Green Retrofit buildings: from sustainability to profitability

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Background

- Corporate Social Responsibility and efficiency are highly valued
- **Rising utility and maintenance costs**, existing building stock embodies significant potential for sustainable retrofits
- **Sustainability has moved from being a ‘nice-to-have’ to a ‘must have’ programme**
- Significant operating cost savings by taking simple steps or modifications to their facilities. *Boost profitability and productivity through the well-being of occupants, whilst minimising utility consumption*
Sustainable retrofit buildings

- Reduce environmental impact
- Maximise efficiency and productivity
- Minimise operating costs
- Maximise overall profitability
Reduce environmental impact

- Minimise carbon footprints, waste disposal, water and energy use
- Minimise usage of limited resources, hence ‘meeting present needs without compromising the ability of future generations to meet their own needs’
- Improve the well-being of occupants and users
Maximise efficiency and productivity

- Flexibility and efficiency of workspaces – comfortable work environment
- Modern operating and management practices
- Energy Conservation Measures (ECMs) can be used to improve sustainability. Lighting upgrades and controls and Building management system controls
Minimise operating costs

- Minimise use of utilities and consumables such as energy, water and office stationery
- Adopt the ‘Reduce – Reuse – Recycle’ methodology where appropriate
- Identify opportunities for untapped cost savings
- Minimise on-going maintenance and repair costs
## Minimise operating costs

<table>
<thead>
<tr>
<th>Building fabric issues</th>
<th>Technological</th>
<th>Occupant Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Increase insulation</td>
<td>✓ Low energy lighting solutions (e.g. PIR sensors)</td>
<td>✓ Adjust system set points</td>
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<tr>
<td>✓ Improve air tightness (e.g. draft stripping)</td>
<td>✓ Improved heating and ventilation control</td>
<td>✓ Use programs and timers</td>
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<tr>
<td>✓ Double glaze/secondary glaze</td>
<td>✓ Voltage optimisation unit</td>
<td>✓ Configure office equipment power settings</td>
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<tr>
<td>✓ Consideration of passive architecture (e.g. solar gain)</td>
<td>✓ Upgrade equipment and appliances</td>
<td>✓ Thermal comfort using clothing level</td>
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<tr>
<td>✓ Use ‘Eco buttons’</td>
<td>✓ Upgrade building services (e.g. boiler plant, AHU)</td>
<td>✓ Switch lights and equipment off</td>
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<tr>
<td>✓ Install renewable energy technologies (e.g. micro wind turbine)</td>
<td>✓ Grey water systems</td>
<td>✓ Shared equipment (e.g. printers)</td>
</tr>
<tr>
<td>✓ Grey water systems</td>
<td>✓</td>
<td>✓ Recycle consumables</td>
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<tr>
<td></td>
<td>✓ Switch energy tariff to ‘Green’ or ‘Good CHP’</td>
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</tbody>
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Maximise overall profitability

- Opportunity to translate sustainability into profitability
- Lower construction costs
- Government incentives
Sustainability to profitability key processes

- Mobilize commitment
- Create a shared vision and value
- Identify, and analyse processes and systems
- Create monitoring and targeting strategies that ensures optimal operation
- Review progress
Mobilize commitment

- **Staff buy-in from the outset is needed at all levels in the organisation.** Everybody needs to be prepared for the discipline involved in operating the building in the correct way.

- **Appoint sustainability champions** to promote active user engagement.

- **Plan for managing change,** users need to understand why things have to operate in a particular way.

- **Plan rollout,** phased operations enable ideas to be tested, outcomes communicated, plans refined before significant changes.
Create a shared vision and value

- **Create interest at all levels within the organisation.** Get staff teams to compete with each other in energy savings and waste reduction

- Facilitate open communication

- Analyse opportunities

- **Cultivate integrated value positions** with Good Practice Guides
Identify and analyse processes and systems

- Ask staff to identify opportunities and challenges to ensure they feel part of the assessment process.

- Relate action to several objectives. Couple of KPIs for each objective.

- Identify non financial paybacks which are good news stories, as many retrofits may not pay back quickly.
Create monitoring and targeting strategies that ensures optimal operation

- **Monitor feedbacks.** Sustainable solutions should be informed by real-world experiences of staff

- Monitor efficiency of equipment frequently

- Define the KPIs used for evaluating stated goals. Measure several elements such as occupancy, utilisation rate, staff engagement for a wider picture of the change’s impact

- Communicate successes to all stakeholders
Review progress

- Re-evaluate and improve strategies and plans
- Check progress against costs and savings
- Avoid danger of a single measure
- Review unintended consequences
Final thought

- Sustainability has moved from being a ‘nice-to-have’ to a ‘must have’ programme
- Sustainable retrofitting existing buildings provides substantial operational cost savings while contributing towards reducing carbon emissions and environmental footprints
- Green retrofit buildings can help businesses boost profitability but need to consider the human interface in all strategies
- Buildings and facilities do not use utilities such as energy and water, people do!!
Thank you

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