Sustainability Aspects with the Built Environment

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PRRES
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Sydney
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
11TH 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
ADELAIDE
BANGKOK
BEIJING
BRISBANE
CANBERRA
DUBAI
HONG KONG
KUALA LUMPUR
LONDON
MELBOURNE
NEW YORK
PERTH
SAN FRANCISCO
SHANGHAI
SYDNEY

阿布达比
阿德莱德
曼谷
北京
布里斯班
堪培拉
迪拜
香港
吉隆坡
伦敦
墨尔本
纽约
珀斯
三藩市
上海
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
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.”

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
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

- 29% weekend
- 71% availability

71% availability excluding weekends
The old models are unsustainable

Potential utilisation of a desk in a CBD office

- 35% availability
- 65% weekend & nights

35% availability excluding weekends & night time
The old models are unsustainable

Actual utilisation of a desk in a CBD office

91% weekend, nights & empty desks

9% utilisation

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

- 6.00 am to 11.00 am: Morning
- 12.00 pm to 3.00 pm: Overlap
- 4.00 pm to 9.00 pm: Afternoon

Utilisation of a typical office building

- Outside the building: 82%
- Elsewhere in the building: 9%
- At the desk: 9%

Image courtesy of NYSE/SIAC/ASYMPTOTE
“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.”
Sky type and cloud distribution should inform the design of buildings.

No one (global) solution
Designing a Building – Typical Process
Woods Bagot’s Design Intelligence Model

1. Brief interrogation
2. Write the architecture
3. Draw the architecture
4. Measure the architecture

- Measurement
- Strategy
- Consulting
- Design
- Concept
- Delivery
- Design development
- Occupancy
City Central, Tower 1
Adelaide

PCA rating: Premium
Build cost: $2200/m2
NLA: 31,000 m2
Floorplate: 1200 – 1750 m2
Green Star: 5 Star
Energy: 5 Star ABGR
Reduced Emissions and Energy

Typical: 100%
City Central: 30%
Reduced Water

Typical

City Central

50%
Reduced Waste

Typical: 100%
City Central: 60%
Post Occupancy Evaluation

68% felt healthier and more energetic

Source: 2008 Woods Bagot ACC Post Occupancy Survey
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 m²)
- 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?