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Green Buildings: Call from Mother Earth

Pawar Shweta*, and Birajdar Sneha*

Abstract

Demand for new building and cost of building construction is increasing at steady pace. Bricks, cement, steel, timber, plastic, glass, etc. are commonly used materials of construction of buildings, and spending fossil fuel energy, manufacture of such materials requires expenditure of energy. Considering the building activity in most of the urban areas of India it is felt that the use of conventional materials alone to satisfy the demand for new buildings can drain the available energy resources and cause environmental degradation. This indicates the need for green architectural development with the help of energy efficient, environment friendly, economical alternative building materials and technologies. Today a large number of advanced techniques are available which can be used in construction of green buildings, on the other hand we have cost effective, labor intensive and energy efficient traditional building techniques. Present paper highlights some of such techniques and materials, which contribute in construction of green buildings. It discusses various building technologies used for the same in advanced countries. It presents an in depth study of a number of materials and technologies which are available in India and can be used for creation of a sustainable architecture considering the socio-economic conditions in the present context. It also demonstrates the use of some of such techniques in some of the projects in Pune in order to establish their utility for the creation of green architecture in future.

The Quest for Green Architecture in Rapidly Growing City – Pune, India

Munazza Lokhandwala*, Aditi Bakshi*, Komal Bhagtani**

Abstract

It is evident that current planning, design, construction, and real estate practices contribute to patterns of resource consumption that seriously jeopardize the future of the earth's population. Architects need to accept responsibility for their role in creating the built environment and, consequently, believe that they can alter their profession's actions and encourage the clients and the entire design and construction industry to join the green building movement to change the course of the planet's future. Present paper is aimed to demonstrate the success of building projects in creating a sustainable, energy efficient architecture. Based on an analytical study of selected projects located in Pune, it demonstrates various techniques, concepts and issues which can be successfully handled by architects in order to define the role of Architects and designers who are a key element to ensuring the creation of environmentally friendly buildings that are also good to live and work in.

Green Building Rating Systems: Rediscovering the Indian Ethos

Namrata Lunkad*

Abstract

'A Green building should create delight when entered, serenity and health when occupied and regret when departed' – Perhaps this is one of the most inspiring definitions of a Green building, articulated in the book 'Natural Capitalism'. The concept of green buildings is not as nascent as we think it is. For example, our own ancestors worshipped the five elements of nature - Earth as 'Prithvi, Water as "Jal", Agni as 'Energy', Air as 'Vayu', and Sky as 'Akash'. Today through the Indian LEED - Leadership in Energy and Environmental Leadership green building rating system, we are rediscovering the Indian ethos. This paper highlights various systems and tools used for assessment of the performance of green buildings worldwide. It analyses the systems commonly used in various developing countries and their relevance to Indian environmental conditions. It endeavors to put forth the basic requirement for an idea rating system suitable for Indian building stock in order to make it more useful in the present context.

Adaptive Use of Advanced Technology In Vernacular Context: Case Study of Farm House at Nasarapur, Pune

Pethe Avanti and Chitnis Anushri

Abstract

New trends in architectural and civil engineering disciplines are predominantly adopted from our western counter parts, which are to be modified and used with an utmost care considering the prevailing living environmental conditions of the area in question. An intelligent combination of advanced techniques and materials and vernacular practices can be an answer to this question. Present paper is aimed to put forth an approach experimented in a farmhouse located in Nasarapur, Pune. This paper is aimed to highlight various aspects of modern materials and technology with reference to their suitability in Indian context. It stresses the adaptive use of modern trends, which will create sound structures with a sense of belonging to the place.

Analytical Study of Vernacular Character of a Religious Center With Reference to Its Relevance In 21st Century:

Case Study - Mahuli, Maharashtra, India

Ruchi Shah

Abstract

The origin of vernacular architecture in India is closely associated with the socio-economic as well as religious activities of the people. It is basically characterized by its informal structures and spaces created through traditional building methods by local builders without using the services of a professional architect. It is the most widespread form of building as it is informal yet functional form of architecture made of structures built of local materials and designed to meet the needs of the local people. Many times it has been observed that this type of architecture is predominantly developed based on socio-economic and religious beliefs of the local people. The form and organization of Indian vernacular architecture that is prevailing in a number of villages dictated by various activities and consequent space demand with reference to the Hindu mythological practices. These beliefs are so strongly rooted in Indian society that they still dominate architectural development even in the 21st century.

Present paper illustrates the typical development of such a vernacular settlement Mahuli located in the Maharashtra region along the confluence of rivers Krishna and Venna. It will discuss the development pattern of this small village, which earlier was a part of 'Aundh' Princely State. Present paper is aimed to highlight the importance of the role Hindu mythological beliefs in development of this village, which is one of its own. It will examine the deeply rooted religious practices like funerary and allied activities, which can be said responsible for the typical spatial organization of this village. This vernacular settlement is under the threat of these new influences and an attempt has been made in this study to analyze the existing character, the climatic influence on its planning and development. It endeavors to suggest that how the recent changes can be guided to have a control on the changing character and retain the original fabric of the settlement.

Evaluating Vernacular Architecture for Rehabilitation with Reference to Earthquake Disasters in India

Nemade Vibha and Bharati Shrdha

Abstract

Providing temporary shelter to victims is a matter of serious concern. These structures must respond to the climate, living pattern of the inhabitants. It is indeed imperative for the people who suddenly lost their entire social, physical and cultural surroundings. Occurrence of a disaster cause a tremendous physical and psychological trauma for the victims considering this phenomenon the shelters provided just after its occurrence needs to be socially acceptable and economically viable leading towards a sustainable habitat. Considering these aspects there is an urgent need to find out adequate solution with due attention to the technical and socio-economic constraints. Besides they are to be constructed on site as early as possible. One of such vernacular building type is “Yurt” which was designed originally by the Mongolians for steppes housing in the severe climate of that northern Asian land. Probably they are the oldest form of prefab indigenous architecture still in use today. This paper investigates the constructional features of the yurt as a building prototype and evaluates its suitability in Indian context. It highlights the utility aspects of this vernacular structures, which are low-cost, portable, versatile, and adaptable to individual needs and tastes, as well as they can be used for a wide variety of uses. In addition to this it will examine their efficiency against the forces of nature like snow, rain, wind, and sun. This research is aimed to suggest various suitable material and techniques for making this vernacular structure useful with reference to socio-economic, climatic conditions and state of the art in the field of disaster management in India.

Redefining Vernacular Architecture in the Context of Contemporary Development

Ketkai Kadam

Abstract

Vernacular architecture incorporates building techniques, environmental adaptations, colors, building materials etc and goes hand in glove with the given environment. The frenetic bustle of the city coupled with the intense work pressure of corporate life has resulted in a crying need for an environment that is relaxing, comfortable and located in the lush and bountiful lap of nature. Vernacular architecture that encompasses the native and traditional architecture of a region with a blend of nature is the answer. In this corporate-cultured world, we need to take a step back, breathe a little, live a little and what could be better than a place that would have a touch or traces of vernacular values to rediscover our sensitivities and ourselves. An effort is required to create an architecture which is modern still very much vernacular in character, which can redefine vernacular architecture in modern context. Present paper investigates relevance of modern building technology and vernacular methods in the construction of a farmhouse located in Nasarapur near Pune, Maharashtra. While the current housing scenario in our cities leaves much to be desired in this direction a few architects are slowly showcasing this style of architecture. This paper demonstrates that how modern building material and technology can be utilized in a way that is in total harmony with the locally available material. It will present an analytical study of material and techniques used in the construction of selected building in order to find out various intelligent solutions, which can promote vernacular techniques in combination with modern ones.

The built environment is to be analyzed that is developed with an intrinsic understanding of the underlying principles of vernacular architecture. Considering the advancements in building construction and technology is the need of 21st century the present paper suggests an intelligent mix of modern material technology with vernacular ones. The main focus is to promote technological development in construction sector with keeping our intrinsic vernacular value intact for posterity.

Tourism Industry Development in the context of Architectural Heritage: Case Study, Dive Agar

Abstract

Tourism is one industry that might be able to help up the strained economics of developing countries and India is no exception. This resource-based activity, which interacts with natural systems, has the capacity to initiate far-reaching changes on the environment". Tourism begins to create stress on the available resources, and influence the local cultural and architectural heritage.

DiveAgar is a small hamlet along the east coast of India, located about 450 kilometers from Mumbai. Inhabited by the Konkani fishermen. The initial settlement pattern of DiveAgar has not undergone much change in past, however in the last decade influences increased with the development of the tourism industry, and created, a "new resident-tourist landscape", which is totally different in character. This phenomenon is adversely affecting the unique architectural heritage by and large. Local people are not agreeing to accept this development at the cost of their architectural heritage. This paper will discuss changes that have occurred as a result of the developing tourism industry especially those related to population, economics, landscape and environment of DiveAgar, in the last decade. Based on survey, it analyses the effect on development pattern with reference to architectural and landscaping features caused by the emerging tourist industry.

It stresses for the involvement of local community in the development process considering the concern of local people for their traditional living style. Considering the importance of local traditions in developing tourism, this paper endeavors to suggest adequate solutions in order to encourage such development giving due importance to cultural identity of the area in question.

Vernacular Values In Modern Context: Case Study Hingne Gaothan, Pune, India

Khedekar Swati amd Jamdar Kranti

Abstract

Indian vernacular architecture reflects the rich diversity of India's climate, locally available building materials, and the intricate variations in local social customs and craftsmanship. Unfortunately most of our old settlements located near an urban area are changing very rapidly and consequently their vernacular character is on the verge of extinction. Pune is one of the fastest developing urban areas of India. The city which was surrounded with a number of small scale settlements a few years back is now expanding in the wake of this urban sprawl these settlements are undergoing an un-thoughtful change of living environment where new development supposed to be devoid of identity and vernacular character.

This paper endeavors to describe vernacular buildings and spaces in Hingne Gaothan area, which is a part of rapidly developing city of Pune in meaningful ways. Learning appropriate terminology will help us to recognize and understand vernacular environments in a way that does not judge them relative to "high style" architecture or landscapes and allows us to see them as complex forms of historical evidence. Considering this the present paper involves gaining an understanding of different approaches and methodologies that help us make meaning out of ordinary buildings and landscapes that we encounter daily.

It will discuss and evaluate the usefulness of various approaches to understanding the vernacular built environment in an urban setting in all of its diversity. Based on an in depth study of buildings, spaces and total built environment in the selected study area, it stresses up on the importance and relevance of vernacular architecture in today context.