Facilitating a global movement for the rapid acceleration of green building

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WORLDWIDE BUILDINGS ACCOUNT FOR

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>17%</td>
<td>of fresh water consumption</td>
</tr>
<tr>
<td>25%</td>
<td>of wood harvest</td>
</tr>
<tr>
<td>33%</td>
<td>of CO₂ emissions</td>
</tr>
<tr>
<td>30-40%</td>
<td>of energy use</td>
</tr>
<tr>
<td>40-50%</td>
<td>of raw materials used</td>
</tr>
</tbody>
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*Image of grid with yellow squares.*
Buildings are our biggest opportunity...

...and our biggest failure

Source: IPCC
GREEN BUILDING COUNCILS WORLDWIDE: 2010

- ESTABLISHED GBC
- EMERGING GBC
- PROSPECTIVE GBC
Growing number of GBCs

6 Established GBCs
6 Emerging GBCs
Rapid Growth

Member Councils (2007-2010)
The value of green building construction up from $10 billion in 2005 to circa $40 billion in 2008.

Market to triple by 2013, to over $100 billion

MARKET TRANSFORMATION CURVE

Energy Eff/Green Building market

Information, Education, Capacity Building

Innovation → Early Adoption → Maturity → Saturation
MARKET TRANSFORMATION CURVE

EneEff/Gr een Building market

Pricing & Incentives
Voluntary Measures
Information, Education, Capacity Building

Innovation > Early Adoption > Maturity > Saturation
EneEff/Gr een Building market

Market presence is dependent on extent and consistency of market pressure

Innovation ➤ Early Adoption ➤ Maturity ➤ Saturation

Information, Education, Capacity Building

Voluntary Measures

Pricing & Incentives

MARKET TRANSFORMATION CURVE
MARKET TRANSFORMATION CURVE

Early momentum does not lead to mass adoption by itself

Market presence is dependent on extent and consistency of market pressure

Innovation ➞ Early Adoption ➞ Maturity ➞ Saturation

Information, Education, Capacity Building

Voluntary Measures

Pricing & Incentives

Regulations

Acceptance

Flame-out

EneEff/Gr een Building market
The Journey

DIVERSITY, INNOVATION, LEADERSHIP

www.worldgbc-asia-pacific.org
Green Buildings are not enough, we need a safe place to put them, to create a sustainable future for our people.
Current Societal View

- Economy
- Society
- Environment
Sustainability

environment

society
economy
The Business Sustainability Roadmap

- **Destination 1**: Licence to Operate
  - Economic outcomes: Compliance
  - Environmental and social outcomes: Baseline position established and actions planned

- **Destination 2**: Measure & Plan
  - Economic outcomes: Efficiency gains and improvements realised
  - Environmental and social outcomes: Research & Innovation

- **Destination 3**: Assist to Improve
  - Economic outcomes: Strategic thinking and continuous improvement internalised
  - Environmental and social outcomes: Leadership & Influence

- **Destination 4**: Continuous Improvement
  - Economic outcomes: Leadership & Influence
  - Environmental and social outcomes: Positioned to maintain business viability, while providing economic, environmental and social dividends

- **Destination 5**: Research & Innovation
  - Economic outcomes: Leadership & Influence
  - Environmental and social outcomes: Positioned to maintain business viability, while providing economic, environmental and social dividends

- **Destination 6**: Leadership & Influence
  - Economic outcomes: Leadership & Influence
  - Environmental and social outcomes: Positioned to maintain business viability, while providing economic, environmental and social dividends

(Adapted from Queensland EPA 2000)
Changing Market Dynamics

**Tenants**
Want to tenant a Green Building but there are few available

**Investors**
We would like to fund sustainable buildings, but there is no demand

**Design & Build**
We can build green building, but developers don’t ask for them

**Developers**
We would ask for more sustainable buildings, but the investors won’t fund them

**Government**
Product
Investors are from Mars and green buildings are from Venus...
Perception vs Reality

Business leaders *perception* is that green buildings are on average 17% more expensive.

....but the average increase is 2%

(WBCSD 2008)
The Issues.....

– The “cost of cheap” is now becoming clear, to change this model Investors and developers need to understand the demand to be able to meet supply

– Many organisations still have a short term view and require sustainability to commercially out perform other options

– Investors continue to maintain riskier positions if they are cheaper short term, but the GFC has had an impact here

– A focus on cost instead of benefit has resulted in a major dislocation between risk and reward.
Investors are unclear where to look for the value

you don’t know what you don’t know!
Adding value through understanding more dimensions

- Human capital management, culture and leadership
- Are staff aligned through good OH&S and values
- Are management managing risk well out of the public eye
- Are the community and tenants likely to support
- Good risk management of supply chain
- How are voter values driving government policy
- Are stakeholders being considered to limit risk to brand
- Good governance is insurance for when things go wrong

Firm strategy
Operational capability
Competitive analysis
Risk assessment
Management quality
Pricing Intangibles

Price = Cash Flow grown over time and discounted

= Cash Flow

--------------------------------------------------------

[ risk free rate + risk premium] - growth
Investors are not sure how to unlock the value to great effect

Cash flow

[ risk free rate + risk premium ] - growth

Management quality
Committed workforce
Loyal tenants
Workplace safety
Climate change
Government support
Changing dynamics

– Markets are beginning to consider the cost/benefit proposition of sustainable investment.

– Institutional investors are seeking greater engagement from their real estate managers and are starting to comprehend the long term out performance opportunities.

– More research, measurement and engagement on key sustainability issues:
  – Technology and knowledge;
  – Government policy direction;
  – Ratings and assessments (both of property and managers).
Demand Side

• Drivers
  • Corporate Social Responsibility
  • Carbon Reporting
  • Better information available
  • Smart Business

• Need a common language
• Need to trust
• Need to be involved
Rating Tools = Purchasing Tool
VOLUNTARY RATING TOOLS

Source: Building Commission, Australia
Government Leadership

Malaysia
• Building owners obtaining GBI Certificates from 24 October 2009 until 31 December 2014 be given income tax exemption equivalent to the additional capital expenditure in obtaining such Certificates

Japan
• CASBEE Academic developed for government legislation. Required to be used.

Korea
• President Lee put highest priority on “Green Growth”.
• City of Seoul has introductory green building incentive system.

Philippines
Government depts. working on Green Building Initiatives:
• Department of Energy; Environment and Natural Resources; Labor, Transportation and Communication.

Singapore
by 2030 80% of buildings to be green, all new government bldgs must achieve Greenmark platinum + all existing bldgs with central HVAC must achieve gold

Australia
• Mandatory Disclosure, Green Door policies
Buildings are vital business tools
Productivity Increases

- A post-refurbishment study of 500 Collins Street in Melbourne found a 9% increase in typing speeds of secretaries and a 7% increase in lawyers' billings ratio, despite a 12% decline in the average monthly hours worked.

- At the City of Melbourne’s CH2, Australia’s first 6 Star Green Star - Office Design rated building, productivity has risen by an impressive 10.9% since staff moved into their green office, with an estimated annual cost savings of $2 million.

- A productivity study of the Meridian Building in Wellington NZ, showed that, staff productivity improved by 9% (Productivity was closely related to comfort in the building.)

- Reports by RICS, WBCSD, Davis Langdon, Vivian Loftness
Productivity Gains

Difference between business as usual and a solution tuned to address productivity in the workspace could add almost $250/m2/year value to a tenant.

(Lincoln Scott, 2009)
Increase in Productivity & Learning

Learning Benefits of Green Schools = \{ +3\% \text{ increase in productivity, learning, & performance} \} \cup \{ -3\% \text{ decrease in teacher turnover} \}
Reduced Operating Costs

DIRECT SAVINGS FOR AN AVERAGE GREEN SCHOOL

$47,880
Annual Direct Energy Savings Per School

$95,760
Annual Total Direct Savings Per School
• Rental Premium 3% - 6 % per square foot
• Sale price 16% higher than non-certified
Capital Investment Premium

• Most green buildings cost 0 – 4% more than conventional buildings.
• The largest concentration of reported “green cost premiums” between 0 – 1%.
• Green premiums increase with the level of greenness but most LEED buildings, up to Gold level (equivalent to 5 Green Star), can be built for the same cost as conventional buildings.

Source: Good Energies- Greening Buildings and Communities: Costs and Benefits
Will business as usual deliver?
Construction Costs (CAPEX)
(Typical Office Building)

Construction Cost (Capex) 41%
Running Costs (Opex) 24%
Furniture & Furnishings (Capex) 7½%
Land 7%
Maintenance 6%
Cleaning 5½%
Depreciation 5½%
Furniture & Furnishings Maintenance 3½%

Note: Excludes Occupants’ Costs
Whole of Life Cost

- Initial Construction (Capex)
- Operation Cost (Opex)
- Occupancy Cost
- Upgrade / Regeneration
- End of Life (Disposal)
Whole of Life Cost - Typical Office Building

Salaries of occupants 86½%
Construction Cost (Capex) 5½%
Running Costs (Opex) 3%
Furniture & Furnishings (Capex) 1%
Land 1%
Maintenance 1%
Cleaning ¾%
Depreciation ¾%
Furniture & Furnishings Maintenance ½%

Note: Includes Occupants’ Costs
Decisions made **here** (Capex) lock in WHOLE OF LIFE costs
Whole of Life Cost Demo

- Conventional
- More Efficient
  Capex + 40% / Opex -15%
Whole of Life Cost Demo

Conventional

More Efficient
Capex + 40% / Opex -15%

Sweet spot!
The Need for Integration

- Integrated Design Team Appointed:
  - Architect
  - Engineers
  - Commissioning Agent
  - Contractor
  - Tenant
  - QS
  - PM
  - others

- Ability to Change

- Optimum Productivity Point

- Typical Project Stages:
  - Briefing
  - Feasibility
  - Outline Design
  - Detail Design
  - Implementation

- Cost of Change and Loss of Productivity

- Business as Usual Appoint Main Contractor
High level of activity
Clarity of vision
Consistency
Collaboration
In Summary

• Green Building is future proofed investment
• Collaboration will grow the SIZE of the market and deliver economic, social, environmental benefits
• Silo delivery model is inefficient
• Speaking the right language is vital
• More data and information is needed
World Green Building Congress 2010

Join us
Singapore 13th – 14th September

www.worldgbc.org