

Sustainable Construction Practices: Balancing Environmental Responsibility and Project Success

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Abstract

The construction industry has a large carbon footprint. According to the World Green Building Council, almost 40 percent of the world's carbon emissions are generated by the construction sector. It also accounts for around 25 percent of the world's solid waste output. This paper seeks to demonstrate the need to decrease wasteful by products while curbing emissions.

Keywords: *Sustainable, Construction practices, Environmental responsibility, Project success*

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Background to the Study

Overview of Sustainable Project Management

Operational activities often pollute potable water supplies, and the construction industry contributes to climate change. Natural resources like clay, timber, wood and limestone are often depleted; this presents an environmental hazard. Ecological systems affect the entire society, so the construction sector's practices must be checked. Company leaders must be held accountable for the industry's contributions to environmental degradation. Reforming current industry practices can contribute to a more sustainable environment. This process can mitigate the impacts of the construction industry on the environment. Production, project management and maintenance must be modified to ensure outcomes that reflect the needs of future generations.

Competing Interests in the Construction Industry

According to one industry survey, 47 percent of respondents cited project complexity as the main obstacle to meeting objectives for sustainability. Engineers and project managers are under intense pressure to minimize costs and maximize efficiency. There are often multiple suppliers for materials, and subcontractors get hired to perform the work under tight deadlines. These projects also rely on equipment that consumes significant amounts of energy. Contract bonds and regulations impose requirements that must be met, and deadlines are always looming on the horizon. Under these conditions, sustainability must be mapped within the planning process.

External Regulatory Pressures

Regulatory pressure can change the way construction companies plan and implement construction projects. Examples of external pressures include governmental agreements like the European Green New Deal and the Construction Products Regulation. Scrutiny from the United Nations can also impact the implementation of the project. For example, periodic targets for sustainability are determined by this body. The Paris Agreement is an example of a measure that seeks to reduce energy consumption and emissions through regulation. The target for 2030 is a 30 percent reduction in the energy consumed per square meter in new buildings, for example.

Meeting the Challenge

Project managers are responsible for optimizing available resources, reducing costs and achieving compliance with regulatory standards. Other factors may come into play during the project's life cycle. This includes hiring experienced contractors, ensuring supply chains, procuring equipment and meeting deadlines. The need to integrate sustainable solutions into all areas of the project presents specific challenges for project managers.

Planning and implementation are tricky under these conditions. Each project needs to be defined with specific directions. Proper allocation and appropriation of resources between various groups involved is essential. The project's team must fully understand how to implement the directives given in the planning phase.

The project planning phase must integrate sustainability into the following areas:

1. Identifying project milestones and performance targets
2. Tracking activities and troubleshooting problem areas
3. Defining relationships and coordinating team activities
4. Scheduling and meeting deadlines for project completion

Implementing Sustainable Solutions

Sustainability goals might collide with other priorities related to reducing costs and meeting tight deadlines. It is challenging to design and implement a project plan that balances the priorities of regulatory requirements and stakeholder interests while minimizing environmental impacts, reducing costs and optimizing energy efficiencies.

Communication and reporting systems help ensure that all parties involved in the construction project stay on the same page.

1. **Assessment:** The life cycle assessment method monitors the necessary inputs of a project. It also considers potential environmental effects during each phase of the project. Life cycle costing measures account for the project's expenses. Reviewing and adjusting these metrics helps keep the project's team adopting the best practices for sustainability through the project's design, planning and implementation stages. Energy efficiency is maximized, and waste is reduced.
2. **Communications:** Contractors need to be briefed on the best practices and methods needed to perform the work according to sustainability requirements. Untrained workers can make errors that cost the company credibility, and this also can have implications for the surety bond. Compliance measures can be given during training programs.
3. **Cooperation:** Coordinating different teams ensures that the project is planned and managed with sustainability in mind. This often involves several different groups. It also requires project managers to deal with resource limitations while ensuring regulatory compliance. The standards for sustainable construction can be rigorous, so companies often seek consultants to accomplish project objectives without harming the environment.
4. **Risk management:** Mitigating various risks is an essential part of project management. Teams must receive adequate training to prevent hazardous materials from being mishandled. This training should include the proper methods for handling, storing and transporting any hazardous materials. Safety protocols must include safety data, procedural training and waste removal methods. These are generally covered during hazardous materials training courses like the standard spill prevention, control and countermeasure training, or SPCC. Ensuring a strong focus on safety is critical, given the disproportionately high rate of workplace injuries and fatalities in the construction industry.
5. **Materials:** Procuring the right materials is a major factor in reaching the company's sustainability goals. This can include using items like eco-friendly concrete, watertight fixtures and paints with low levels of volatile organic compounds, or VOCs. Insulation, glass and other aspects of the building's energy system can be

sourced from suppliers that offer sustainable materials. A robust recycling plan for excess materials will increase the project's sustainability.

Conclusion /Recommendation

Mitigating the environmental impact of any construction project is a challenge for project managers, contractors and teams. However, there are best practices that can be adopted to help facilitate this process. Documentation is essential to ensuring that compliance standards are met while meeting the company's sustainable development goals. Each company has a unique internal culture, so adopting these practices must happen within the organization's existing structure. Any short-term discomfort may also bring long-term payouts; companies are now competing to produce for a world keen on reducing carbon emissions and transforming economies into sustainable systems that preserve the environment for future generations.

References

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