

Green Strategies: Nurturing Sustainable Environments

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Embracing sustainability as a fundamental principle is imperative for fostering a more promising future. The construction industry, recognized as a significant contributor to global pollution and waste, necessitates a paradigm shift toward sustainable practices. Green buildings, characterized by their commitment to sustainable design, construction, and operations, play a pivotal role in mitigating the adverse impacts associated with traditional construction methods.

These environmentally conscious structures actively contribute to the reduction of carbon emissions, energy consumption, and waste production. Moreover, they prioritize water conservation, the utilization of safer materials, and the minimization of exposure to harmful toxins. The adoption of green building practices emerges as a crucial strategy to counteract and reverse the detrimental effects of conventional construction on the environment.

According to Green Buildings Canada, the implementation of green spaces yields notable productivity gains ranging from 2 to 10%, accompanied by a substantial 35% reduction in absenteeism compared to conventional building environments. Beyond the immediate advantages of utility savings, green buildings exhibit higher property values, with an average sales price increase exceeding \$20 per square foot. (Green Buildings Canada, 2010)

A widely recognized benchmark for assessing and certifying green buildings is the Leadership in Energy and Environmental



Design (LEED) system by the U.S. Green Building Council. From January 2017 to December 2021, more than 36,835 projects spanning 4.63 billion gross square feet earned LEED certification, attesting to the global embrace of sustainable construction practices (Jhunjunwala, 2022).

To ensure the effective realization of a green building's intended functionality and the seamless execution of the construction process, construction managers should prioritize five key factors:

1. DRAFTING THE GREEN TEAM

Establishing an inclusive and cooperative green team is

paramount for project success in the long term. This entails involving stakeholders from the project's inception to define objectives, providing a guiding framework for decision-making processes.

Incorporating key stakeholders such as Green consultants, builders, and Green Building specialists at the project's outset is crucial. Their involvement ensures a wealth of knowledge and lessons learned from prior experiences, particularly in areas such as best practices in Green construction, expertise in energy modeling and commissioning, lifecycle costing and assessment, daylight modeling, and assessment of indoor environmental quality. The early integration of these insights proves instrumental in preemptively addressing challenges like the sick building syndrome.

2. SETTING WHOLE LIFE BUDGETS

In the realm of budgetary considerations for construction projects, it is imperative to adopt a comprehensive approach that extends beyond the initial construction phase. Recent comparisons have indicated that the construction costs associated with Green buildings surpass those of conventional counterparts by 37%. However, it is crucial to note that Green buildings demonstrate substantial advantages in terms of operating, maintenance, and end-of-life expenses, boasting savings of 28%, 22%, and 11%, respectively (Weerasinghe & Ramachandra, 2018).

For investors and direct stakeholders, the upfront cost poses a significant challenge when contemplating involvement in Green projects. Nevertheless, informed decision-making becomes feasible by acquiring essential information such as Life Cycle Costing (LCC), Life Cycle Assessment (LCA), and conducting payback period calculations. These metrics allow stakeholders to assess potential long-term benefits against initial expenses.

Life Cycle Costing (LCC) serves as an economic analysis method that meticulously encompasses all costs associated with the construction, operation, and maintenance of a building project over a specified period. Conversely, Life Cycle Assessment (LCA) emerges as a methodology designed to evaluate the environmental impact of buildings. This evaluation extends to processes, materials, and energy usage throughout the entire lifecycle of a building.

3. STAKEHOLDER ENGAGEMENT AND SUPPORT

Securing endorsement from both internal and external stakeholders at the project's inception is contingent upon maintaining clarity in the project statement, anticipated outcomes, and objectives.

Instances of conflicts and disputes among stakeholders often precipitate project delays and budgetary complications. The Integrated Design Process (IDP) facilitates the early identification of cost trade-offs within the project. While the task of consistently involving all stakeholders may appear formidable, it serves to prevent the project from deviating towards adverse and financially burdensome consequences throughout its lifecycle.

4. SITE SELECTION AND GREEN TECHNOLOGIES

The success of a project in realizing its environmental sustainability objectives is significantly influenced by judicious site selection and meticulous building orientation. Early involvement of developers in shaping an optimal site layout emerges as a pivotal factor in this regard. Strategic investment in passive energy-saving measures, encompassing aspects such as site selection, orientation, indigenous landscaping, and natural lighting, holds the potential to yield substantial operational and maintenance cost savings for the project.

Furthermore, the adoption of contemporary active strategies, including the establishment of a net-zero energy building envelope, integration of onsite renewable energy systems, and the implementation of onsite waste management, stands as a beneficial course of action. These initiatives contribute not only to the project's ecological resilience but also enhance its overall sustainability profile.

5. ACTIVE OWNERSHIP AND CONTINUOUS DEVELOPMENT

When talking about Green buildings, operation and maintenance is as crucial of a phase as design or construction. Monitoring building systems, optimizing performance, ensuring compliance along with educating and training all the primary and secondary occupants of the building to implement Green housekeeping techniques will prove to be very helpful. Use of "The Prius Effect", where the building occupants reduce the consumption rate as they are actively shown major building

statistics they contribute to, including net water use and energy consumption, embracing continuous improvement for enhanced future of the building, delivering higher performance at lower costs.

CONCLUSION

In conclusion, the imperative shift toward Green strategies in construction is undeniably pivotal for a sustainable future. Green buildings, marked by their commitment to environmental responsibility, not only mitigate the adverse impacts of traditional construction but also yield tangible benefits such as reduced carbon emissions, increased productivity, and long-term cost savings. Embracing these strategies, coupled with proactive management and stakeholder engagement, ensures a promising trajectory toward a more environmentally conscious and economically viable built environment. 



About the Author

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