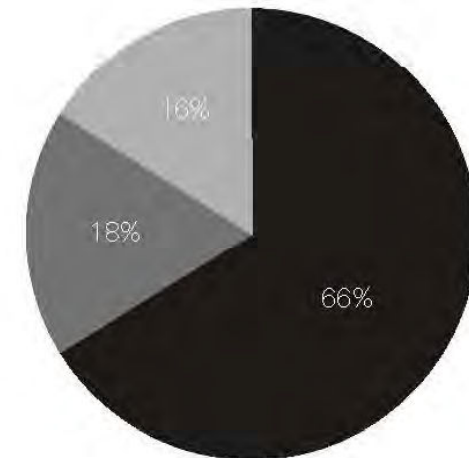
Sydney

# Sky type and cloud distribution should inform the design of buildings

Annual Sky Types Distribution - Octas approach

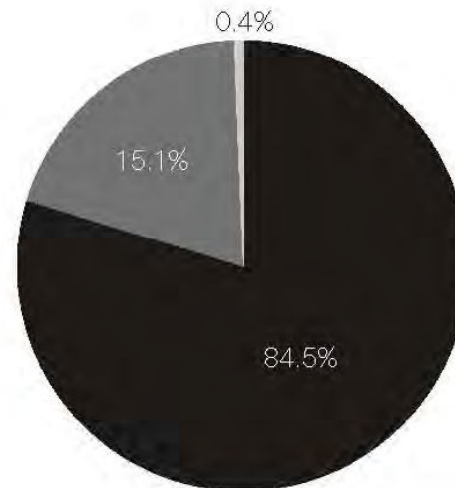


Dubai

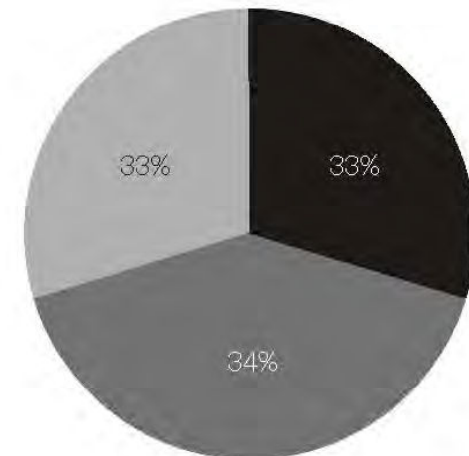


London

No one (global) solution

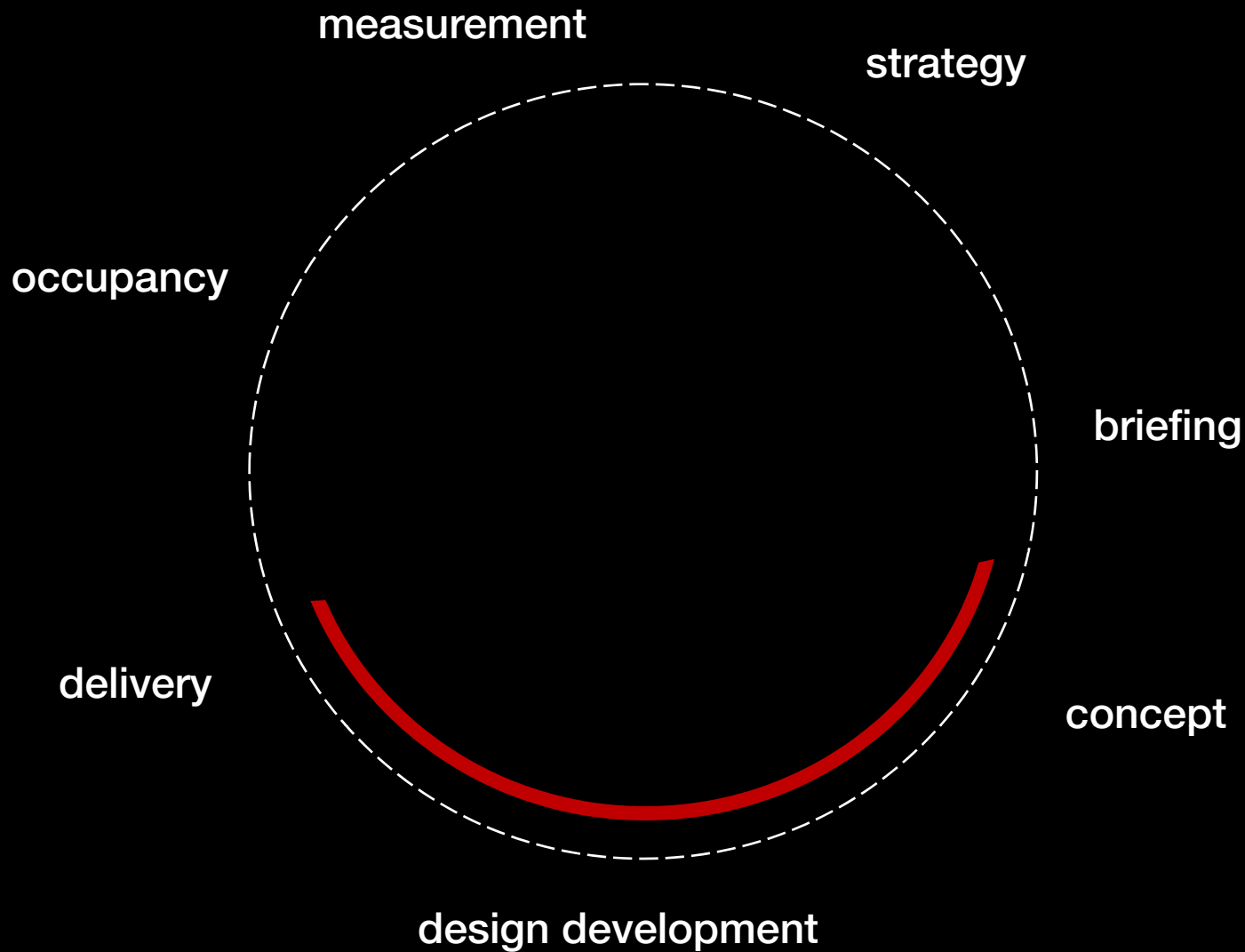


Singapore

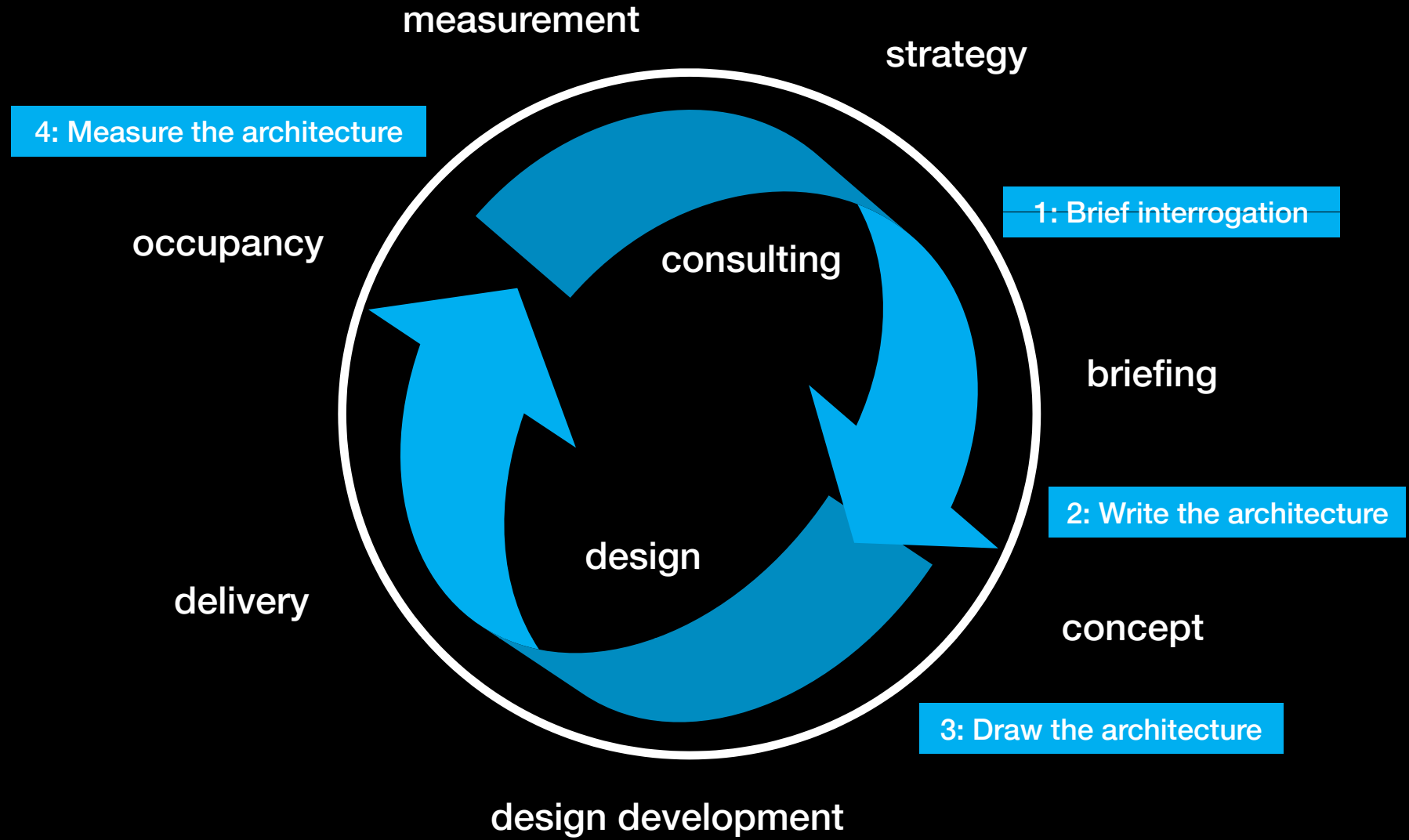


Sydney

# Designing a Building – Typical Process



# Woods Bagot's Design Intelligence Model







## City Central, Tower 1 Adelaide

**PCA rating: Premium**

**Build cost: \$2200/m<sup>2</sup>**

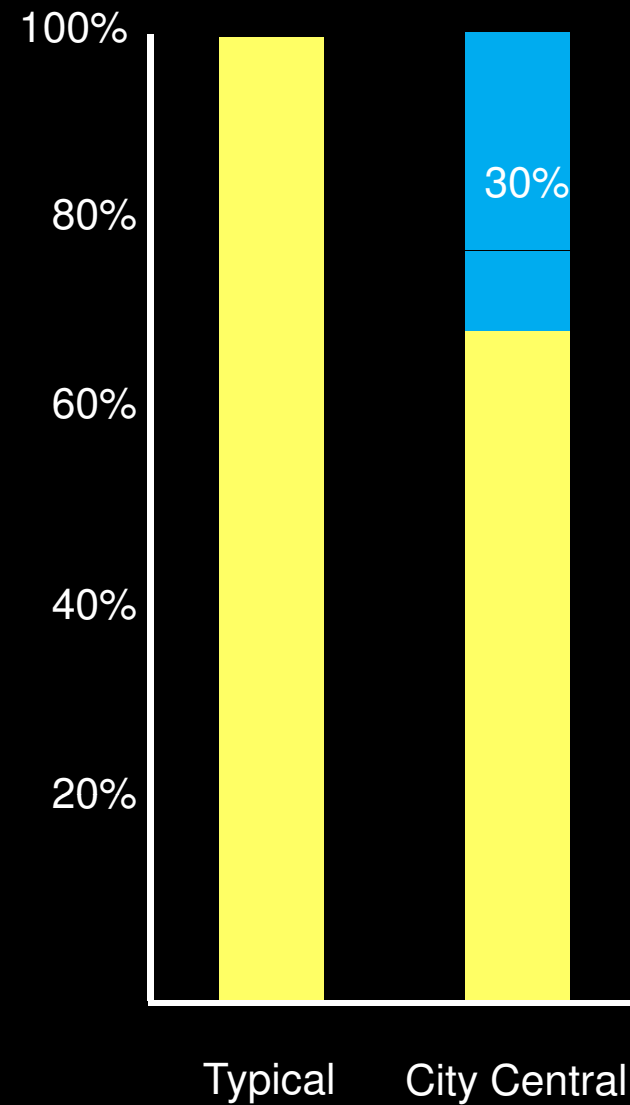
**NLA: 31,000 m<sup>2</sup>**

**Floorplate: 1200 – 1750 m<sup>2</sup>**

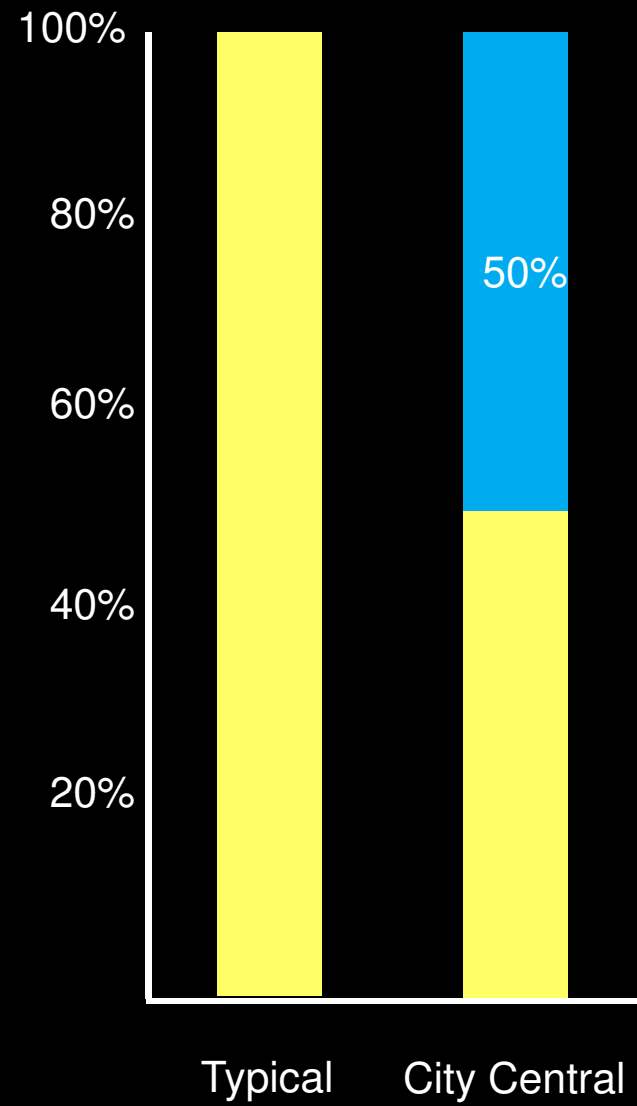
**Green Star: 5 Star**

**Energy: 5 Star ABGR**

# Reduced Emissions and Energy

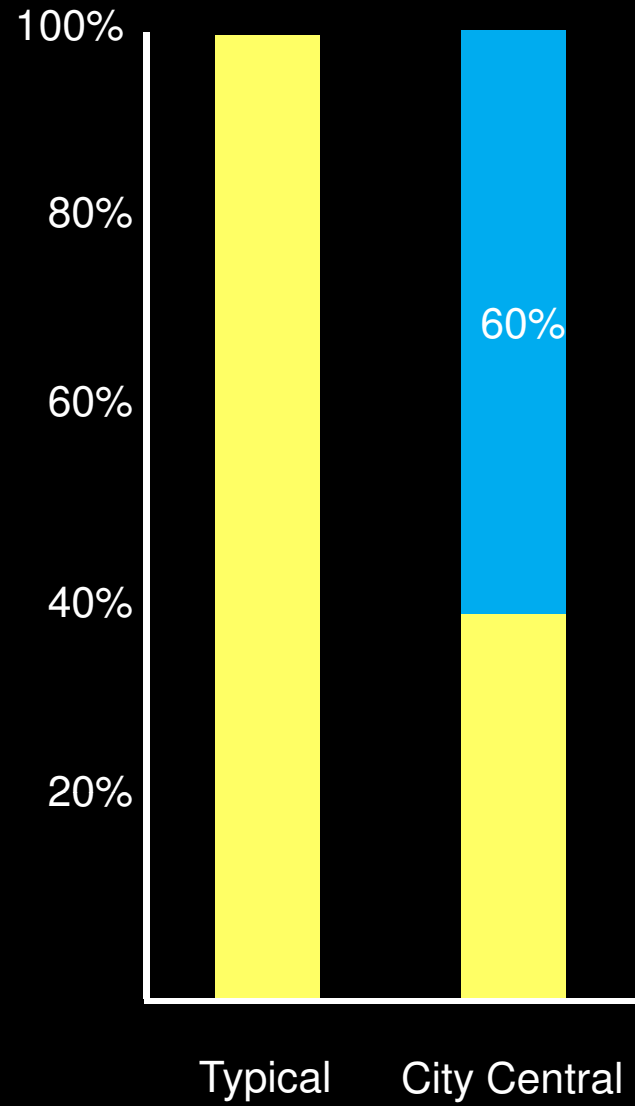


# Reduced Water





# Reduced Waste





# Post Occupancy Evaluation

**68%** felt healthier  
and more energetic

Source: 2008 Woods Bagot ACC Post Occupancy Survey

# Performance improvements

**92%** said that the views, daylight, temperature and air quality had a positive impact on their performance at City Central

**59%** improvement from acoustics

**70%** improvement from artificial lighting

Source: 2008 Woods Bagot ACC Post Occupancy Survey

# So what?

13% productivity improvement as a result of increased daylight

Increased ventilation was associated with performance improvements of 4% to 17%

Source: 2003 Heschong Mahone Office worker productivity survey

# Applied to City Central

Building population = 3000 people

Fitout construction cost = A\$47.4 million

Building cost of construction = A\$108 million

Assume a 4% productivity increase:

Fitout payback in 4 years

Building payback in 11 years

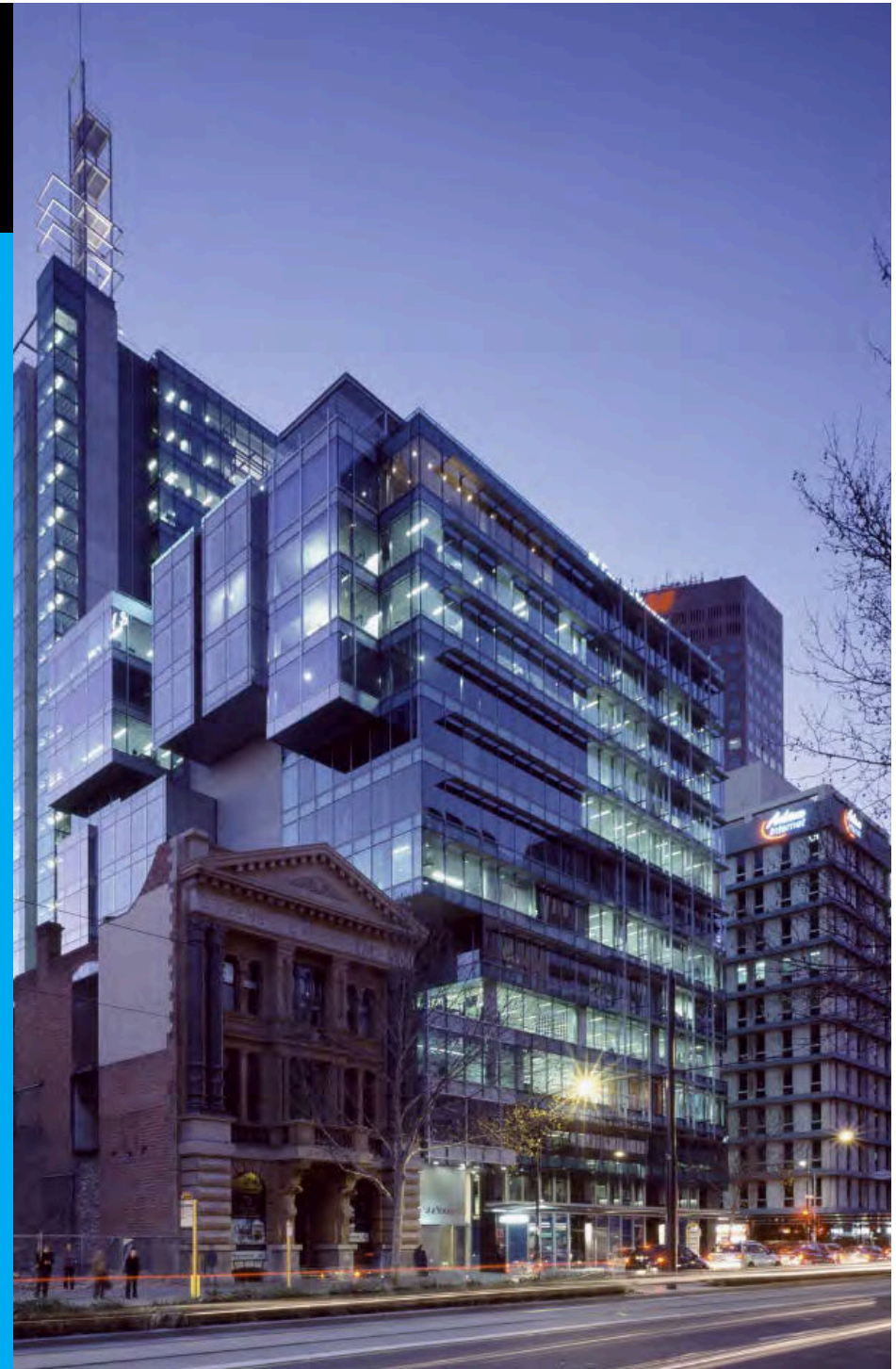


New models don't have to be cost prohibitive

only a 1%  
premium

# City Central Tower 1

- 2007 World Leaf Award (Most sustainable Building globally)
- 'Most Sustainable Building in Australia' (PCA Innovation Award 2008).
- Australia's largest 5 star GBCA and 5 Star ABGR rated building.
- A\$108M (A\$2200 m<sup>2</sup>)
- 1.7 hectare site masterplan including Commercial, Residential and Hotel.



**86%** respondents  
believe Green Buildings  
are worth the cost



Source: 2008 Woods Bagot Sustainability Survey

A 2% p.a. productivity increase will  
pay for the total fitout cost  
OR  
the premium rent differential

CAN WE AFFORD  
NOT TO INVEST IN  
GREEN?

**Whilst we might not be building many new buildings, can we afford not to fix the buildings we have?**

**WOODS  
BAGOT™**