



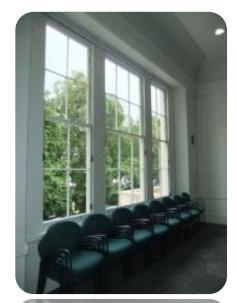
Green Retrofit buildings: from sustainability to profitability













University of Reading

On secondment to the British Institute of Facilities Management











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

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

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







Sustainability to profitability



Mobilize commitment

key processes

- 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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