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DEVELOPMENT OF GREEN BUILDING CONSTRUCTION SCHEMES TO REDUCE DEVELOPMENT FOOTPRINT IN BUILDING

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Abstract - *Green building are marked as economical, resource efficient and environmentally friendly compared to the conventional building. A green building depletes the natural resources to the minimum during its construction and operation. Aconstruction activity generally confers to deterioration of the environment; this is due to the solid waste generated during construction. Production of carbon dioxide by occupants is also considered as a key factor. Due to this problem there is a considerable downturn in adoption of green building technology in construction industry. The main aim of this study is to set forth the factors influencing the adoption of green building. This study investigates the extent of adoption of green building concepts in commercial buildings and the key challenges arising from their adoption with the aim of determining appropriate strategies for implementing them. The study was conducted through survey method and used questionnaires, interviews, observations for data collection. In this paper a study is conducted which determines the concepts and strategies which can help to create awareness among people regarding the worth of green building and to promote green building practice for better environment.*

1.INTRODUCTION

Green building practices are commonly defined by the areas of the environment they affect energy, water, site, air quality, and materials. Definitions of green building may range from a building that is "not as bad" as the average building in terms of its impact on the environment or one that is "notably better" than the average building, to one that may even represent a regenerative process where there is actually an improvement and restoration of the site and its surrounding environment. Also green building is defined as one whose construction and lifetime of operation assure the healthiest possible environment while representing the most efficient and least disruptive use of land, water, energy and resources.

The Environmental Protection Agency (EPA) defines green building as thepractice of creating structures and using processes that are environmentally responsible and resource efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. It defines green building as the practice of increasing the efficiency with which buildings and their sites use energy, water,and materials, and reducing building impacts on human health and the environment, through better siting, design, construction, operation, maintenance, and removal the complete building life cycle.The continued growth in population, industrial activity, resources use, and pollution could mean that standards of living would eventually decline. Climatic change and its attendant effects on the built environment is now widely accepted as being a reality today and have become a very serious problem facing humanity,Some of these adverse effects include: extreme weather conditions being experienced, increase in rainfall, flooding, building collapses, increased thermal discomfort in buildings, water shortages and draught, increase in cost of building construction and operation amongst others. Buildings are major consumers of natural resources and are therefore a natural focus when emphasizing the need to practice and make

mandatory sustainable construction.

2.0 OBJECTIVES OF STUDY

- The primary aim of this study is to know the concepts of green building and to create awareness.
- To know the elements and features involved in green building.
- To identify the best critical factors for promoting green building technology.
- To create awareness and suggestions to improve the environmental efficiency.

2.1SCOPE OF STUDY

- This study helps to gain a preliminary knowledge about green building technology.
- This study helps to give suggestions for adopting green building concepts for better environment.
- This study helps to create awareness among the people regarding incorporating green constructions.

3.0 LITERATURE REVIEW

Dr. Syed khursheed Ahmad, et.al (2017) investigated the extent of adoption of green building concepts in commercial buildings and the key challenges arising from their adoption with the aim of determining appropriate strategies for implementing them. The study was conducted through a survey method and used questionnaires, interviews, observations for data collection. It also reviewed documented data from available records including journals and books. In this study, it is conducted to determine the main concepts involve in the construction of green buildings moreover the strategies are also discussed which can help to create awareness in between people regarding the benefits of green building and could be a step towards green building practice for the future world.

Manoj Kumar Singh (2010) suggested that, the energy efficient building, climate- responsive building or green buildings designs have great impacts on conservation of natural resources, energy efficiency, better waste management, water use efficiency and reductions in GHG emissions. In this study , the various measures taken worldwide to reduce the energy consumption and carbon footprint of the buildings through green building approach are discussed. The present state of the green building initiatives, green building rating and certification procedures in India are discussed.

3.1 DESIGN OF QUESTIONNAIRE

There are two sets of questionnaires for the occupants and other to the industry. The questionnaires are framed based on four sections. The questionnaires are with closed questions and open question written in simple English.

The four sections are:
Concept of building green
Review of green features
Attitude towards the green features
Suggestions for improvement

3.2DATA ANALYSIS TOOLS AND TECHNIQUES

The various tools used for collecting the data are as follows:

Questionnaire

Questionnaires refer to forms filled in by respondents alone. Questionnaires were handed to the respondents in field and ask them to fill it.

Observation

Observation is either an activity of a living being, such as a human, consisting of Receiving knowledge of the outside world through the senses, or the recording of data using scientific instruments. The term may also refer to any data collected during this activity. An observation can also be the way you look at things or when you look at something.

Interviews

In interviews information is obtained through inquiry and recorded by enumerators. The interviewer in one-to one conversation collects detailed personal information from individuals using oral questions. In this research we have dealt with approximately 28 direct interviews and 15 through online.

Statistical analysis

"Statistical Analysis" is a process of inspecting, cleaning, transforming, and modeling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision.

4.0 RESULTS ANALYSIS AND FINDINGS

From the analysis of data the following results were obtained(for all level companies):

The below table 4.1 shows the reliability analysis for the set of questions included in the questionnaire for Company's.

Cronbach's Alpha	N of Items
.881	25

Table 4.0

Technically speaking Cronbach's alpha of 0.881, which is greater than 0.7 indicates that there is a high Consistency and Inter-Correlation between the dataset of 25 items. It is noted that the values above 0.7 are considered acceptable and also values above 0.8 is preferable.

4.1FREQUENCY ANALYSIS FOR COMPANIES

Frequency analysis is a descriptive statistical method that shows the number ofoccurrences of each response chosen by the respondents. When using frequency analysis, SPSS Statistics can also calculate the mean, median and mode to help users analyze the results and draw conclusions.

Do your customers ask for green features in homes

		Frequency	Percent	Valid Percent	Cumulative Percent
	Strongly Agree	6	24.0	24.0	24.0
	Agree	10	40.0	40.0	64.0
	Neutral	7	28.0	28.0	92.0
	Disagree	2	8.0	8.0	100.0
	Total	25	100.0	100.0	

Table 4.1Customer's willingness to GB

Interpretation: From the above table it is inferred that the respondents 24 % strongly agree, 40 % are Agree, 28 % are Neutral and 8% disagree with the statement.

5.DISCUSSION

The Questionnaire aspect of the current study aimed cover the underlying feelings, experiences, likes and dislikes which 'green' buildings hold for each individuals and the ways in which they cope with the changes that they are exposed to.
Furthermore, many participants emphasized that to truly see the effects of goinggreen, there needs to be a collaborative effort among all parties within the community. It was also stated that the moral reasoning behind implementing green was vital. Priorresearch has established that 'green' building practices are predominantly implemented to reduce negative environmental impacts and improve sustainability.
It is emphasized that the moral reasoning should be in line with improved benefits for society, and the employees, rather than just being profit orientated.
Furthermore in the analytical part the result obtained were satisfying to some extent.

Descriptive analysis:

Through this analysis pattern which has been carried out in SPSS software itwas found that the results were satisfying and optimum. It is also noted that there was utmost probability of positive response from the respondents. The variance was also found to be within the acceptance range except for one or two.

Frequency range:

This was a key tool notifying the probabilities in percentage. Even through this most of the elements were found to be adequate through the responses from both company and consumers side.

Correlation:

In this the tolerance factors were obtained from the correlation values. Eventhis resulted in a satisfactory manner.
However, the reults create a better understanding of why and how people believed in going green and also benefits existed. Whereas, other participants saw negative aspects of the green phenomenon, thus only seeing the bad within erecting 'green' buildings.

6. CONCLUSION AND RECOMMENDATION

This study investigated the adoption of green buildings and the pros and cons involved in adoption of green buildings in our ambiance.
The main aim of this studyis to know in depth the concepts and factors hindering the green construction and alsoto find the possible ways to create an awareness and to notify the benefits of green construction to the society for improvising the betterment of the environment.
This was carried out by compiling various views of individuals as a consumer or in a company regarding their impressions and requirements to green building and the recommendations are formulated. Furthermore, a deeper analysis into this phenomenon was investigated by means of documenting employee's opinions, experiences, Likes and dislikes associated with adoption of

green building.

This study helps in knowing the opportunities and obstacles involved in improvising the efficiency of green construction in our locality. The significance of this study stems from being one of the few studies to incorporate a Questionnaire aspect into the analysis of 'green' buildings, particularly within the Indian context. This allowed for a more clear description of the results that were found by providing important information as to why the questionnaire results were surprising, as documenting vital information that can be used to understand the dynamics within the realm of green.

RECOMMENDATIONS:

From this study various factors affecting adoption of green building in our surroundings is found. It is noted that the environment will effectively gain its betterment through development of green buildings. There are various integral factorsplaying major role in adoption of green construction, they are social, economic, cultural and technological factors. Based on these the green concepts should be maintained for better efficiency.

Concepts of green building:

These are basic to be followed for green construction:

Desirable use of power or energy

Water conservation

Reuse and effective management of waste water

Efficient building system planning

rceptions are contrived.

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