Impact of Building Materials on Socially Sustainable Architecture

Ar. Soma Anil Mishra[1], Dr. R. K. Pandit[2]

[1]Research Scholar, M.I.T.S, Gwalior (M.P)

[2]Director, M.I.T.S, Gwalior (M.P)

Abstract: *The thought process behind any built environment is acknowledged as Architecture. That thought process inculcates qualities, the qualities are identified and used by citizens through building materials. Hence, building materials have to be chosen after perfect calculation. Environmental Design effects social sustainability. For the society to be socially sustainable, each and every corner has to be given thought. The outcome of that thought is depicted through natural elements and building materials. Choosing appropriate building materials is an important task. Proper deployment of building material involves visual and materialistic quality of building materials. Desiring of a particular built environment involves selection of perfect building material. Each material has its structural importance, constructional performance, image impact and historical value. Building materials create spirit of built environment. Building Material selection as per existing site condition and required socially sustainable atmosphere is generator of good environmental design. Figurative Thoughts and rational value of materials can convert an ordinary place to a consecrated place through intelligent Environmental Design. This paper focuses on, determination of building material blend and investigation for the ideal.*

Keywords: Building Materials, Social Sustainability, Security, Environmental Design, Architecture

1. Introduction

Residential abode is the basic unit of identity for any person. It is very important in social grooming of every person. Today people are not working much to create order in their lives but are busy in managing their day to day life in any city.

Feeling the importance of having one's own identifiable space, gives them their identity as an individual in the society. Whether this identity has any importance in personal life of individual; decides the personality of human being. This creates individual safe or unsafe for the society too.

Individuals together build communities which are integrated living arrangements for Social Security.

Physical boundaries, shared facilities and common consciousness among citizens help in giving shape to community life. (Pearson, Spoonley, & Shirley, 1994) Researcher feels that, city and the building materials present therein, should be given importance for designing expected atmosphere.

Place- Based Crime Prevention
Human behavior occurs in space and the material selection of the environment provides various options for people interaction. The interaction between people can create safe or unsafe communities (Nes & Rueb, 2009) Building Materials used play a major role in the improvement of urban safety giving shape to the built environment. The origins of designing out crime can be traced back to Jane Jacobs "The Death and life of Great American Cities" (1961) then by Jeffery's "Crime Prevention Through Environmental Design"(1971) and Newman's "Defensible Space" (1972)

Types of material used in street and the degree of road accessibility play an important and effective role in distribution of crime. (Clarke,1997 b)

Four classical theories of place based crime prevention are Defensible Space, Crime Prevention through Environmental Design (CPTED), Situational Crime Prevention and Environmental Criminology. (Shu, 2009)

Defensible Spaces:
This theory was established by Ar. Oscar Newman in 1972. It assures a definite relationship of crime rates with urban design. According to the defensible space theory, physical layout of communities can make occupants control the areas. It creates the physical appearance of a social bond that defends itself. (New Man, 1972)

Crime Prevention through Environmental Design
The term was coined in 1971 by criminologist and sociologist C. Ray. Jeffery. It refers to design solutions in reducing crime. It argues that most crime events are linked with the opportunities created by environmental design. CPTED approach refers to reducing crime opportunity by manipulating the built environment which in turn affect users' behavior, hence reduce crime and the fear of crime. (Crowe, 1991)**.** "The proper design and effective use of the built environment can lead to reduction in the fear of crime, the incidence of crime and an improvement in the quality of life." (Cozens P. M, 2002)

Natural Surveillance
Placement of design features with activities and people to maximize surveillance, consequently discouraging crime. Public areas have maximum activities, and offenders prefer places with less observational control. Design can foster natural surveillance from within the home premises by residents and at the same time from the exterior by passers – by and neighbors.

Natural Access Control

Points out design strategies controlling the ingress and egress of persons related to a particular space. This approach focuses on proper design strategies to direct pedestrians and vehicular traffic to an easy flow, simultaneously discouraging criminal activities (Cozens, 2002)

Territoriality

Is about creating recognizable and identifiable zones, so that people feel connected and thus do try to defend their own community Design should enhance a sense of propriety among the occupants and create environments with high perceived probability of resident intervention to offenders' deed. (Geason & Wilson, 1989)

Situational Crime Prevention:

For any crime to take place, it needs a particular situation which depends upon the surrounding, the victim, the place and a certain point of time. Situational crime prevention is "a preventive approach that relies, not upon improving society or its institutions, but simply upon reducing opportunities for crime". It applies at micro –scale and lays stress on location and crime. (Clarke,1992)

By combining security, hardware, psychology and site design, a physical environment could be developed that would, by its nature, discourage crime.

Living in closely packed area, the residents are quite sympathetic towards each other. Community sharing activities are encouraged.

If there are no private areas so there is ownership of the public realm.

There are a lot of active edges as the streets are full of pedestrians, vendors and hawkers.

A place having traditional dwellings and too much closely packed, territories are marked by defining spaces through visual graphics and other arts. Festivals in such places are celebrated with great pomp and show.

Active street spaces have good night culture during festivals.

The birdfeeder like structure at the centre of the street acts as landmark for guiding people and also for legibility. Mixed use areas make self-sustaining community in taking care of surveillance too. Active public spaces facilitate and encourage legitimate community and individual activities.

An institution in the neighborhood acts as a landmark for the street. It helps people to navigate easily in streetscapes without any havoc.

Footpaths and pavements create very important visual and physical barrier between roads and habitable spaces maintaining privacy, noise control and achieving safety aspects. Trees and plantation should be such that they do not become visual barrier between building and the street. Landscaping should be done in such a manner that it does not isolate one part from another.

Visually porous boundaries should be considered in case of public buildings as it creates visual connectivity with surroundings, in turn generating security.

2. Conclusion

Neighborhoods must be designed and developed to promote surveillance of the public realm and community ownership of the neighborhood's security.

Development has to be sustainable. Sustainability in buildings could be achieved by three major aspects; i.e. socially- by generating equality, economically- by minimizing the life cycle cost of materials and ecologically- by not propagating porous surfaces.

Stake holders need to use knowledge and creativity to design built environments in ways that lessen or prevent the incidence of crime. Thus Crime Prevention strategies through selection of proper building material should be incorporated in every phase of development and it should include internal as well as external locations.

Author Profile

Ar. Soma Anil Mishra, Contact No. 9425939138, email id: somanil.mishra@gmail.com

Dr. R. K. Pandit, Contact No. 9826254902, email id: drpanditrk@yahoo.com