

Sustainable Approach of Architecture through Green Building Construction

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Abstract

This study reflects some important errands about sustainable approach of architecture through green building construction. Most applicable process of architecture has been described in this study and its utility over the environment has also been discussed in a broad array. Renewable energy is the first and the foremost important viewpoint of this study and it is dependent on the initiative taken by individuals. Initiative taken by individuals is dependent on the quality of the thinking and the learning skills in this scenario. Moreover, new concepts of renewable energy along with the green energy have also intermingled with the topic of architecture. Sustainability of the development is the first and the foremost conclusive matter of this study. Efficiently using all of the resources can provide sustainability in this scenario.

Keywords

Green building construction, Green energy, Renewable energy, sustainable architecture, Sustainable development.

INTRODUCTION

Improvement of the sustainable architecture in the building construction is the most exclusive topic in recent times. In general it reduces environmental hazards which frequently occur due to adverse effects of business practices. Now in the present day, adverse environmental deeds have increased exponentially by humans. In this scenario, sustainable architecture for green building construction will be beneficial for mankind. Maintenance of the economy and society can also be effectively preceded by measuring green energy. Pollutant free materials have been used in this scenario for enhancing overall sustainability in architecture. In the case of normal construction, high energy resources and materials are needed to create hazards; conversely, a sustainable approach of architecture regarding green building is beneficial for generation of less waste and provides healthier space for the occupants.

This study aims at understanding different approaches to architecture that are beneficial for understanding some important aspects of green building construction. All of the approaches that have been discussed in this scenario can provide overall sustainability in the construction practices. Most frequently used architecture in this scenario reflects benefits of green energy and also renewable energy.

LITERATURE REVIEW

Sustainable software approach for green building

The concept of sustainable architecture is dependent on technological advancement in a wide array. Now in recent times, use of software has an abundant role in the development of a sustainable structure. As per the view of [2]. (2019), use of software can mitigate the extra effort of human beings in a wide array. It also boosts competitive advantage that is beneficial for understanding the aspect of green building. The architectural approach of green building

is developed by *green building studio, IES virtual environment, Energypro and Sefaria Architecture*. All of these are software that is used for the mapping of the building. According to the view of [8] (2017), mapping for the construction needs to be measured regarding construction of green buildings accurately for proceeding with the best in the future. Approaches of sustainable architecture are not only applicable to the residential buildings but it is also applicable to government infrastructure, commercial buildings and centre of community.

Concept of vernacular architecture

This is one of the beneficial and general practices of creating buildings by using natural resources in the vicinity of the site of the project. In comparison to the traditional building construction, this type of construction is beneficial at a wide range. Benefit of this architecture relies on its cost effectiveness. As per the view of [12] (2021), cost effectiveness is the pivotal feature of architecture that is applied in the green building construction. This architecture includes *RDS or Revit Documentation Services* which allows architects to conclude environmental, climatic and local influence of technology in this scenario ([7], 2019). In general, it is a home design methodology for minimizing environmental impact by the project.

Features of green building for making sustainable approach of architecture

Energy efficient equipment and ecofriendly building materials are the main theme of green building architecture. It includes various ways for proceeding with the best in the future. In the opinion of [13] (2019), improvement of health and productivity depends on the use of eco-friendly materials to a wide extent. It can also be said that the use of eco-friendly building material environmental sustainability can be established in a large range. *Natural light, green roof systems and rainwater harvesting* are the key point of view

of this research. Energy cost can be saved by use of natural light. Conversely, normal building materials misuse energy and costing of energy has also been enhanced which is detrimental for providing future environmental sustainability?

SYSTEMATIC REVIEW

Citation	Relevance	Keyword
Illankoon <i>et al.</i> 2017	Contribution analysis and construction of buildings more or less depends on the types of tools that have been used by architects. Those types of architecture pertain to IEQ or Indore development quality, energy and water . Relationships between all of the variables are dependent on the sustainability performance of the construction and future scenario.	<i>Sustainable performance, IEQ or Indore development quality</i>
Hyrkäs <i>et al.</i> 2018	A life cycle approach for the provision of sustainability in architecture is useful for reducing operational consumption of energy. Now in recent times, the first and the foremost important point of view depends on relative weight of emissions for the traditional construction resources. After the measurement of the relative weight emissions, managing decision for an optimal solution can be preceded in a vast range.	<i>Life cycle approach, Operational consumption of energy, relative weight of emissions.</i>
Zhao <i>et al.</i> 2019	A bibliometric review of the green building research provides all of the crucial needs for fulfilling all areas which present Corporate social responsibility or CSR. Validation of the green performance of the green building is the first and the foremost essential aspect of this research and it more or less depends on ICT application of green building. Green cool roof, vertical greening system, life cycle assessment of the greening has been covered in this paper with the aid of providing best information about sustainable architecture for the green building constructions.	<i>CSR, ICT application, Green cool roof, vertical greening system, life cycle assessment of the greening</i>

CRITICAL REVIEW

This part is beneficial for understanding some key variables of the study. As per the view of [11] (2018), PESTLE analysis is one of the crucial analyses that need to be performed for proceeding with the available resources of green building construction. Availability of the materials in this scenario is beneficial because end line interpretation can be preceded by the quality of the materials. On the other hand, the point of views of [8]. (2017) shows that both internal and external factors and potentiality of the framework need to be effectively intermingled for proceeding with the best range of green building architecture practices. These two points of view show that a sustainable approach of architecture is more or less dependent on outside and inside technological advancement.

The most suitable approach for the green building architecture is **Building information modeling** but it is used for specific types of sustainability analysis. The specific features of sustainability are more or less dependent on the **corporate pool demand** in an ample array. Both academic research and industrial practices can be used in this study to assess the potentiality of building information modeling. Software of **BIM** is effectively used for **green building triangle taxonomy** that is frequently used in building connections between **BIM and green buildings**.

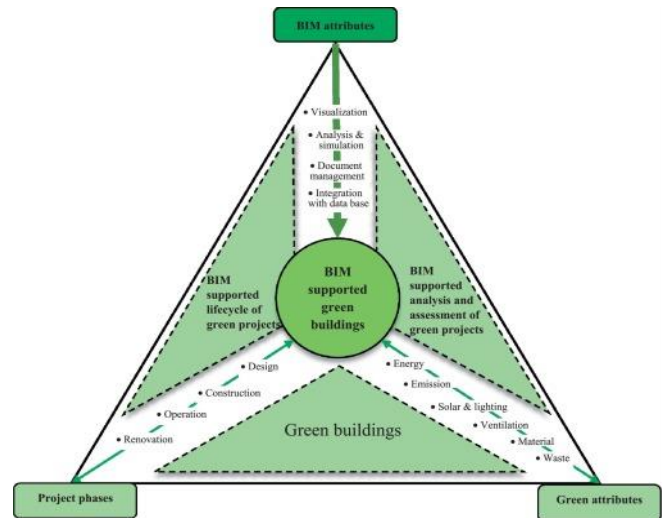


Figure 1: Building information Modeling
(Source: [10] 2020)

A rule of three dimensions has been followed in this scenario. Carbon emission analysis is always crucial in this scenario because it can provide the best regarding potentiality of the renewable energy in buildings. Mutual reflection and also mutual shading is the best option by which a sustainable approach of the architecture can be preceded. As per the view of [9] (2020), mutual reflection and mutual shading is beneficial for energy performance maintenance that is the first and the pivotal important aspect of this research. It can also be said that solar radiation and lighting analysis will be the best fitted method that can be frequently used in this study.

METHODOLOGY

This study followed secondary information for the research that is beneficial for understanding the quality of the study. News articles, books and journals have been selected for the study which is beneficial for perceiving the wisdom regarding the green building architecture. Both quantitative and qualitative research methods have been described in this study. An interpretive philosophy has been used in this study that is the first and the foremost essential philosophy to work. According to the view of [1] (2018), research design is also an important part of research methodology in which outline or the framework for the research can be proceeding with the best. This research used the process of *descriptive research design* for describing sustainable approaches to architecture. In the case of discussing the approach of the research it can be said that a *deductive approach* is beneficial and must be fitted for the study. Quality interpretation can be made by the process of deductive research approach.

DISCUSSION

BIM-supported renovations and retrofit of green buildings

The research reflects that sustainability issues are a common problem in the construction sector. Now in the present day, streamline decision making by the *BIM supported renovation* is beneficial for the waste management and also generation of zero environment hazardous chemicals. A BIM based prototype system is developed for the construction. Double usage of renewable energy and also the process of energy rehabilitation process are beneficial for energy diagnosis to retrofit decision making ([8] 2017).

Sustainable approach can only be applicable in this scenario when performance of retrofit projects uses *3D laser scanning and BIM* ([10], 2020). Using these two gadgets can provide competitive advantages that are beneficial for enhancing environmental sustainability. These two processes is a completely computational platform that suggests retrofit of green buildings. In case of any technological difficulties this process is most valuable because re innovation has been done. Construction of operational phases is the pivotal section of this process.

Use of software for creating sustainable architecture

Adoption of renewable technologies can be effectively preceded by measuring *BIM-like* software. This software is *GBS, VE* and some others that are beneficial for enhancing the environmental advantages ([4] 2017). Renewable energies for designing green building are- *Photovoltaic and wind power*. Results show that the project specific data is important in this scenario due to the difficulty of data collection. In general, project specific data is used for enhancing the level of accuracy in this scenario.

Inter building effect and *mutual reflection* is another crucial approach of the architecture which is beneficial for enhancing potentiality of renewable energy in green buildings. It reduces building impact on the health of

individuals and the environment by proceeding with better design and construction ([5] 2017). Moreover, use of software also reduces misuse of money and time. This software is part of the sustainable approach of architecture because they can provide real time detection of faults in construction. In general, fault is possible in the making of construction. Performance maintenance and the accuracy level are the first and the foremost important aspect of the measurement in this scenario. *VE software* is used as a global database for weather forecasting. All of those are some crucial aspects for construction of the green building. Natural ventilation systems of analysis and information can also be gathered by this software that enables competitive advantage of the green building construction. Indirectly, this software is responsible for designing indoor development that results in enhanced quality of life.

CONCLUSION

This study reflects a detailed method of sustainable approach of architecture of green buildings construction. Majority of the construction shows that the software can be used in this scenario for enhancing the competitive advantage. Software can also predict the implementation of renewable energy and green energy for constructing different types of buildings. Enhancing the purpose of CSR is the main theme of this research and it also depends on both internal and external development.

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