



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A STUDY OF PLANNING AND DESIGNING OF BUILDINGS IN HILLY REGION

Ar. Sudarshana

Ganga Institute of Architecture and Town Planning,
kablana, Jhajjar, India

ABSTRACT

Although the planning, design, and construction of these buildings present a challenge for architects and structural engineers, the architecture on hills always appears to be beautiful, appealing, and soothing to the eyes of the people. Due to the difficult terrain, steep gradient, adverse climate, abundant flora, and susceptibility to natural hazards, the planning and design of buildings in a hill settlement is a laborious and difficult task. Various multi-celebrated structures with contemporary materials and methods are being developed in various slope settlements without regarding the unique circumstance, which influence wellbeing and prosperity of occupants and cause extreme harm to delicate climate in and around slope settlements. In environmentally sensitive hill settlements, the building regulations that are enforced to control development and reduce its negative effects on the environment are contextually inappropriate and lead to contextually inappropriate development and environmental degradation. Since vernacular practices are shown to be supportable, subsequently taking illustrations from reasonable vernacular practices for new turn of events and detailing of building guidelines for accomplishing relevantly proper and manageable improvement in slope settlements is fundamental. The methods used to plan, design, and build buildings in India's hilly regions are the subject of this study. In this paper subjective examination technique has been utilized.

Keywords

Hilly regions, topography, building structure, local materials,

INTRODUCTION

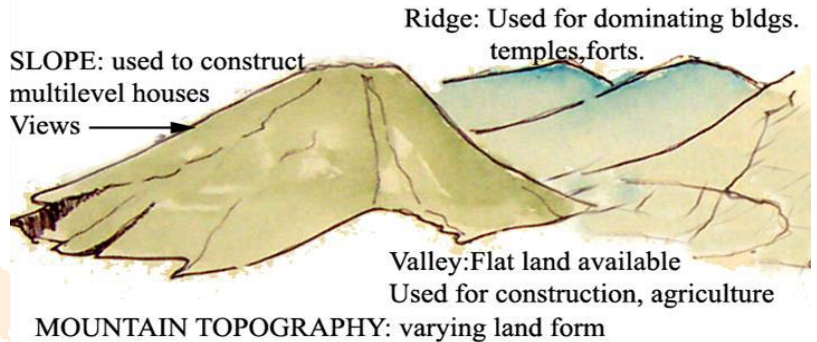
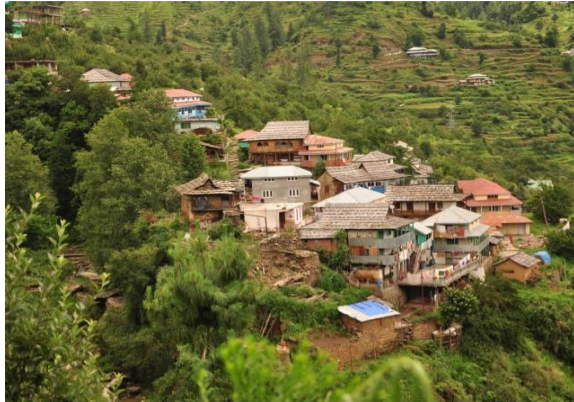
Simple vernacular practices in the form of local building forms, materials, construction techniques, when wisely similarly leads to not only Reduction of the energy costs and proves to be very economical But also has come up as very eco-friendly and effective technology. Settlements in the hills of Himachal Pradesh have merged and blended well with typical organic forms and character of the environment of the area.

Coniferous forms of the hill dwellings that go well with the contours of the hills, give a view of vernacular architecture as inherent character of the hills of Himachal Pradesh. Growth of settlements in the valleys flourishing by percolating the great lessons of nature in the form of

- Climatic,
- Geological,
- Topographical constraints,
- Availability of natural materials,
- Flora and fauna,
- Geographical conditions

Have evolved a unique technique for existence and this technique is called Vernacular Architecture.

TOPOGRAPHY: Varying topography gives pockets of land for development which give rise to discontinuous organic mosaic of building with varying sizes and spaces. No space is perceived in isolation. However, the topography also restricts the freedom in the development and planning. Symmetry or order of plan is not experienced in hills due to varying topography



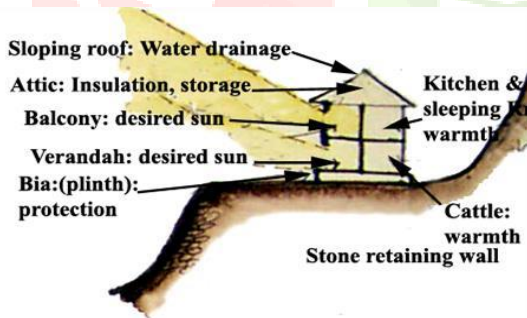
PLANNING FOR COMFORT:

Building along contours- allows maximum penetration

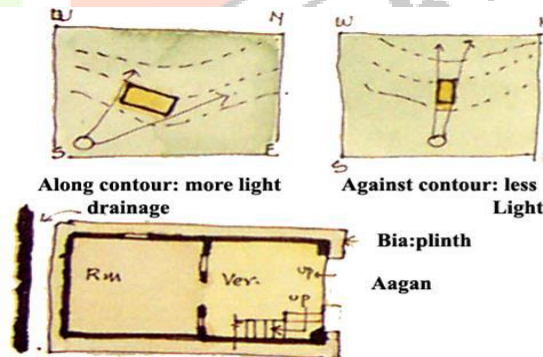
Orientation :- orientating building along n-s axis allows max. sunlight.

Sloping roof- resembling form of hill and allow easy water drainage terraces - allow sunlight Penetration at all heights

Colors - green, red, grey are used as they are warm and absorb maximum heat



A HOUSE: Climatic Influence, Hills



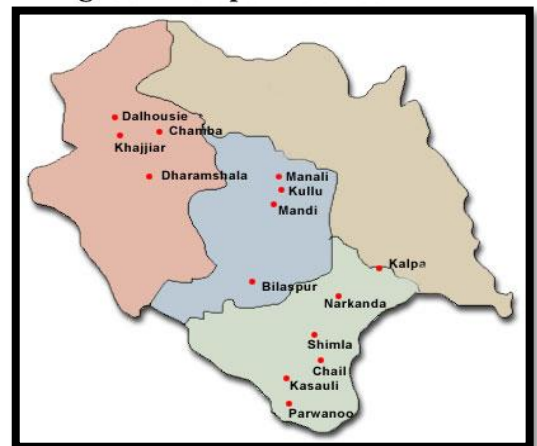
General Planning: South Slope Preferred

TECHNIQUES OF CONSTRUCTION IN HILLY AREAS

- Satluj Valley Architecture (Kath Khuni Style)- (Rampur, Rohru, Sarahan, Kinnaur)
- Ravi Valley Architecture (Thathara Style)- (Chamba, Bharmour, Pangi)
- Kullu Architecture - (Kullu valley)
- Dhajji Dewari - (Shimla and nearby villages, hamirpur, kangra)
- Spiti Valley Architecture (Mud)- (Lahaul, Spiti, Upper Kinnaur)

Wooden construction techniques:

- Easy availability of timber for construction work makes it the maximum normally used material.



- Timber provides alleviation from the cool winters because of its thermal properties.
- Wood for the two-3 storey buildings is used as the vertical timber publishes to carry the weight.
- Wood battens are in-crammed in the horizontal participants which are placed at one of kind tiers.
- Presenting residing area all round because the higher flooring are cantilevered.
- Stone masonry used for the floor ground, and wooden for the top floor.

CONCLUSION

The structure arranging, plan and development in hill districts is a difficult errand. The construction methods must be used correctly. Building designs of uneven areas must be read up and see appropriately for the development in such sort of geology. The general planning, design, and construction considerations for buildings in hilly India are examined in this paper, with an emphasis on earthquakes. being unaffected by natural potential, such as the availability of natural resources, constraints imposed by topography, geography, geology, soil conditions, flora and fauna, and so on. The hilly region's sustainable development faces a number of challenges as a result of rapid urbanization. The typical climatic conditions, landscapes, and availability of raw materials and other natural resources of a hilly region are the source of traditional construction methods. Traditional hill settlement vernacular practices and styles have the potential to serve as the foundation for new development and the formulation of appropriate building regulations for hill settlements. There is a need to comprehend the curious setting of slope settlements for reasonable adjustment of existing structure guidelines to make them fitting for new improvement in slope settlements. These easy ways to fix problems and ideas about how to deal with earthquakes will be taken into consideration by the authorities and the public and made a requirement for all future construction projects.

References

- [1]. Kingston Wm. Heath, Vernacular Architecture and Regional Design, 2009, Architectural Press, UK.
- [2]. <http://himachaltourism.gov.in>
- [3]. Jain M and Singh I, "Traditional Architecture and Planning Techniques in Himachal Pradesh" in Journal of the Institution of Engineers (India), July 2004.
- [4]. https://en.wikipedia.org/wiki/Climate_of_Himachal_Pradesh
- [5]. https://en.wikipedia.org/wiki/Himachal_Pradesh
- (6) Jain M., Singh I., Sharma D. C., Traditional Architecture and Planning Techniques in Himachal Pradesh, Journal of Institution of Engineers, Vol. 86, October 2005.