

# Green Architecture: A Notion of Sustainability

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## Abstract

Green architecture helps to maintain sustainability and environmental factors. An indispensable role is played by green buildings in reducing consumption of natural resources. Persistent escalation of pollution has become a great concern to environmentalists. In case, construction sector focuses on green practices, environmental impacts can be reduced. Negative impacts on nature and wildlife can be minimized by green architecture. Green raw materials are used by a construction industry to maintain their social responsibility. Several types of principles related to green building are critically discussed in this study. Indoor air quality is improved in green buildings to provide a healthy environment to individuals who live in green buildings. Green design allows to maintain this green architecture concept. Safety and quality assurance of a building is also controlled with help of this green architecture. Renewable energy resources are controlled by these green concepts. Several modern machines are used by a construction industry in their workplace. Green raw materials such as: fibre cement, wood, bamboo and fibre glass and straw bales are also used by an industry.

## Keywords

Construction industry, Green architecture, green practices, green design, sustainability.

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## INTRODUCTION

Green architecture mainly uses recyclable and safety building materials, by which a construction industry can easily maintain sustainability in an organised manner. Sustainable energy sources help to advocate philosophy of architecture within workplace. Green architecture helps to maintain safety in construction sites. Several types of raw materials are needed to make buildings. Those materials must be green and sustainable, by which sustainability and environmental factors are easily managed. Five principles of green architecture are “liveable communities”, “indoor air quality”, “resource conservation”, “water conservation” and “energy efficiency” [1]. Liveable communities are designed with help of this green architecture. Mission of this particular architecture is to maintain natural heating, cooling and daylighting by using sunlight. Green practices are also managed with help of this green architecture in a successive manner. Drought resistant plants and water efficiency practices are also controlled by these green practices [2]. Green raw materials are also used for maintaining green practices and sustainability.

Green architecture helps to maintain quality and quantity of materials and buildings. Durability of structure is more for using green architecture in workplace. As a result, safety and quality assurance of a building must be considered with help of these green practices. These green practices help to maintain usage of recyclable products in a construction site. For this reason, waste management is also maintained properly during working hours. Green and reusable products are used for this green architecture. Consequently, pollution of air, water and soil is also mitigated by this particular procedure. Healthy building practices and materials are also used with help of green practices and green architecture [3]. Green practices help to maintain efficiency of renewable

energy sources. Water saving applications are also controlled by a construction industry by using green practices. Green architecture of a construction industry is also helpful to maintain a proper process and strategy of work [4]. Several modern machines like hydra, jcb and sieve analysing machines are also used by an industry in global market.

## OBJECTIVES

This study mainly depicts green architecture in assuring sustainability in business activities. This should be beneficial to maintain green practices and environmental factors.

- To identify importance of green architecture.
- To evaluate the importance of green architecture in ensuring sustainability in business activities.
- To examine issues faced by a construction industry for maintaining green practices.
- To evaluate strategies for mitigating issues encountered by construction sites.

## MATERIALS AND METHODS

Overall strategy of a research work is maintained properly with help of this research design. Researcher can easily finish their research work within a given deadline by this research design. Research design allows researcher to maintain proper strategy and planning of work. In this study these individuals use “cross sectional” research design. Several types of theories related to this topic are also used by researcher with help of this “cross sectional” research design. Characteristics of a research work is managed by this particular research type. Strategic guidance is also followed by a researcher with help of this research type. In this study, researcher uses an “inductive” research approach to maintain proper strategy. Flexibility of a research work is also maintained properly by this research approach. Durability is also maintained properly by researcher to gather several types of information related to

this topic.

Understandable opinions, reasons and motivations of this topic are also managed with help of research type. "Inductive" research type helps researcher to provide better performance during research work. Secondary data are collected by researcher to finish their research work in a significant way. Researcher collects data from peer reviewed journals which are published after 2019. Existing data are advantageous for researcher to maintain authenticity of this research work. Time and budget related issues are also faced by researcher, hence this particular process of collecting data is also beneficial for this study. These individuals have a responsibility to collect relevant and authentic data related to this topic.

### RESULTS

Green architecture helps to mitigate environmental pollution in a simple way. Carbon emission from construction sites is also reduced by these green practices. Sustainable and organic raw materials are used in workplace. Usage of inorganic and hazardous materials are also mitigated by this green and sustainable design [5]. Reusable materials are also used by an industry in their construction site to maintain proper strategy of work. Innovation and creativity features are also maintained with help of green practices and architecture. Green design helps to gather innovative and relevant ideas related to this study. Harmful substances are not used in a construction site for maintaining green design and practices. Legibility of a building is also controlled by this green engineering. Green buildings are also made with help of this green design and architecture. These buildings are effectively cost saving and also good for economy.

Green architecture allows one to maintain a healthy lifestyle on a daily basis. Any pollution is not created by these green practices. Green building provides protection from several types of pollution like air and sound [6]. Demand of market and customer is also maintained with help of these green practices. These green buildings are effectively healthier buildings in global market. Economic benefits are not overlooked by this green architecture. Upper-level investments in green building are also advantageous to maintain proper lifestyle. Initial cost is immensely high for this green design; hence, maintenance costs of this building are low. Necessity of operational management tends to be zero for this green architecture. Social responsibilities related to building are also managed with help of these green concepts. Values and prosperities of green building are also maintained by these green practices [7]. Experienced employees must be engaged in construction sites to ensure green design and practices in an organised manner.

Green architecture helps to maintain wellbeing and health of a person. Several types of diseases are also faced by everyone in global market due to pollution. However, these green buildings help to improve indoor air quality. In case a person suffers from asthma and respiratory allergies, green

building is beneficial for those people. Green buildings can easily maintain sound pollution. Green design helps to enhance green practices in a positive way. Modern technologies, materials and methods are also managed with help of these green concepts [8]. These buildings allow to use of durable materials, rainwater collection, proper site selection and demand response. Rain water mainly uses to make green buildings in global market. Organic materials are also used to maintain green concerns. Renewable energy resources are mainly used for making green buildings in a significant way. Energy efficiency is also maintained within construction sites to enhance their performance. Resilience planning of these green practices are also controlled to improve quality of lifestyle on a daily basis.

Usage of water, energy, waste and carbon are also mitigated by this green architecture. Green building is also known as leadership in energy and environmental design (LEED). In case a building gets this LEED certificate, this should be beneficial to manage green practices and designs. Green architecture helps to maintain consumption of carbon and water. For this reason, a healthy lifestyle can easily be maintained by everyone in global market. Cost effective business practices are controlled by this green and sustainable architecture. Global economic market is also enhanced by these green concepts. Green practices help each and every business activity to manage their final and organisational performance [9]. Operational management of a construction company is also controlled by these green designs. Profitability and rate of production is boosted by these efficiency improvements. Environmental and social security of a business activity is also maintained by this sustainable procedure. Greater designs and prosperity of an industry is also controlled by these sustainable practices.

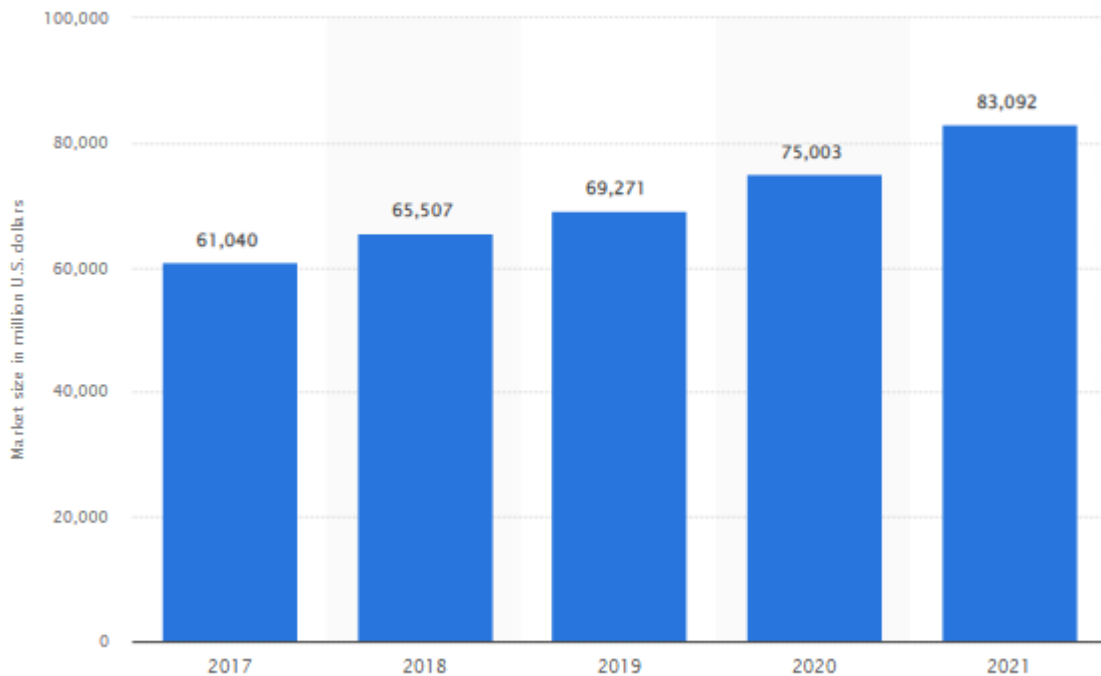
Green and sustainable practices allow to maintain business value and equity to earn high profit from global market. Consequently, every construction company always tries to maintain green practices and designs. Sustainable business practice allows to create high business value. Demand of customers and market is also managed by these sustainable practices [10]. Investor demand can easily be maintained with help of this green architecture. Several investors are engaged in workplace, by which an industry can easily purchase their necessary products. Employees of a business activity are an essential segment, by which a business earns high profit. Construction companies always try to engage experienced and top talent globally. Speed and efficiency of work strategy is controlled properly. A proper and relevant work strategy is maintained in workplace. Work process is easily enhanced by this sustainable and green architecture. Experienced employees have different mindsets and these individuals have several new ideas and thoughts related to work process.

Several types of new and modern business strategy are followed by these green concepts and architecture. Modern machines are used in construction sites to maintain sustainability and pollution. Business cost is also reduced due

to sustainable practices and also a business activity can easily identify their market and customers. Green architecture allows to enhance brand reputation and value. Several new opportunities are available like flexibility of work and time, fooding and loading facility is also provided by a business activity to enhance engagement of employees in workplace. These individuals also provide their better performance to maintain green designs in construction sites. Environmental damage and poverty alleviation related issues are also mitigated by these green practices [11]. Sustainability creates a strong and long-term prosperity of a business activity with help of this green architecture. Green practices allow to maintain a social, economic and environmental framework. Self-sustaining of a business activity is also supervised with help of these sustainable practices.

Customers always try to maintain sustainability and green

practices on a daily basis. For this reason, these individuals grab better quality and quantity products from global market. In case a construction company provides green building to their customers, these individuals are easily attracted by this company in global market. Consequently, a sustainable business can easily meet needs of customers. Cost efficiency of a business workflow is also maintained by an industry with help of these green and sustainable practices. Green building market size in global market is estimated to reach over 83 billion US dollars in year of 2021 [12]. Value of industry segment is also enhanced with help of these green and sustainable concepts. Usage of carbon footprint is also mitigated with help of these green practices. Green architecture allows to maintain usage of synthetic and inorganic products. Real estate sectors can easily enhance their financial performance.



**Figure 1:** Green building market size

Green building related issues are faced by an industry in global market such as: lack of awareness, lack of skilled employees, lack of resources and capital, high cost of this building, expensive raw materials. Consumers and developers are not aware about sustainable building practices. Importance and benefits of these buildings are not known to everyone. For this reason, every customer always tries to maintain tradition method of making their buildings. Sometimes, customers are not capable enough to make green buildings. Sustainability and environmental factors are also disturbed due to high prices [13]. These individuals do not get their comfort zone by this green practice. New method of building is not known to these individuals in global market. Lack of public awareness is a major issue to growth of green building. High cost is also needed for making green buildings; hence customers can not be able to expand those

amounts for their building. Lack of awareness creates a negative impact on economic growth of a nation related to green and sustainable practices.

Green architecture must need skilled employees in construction sites to maintain a proper strategy of work. Speed and efficiency of work is maintained properly in workplace by these skilled employees. Several modern machines and technologies are implemented to make green buildings. In case employees do not know about usage of those machines, work process is hampered due to lack of skilled employees. Lack of knowledge and skills creates a negative impact to make several types of green and sustainable buildings in global market [14]. Several types of steps are followed to maintain green architecture. In case an employee does not know about those steps, process of making green buildings is hampered due to lack of skills and knowledge. In recent days, everyone uses social media

platforms to be up to date. Green building related advertisements are available in several online sites, consequently, these individuals can easily know about importance of green building.

Initial cost of making green buildings is effectively high, for this reason, customers are not capable enough to make green buildings. Construction raw materials are effectively expensive for these green buildings. Developers and customers may not be able to enhance their budget to make green buildings [15]. Several types of equipment and tools are required to make green buildings such as: fibre cement, stone, natural clay, cork, fibreglass, steel, cellulose, composites, earth bags and straw bale. These materials are immensely expensive in global market, and cost effectiveness is not maintained properly to make green buildings. Straw bale is an essential green building material and these materials are used as farming materials. These particular materials have good insulating properties and straw bale is also known as a soundproof material. Straw bales can easily be used to fill materials between columns and beams. Air is not pass through these materials and straw bales can easily be used as a resistance of fire globally.

In recent days steel roof panels are highly durable and recycled again. For this reason, steel roof panels are the best choice as a roof material for green building. Composite structure is also beneficial for green concepts to maintain sustainability. Longevity of composite materials is effectively high, consequently, these materials are immensely beneficial for these green buildings [16]. Natural fibres such as: wool, cotton is also used as insulation materials for green buildings. Recycled and green cotton fibres are used to make green buildings globally. Polyurethane is used as a foam texture, and it prevents leakage of air from a room. A thick layer is created over a surface after spraying this foam texture. This is advantageous to use these materials as a green building material. Cellulose is a recycled product of paper waste and this material is also used as a green material for maintaining green architecture. This particular product is used as a good sound insulator and prices of these products are immensely low globally.

Cork is also used as a green building material globally and this material is also a good insulator. Cork boards and panels are also available in market for making green buildings. A huge amount of electrical energy is saved with help of this cork material. Cork is used as a good insulation in winter. Sound insulation is also managed by these cork boards and panels [17]. Natural clay is also used for plastering walls. This natural clay is totally based on gypsum-based plasters. Sustainable and green practices are also maintained with help of these green concerns. Fibre cement is totally made of cement, wood fibres and sand and this cement is mainly used as an exterior siding. This fibre cement is effectively good resistance against fire. Legibility and durability of this material is immensely high globally. A construction business activity must organise an awareness program to maintain a proper strategy of work. Everyone can easily be aware about

these green and sustainable practices. This should be beneficial for developers to maintain sustainability and environmental factors.

Green building materials are immensely expensive in global market. Value of global green building materials amounted to over 280 billion US dollars in 2021 [18]. This value is increased to 524 billion US dollars within the year of 2027. This creates a positive impact on economic growth of a nation. LEED certificates are also beneficial for green building and concepts globally. Stone is also naturally occurring material globally; this is also available in market at low price. Exteriors walls and flooring are also made of those stones. Weathering effects and climate change can easily be maintained with help of this green architecture. Green building is immensely helpful for water and fire resistance globally. For this reason, green designs and green architecture are most suitable for developers and customers.

### DISCUSSION

Green architecture is an essential key factor for sustainability of a nation. Construction industry always tries to maintain green practices and green design in workplace to enhance their profitability. Reusable and recycled products are used by this industry in construction sites. For this reason, this industry does not depend upon their suppliers. Sometimes suppliers may not be able to provide green and sustainable raw materials in necessary time. Speed and efficiency of work is hampered at that time. Hence, recycled products are the most suitable at that time. For this reason, waste management is controlled by this industry in an organised manner. Green architect airways try to use green and sustainable materials in workplace, by which a construction industry can easily maintain their social responsibility [19]. Usage of synthetic and hazardous materials are totally mitigated by this green design and practices globally. Innovative and creative ideas are also gained by an industry with help of this green architecture.

Green design mainly refers to sustainable design in the international markets. For this reason, every industry tries to maintain their sustainability and environmental factors during working hours. Hence, customers are easily attracted by an industry. Modern designs and architecture are effectively beneficial for an industry to maintain their work process. In recent days, green buildings are immensely helpful for each and every construction industry. Loanability and durability of a green build is effectively high and for this reason, a green architect is needed for maintaining green design and practices. Everybody can easily maintain a healthy lifestyle on a daily basis with help of this green architecture. Air and sound pollution are totally eradicated by this green design in global market. Living communities are also enhanced with help of these green practices. Advanced technology and machines are also maintained by this green architecture in workplace, for this reason, initial cost of these green buildings is immensely high.

High earner can easily make green buildings for



maintaining their healthy and wealthy lifestyle. Consequently, low earner cannot be able to afford money for maintaining green practices. Sometimes, developers are not capable enough to maintain green design and architecture in workplace. As a result, sustainability and environmental factors are also disturbed. Several steps are needed for managing green practices, in case an industry may not be able to follow those steps, a construction industry cannot be able to manage green designs. Essential step of this green design is to gather proper knowledge about these buildings. In case, an industry does not have proper knowledge, the effectiveness of these buildings is totally disturbed. Experienced and skilled employees must be engaged by a construction industry in workplace. For this reason, a relevant and smooth work process is maintained.

Indoor air quality is also maintained properly with help of this green architecture. In recent days, everyone suffers from several types of diseases like asthma and respiratory allergies. Green buildings are the best solution for those people to enhance their health. Energy efficiency is controlled by a construction industry to make green buildings. Renewable energy sources are used by a construction industry globally [20]. Emissions of harmful gases are totally reduced with help of these green building concepts. Rainwater is also used by a construction industry for making several types of green buildings. LEED certificate is also gathered by an industry with help of this green practices and designs. Green practices help a business activity to maintain self-sustaining procedure globally. Sustainable social economic and environmental framework is also supervised with help of this green architecture. Fire resistance is controlled with the help of sustainable and green architectures. Several types of tools are used by these green concepts in the workplace such as: fibre cement, cork, fibre glass and straw bales. Prices of these materials are effectively high.

### CONCLUSION

In this study, concept of green architecture is mentioned, by which everyone can easily understand benefits and importance of these buildings. Importance of green design and architecture is also discussed in this study. Several new materials and machines are also used by a construction industry to manage green design. Sustainability and green practices are also mentioned with help of these green concepts. Several types of modern equipment are implemented by a business industry globally to maintain green practices. Jcb and hydra are essential tools for making green buildings. Initial cost is immensely high in global market for making green buildings. Green architecture concepts allow to maintain liveable communities in global market. Indoor air quality of a green building is also managed by this green design in an organised way. Drought resistant plants and water efficiency is also maintained with help of this green building. Sustainability and environmental factors are also managed by these particular concepts.

Emission of greenhouse gases is also managed by a construction industry in global market. Usage of carbon footprint is totally mitigated with help of these green designs. Several types of materials are also used like wood, bamboo, cordwood, straw bales, earth bags and steel. These materials are advantageous for making green buildings. Composite structures are lightweight and inexpensive for green structures. These structures can easily save energy to maintain green concepts. Green and sustainable practices are useful for this study. Experienced employees are engaged by this particular method. Communication strategy is also enhanced with help of these green practices. Energy efficiency is also maintained by this green architecture globally. This particular building is immensely cost effective. Sound insulation is also managed with help of these green practices. Lack of knowledge and skills are the big issue for these green practices. For this reason, sometimes green practices are not maintained properly in an organised way.

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