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Passive Solar Buildings

Akshay S. Hundekar[1], Shashank U. Vanakudari[2]
[1]*M.Tech. Student, Department of Civil Engineering, Belagavi, Jain College of Engineering, India*
[2]*Assistant Professor, Department of Civil Engineering, Belagavi, Jain College of Engineering, India*

***Abstract*: "Industrial and technological innovations, population growth, and rapid urbanization lead to an increase in energy consumption. Dependency on foreign sources of energy and their negative environmental impact have made energy efficiency and conservation critical issues. 35–40% of our energy is consumed by buildings, and 85% of that is need solely for heating. They can perform effortlessly and quietly without mechanical or electrical assistance.**

***Keywords*: passive solar buildings**

1. Introduction

- Industrial and technological innovations, population growth, and rapid urbanization lead to an increase in energy consumption.
- Dependency on foreign sources of energy and their negative environmental impact have made energy efficiency and conservation critical issues.
- 35–40% of our energy is consumed by buildings, and 85% of that is need solely for heating.

2. Objectives

The aim of this research is to identify and analyze the concept of passive solar building design as an energy conservation method for apparel buildings and study the existing passive solar. The following objectives were set in order to achieve the aim of the research.

- Identify the existing energy consumption and conservation methods use in the apparel industry.
- Identify the concept of passive solar building design techniques.

3. Elements considered for residential buildings construction

- Placement of room-types, internal doors and walls, and equipment in the house
- Orienting the building to face the equator.
- Extending the building dimension along the east/west axis.
- Minimizing windows on other sides, especially western windows.

4. Methodology

A. Questionnaire design

The questionnaire was developed based on the findings of previous research studies and literature review. There are thirteen Passive Solar Building Design (PSBD) systems were identified under each technique i.e three from passive heating.

B. Data collection

Data collection of this study was only focused and limited to the apparel buildings operating in Colombo Metropolitan Area. The survey was conducted within a random sample of thirty experts in field of Engineering and Architecture representing fifteen apparel buildings. The total of 20 respondents submitted the questionnaires with the response rate of 67%. Table 2 indicates the composition of the respondents selected for the survey. from passive cooling and three from day lighting.

5. Conclusion

- They can perform effortlessly and quietly without mechanical or electrical assistance.
- Reduction can be made to heating bills by as much as 40% annually, and also improve the comfort of living spaces.
- Simple techniques can make a huge difference in the comfort and energy consumption through the years.

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