

Technologies and Techniques through Passive Architecture for Human Comfort in Buildings

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ABSTRACT

A large portion of the energy vessel in structures is utilized in conditioner the environment of the idleness climate for warming ventilation and cooling HVAC and furthermore for the fake lighting. The point most to decrease the negative and boost the latent effects of the outer environment, so the necessity for the regular HVAC administrations can be limited. Respectable innovations, for example, sun oriented photovoltaic cells and advances which work on the activity of the environment control administrations are likewise included. The primary constants are set by central structure plan choices impediment on the innovations which it is feasible to apply in some random circumstance are the environment, the structure type and its capacity. These boundaries ordinary fall beyond the plan interaction. The significant highlights for the thought under each heading are given.

KEYWORDS: Energy, Building design, Heating ventilation air conditioning (HVAC), climate technology, techniques, occupant comfort

INTRODUCTION

Need to address energy and environmental issues in building design focused on building specific criteria on a inside range of technologies. The techniques and technologies and buildings to create energy efficient and environmentally design.

No element of building design can be considered in isolation throw for convenience and ease of individual aspects of design is examined.

The design should be accommodate these technologies within quality architectural design and there is a need to provide sufficient explanation to allow the the encourage exploitation of their potential.

Factors to be considered include the effects of the relationship to build in and other influence such as as of access road and pedestrian pathways, planning of trees and other vegetation, the orientation of building plans and focused in in relation to the sun, massing of building and building grouping, spacing between building sunlight and shade, the wind environment maximum external views, entrances act as a transition

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between inside and outside conditions, land spacing, planting to enhance nature calling, environmental noise and pollution, security and health issues related to buildings opening.

CLIMATE SENSITIVE DESIGN- Climate sensitive design has attained a level of credibility and acceptability to the extent that major buildings design is sometimes referred to age solar architecture, climate architecture or bio morphic architecture.

Climatic factors with the buildings envelope will determine the basic internal environmental conditions and thus to extent which HVAC services are needed and ultimately the comfort level of the occupants.

DESIGN FEATURES- Following factors adopted in in building construction, designing and appropriate building from which does not lead to unnecessary are shading of one building buy another. Utilizing suitable construction as techniques such as the relative positions and this thickness of insulation

material to maximize beneficial heat gain or to exclude excess heat.

Adopting the internal layout to the climate and building orientation so that rooms or spaces with specific functions are located adjacent to the most appropriate facades. Dividing buildings into thermal zones with buffer area such as balconies, verandas, courtyards and arcades through these decisions should avoid creating barriers to cross flow ventilation.

Choosing and positioning appropriate building materials within the internal and external fabric, particularly where thermal mass effects can be used to dampen temperature fluctuations.

Selection of the location, size and type openings in the building envelope to exploit advantages solar gain example glazing facing South in Northern latitude is easier shade.

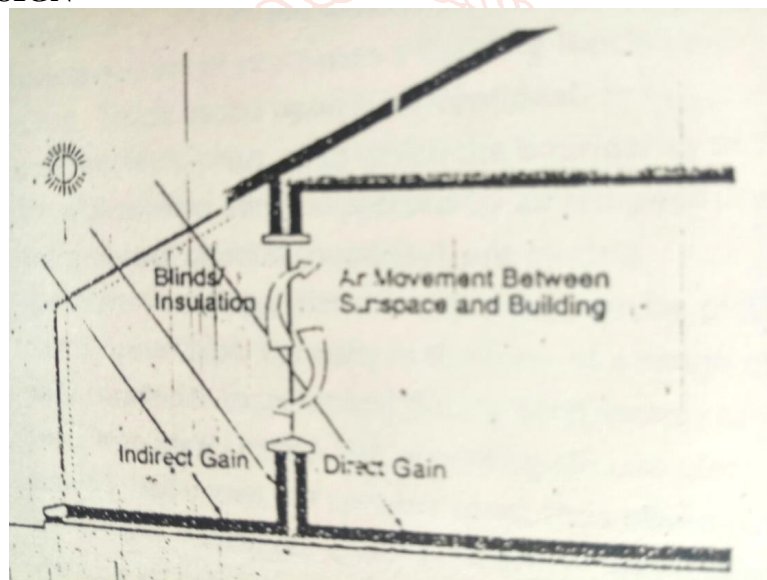
INTEGRATING THE BUILDING DESIGN WITH THE SITE DESIGN-

Integrating with occupants needs and expectations-. Occupants are prepared to accept less than ideal level of comfort.

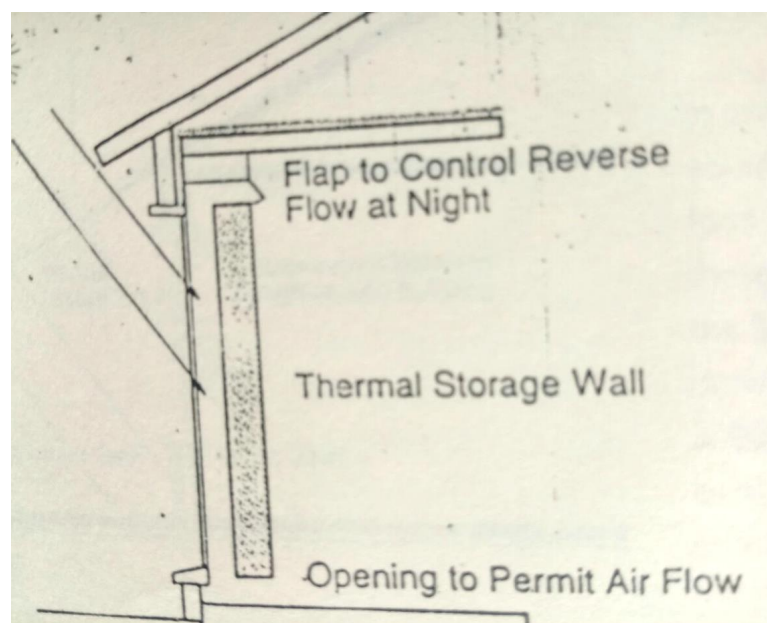
Materials, thermal mass and energy storage- Key element of good climate design involves the choice of appropriate materials for energy absorption. Assessment of passive solar design confidence in the attractions and benefits of solar design.

Three main categories of passive solar design along with their sub divisions are most usually applied within domestic scale designs, similar principle have been analyzed with reference to commercial development.

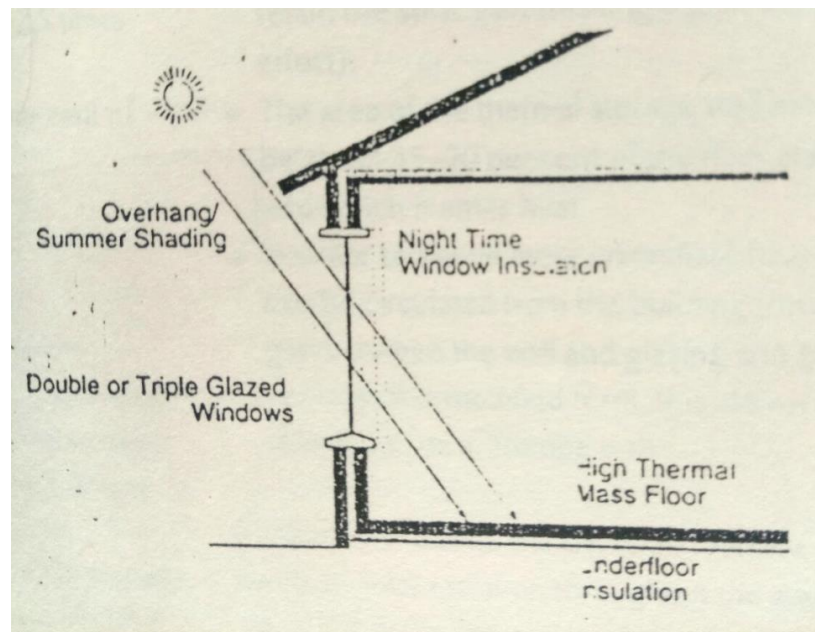
One assessment method with addresses this sector is the lighting and thermal value of glazing method. This method reduces a building to an orthogonal plan with core and perimeter zones.



Solar sunspace

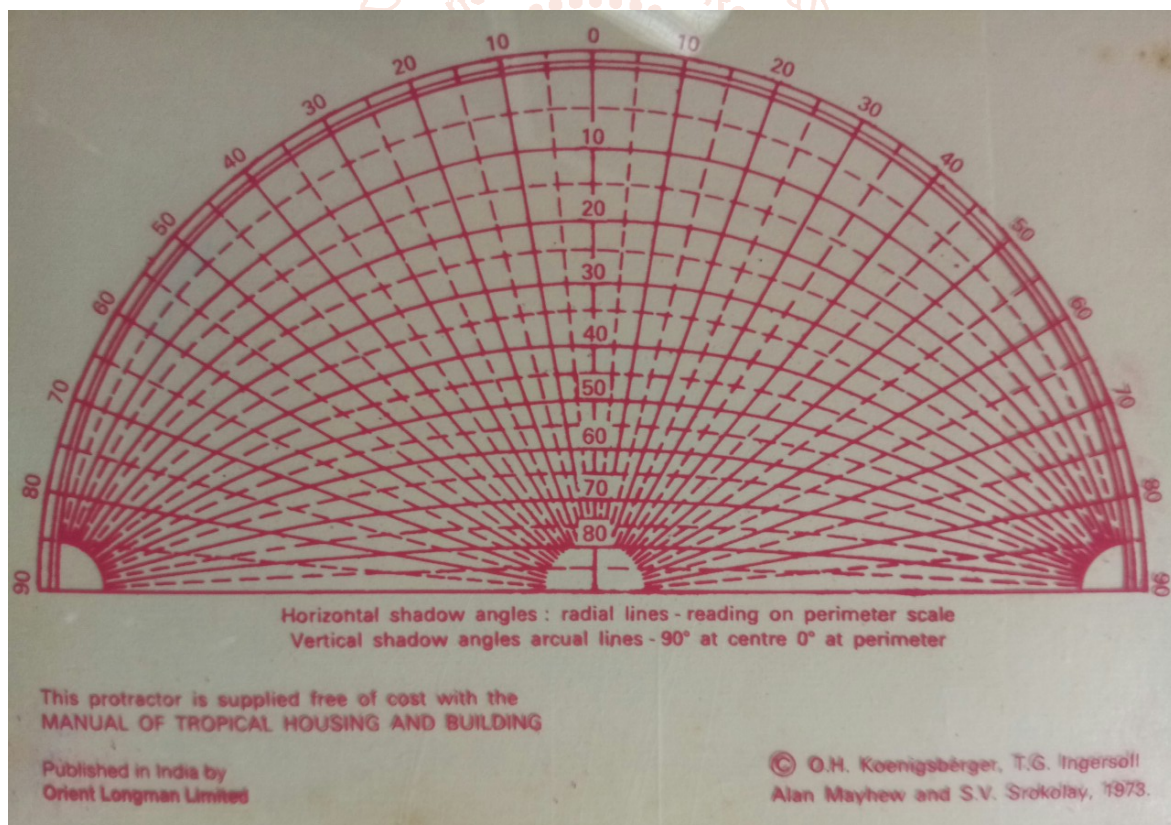


Passive solar indirect gain



Passive solar, Direct gain

The perimeter zone is that which is subject to significant external climatic influencers on its lighting, heating and cooling requirements. Perimeter zones are classified by an orientation and depth and are defined as passive zones. Such an approach is simplistic it does provide a quick guide to energy consumption by indicating optimum window size and orientation at the initial design stage.



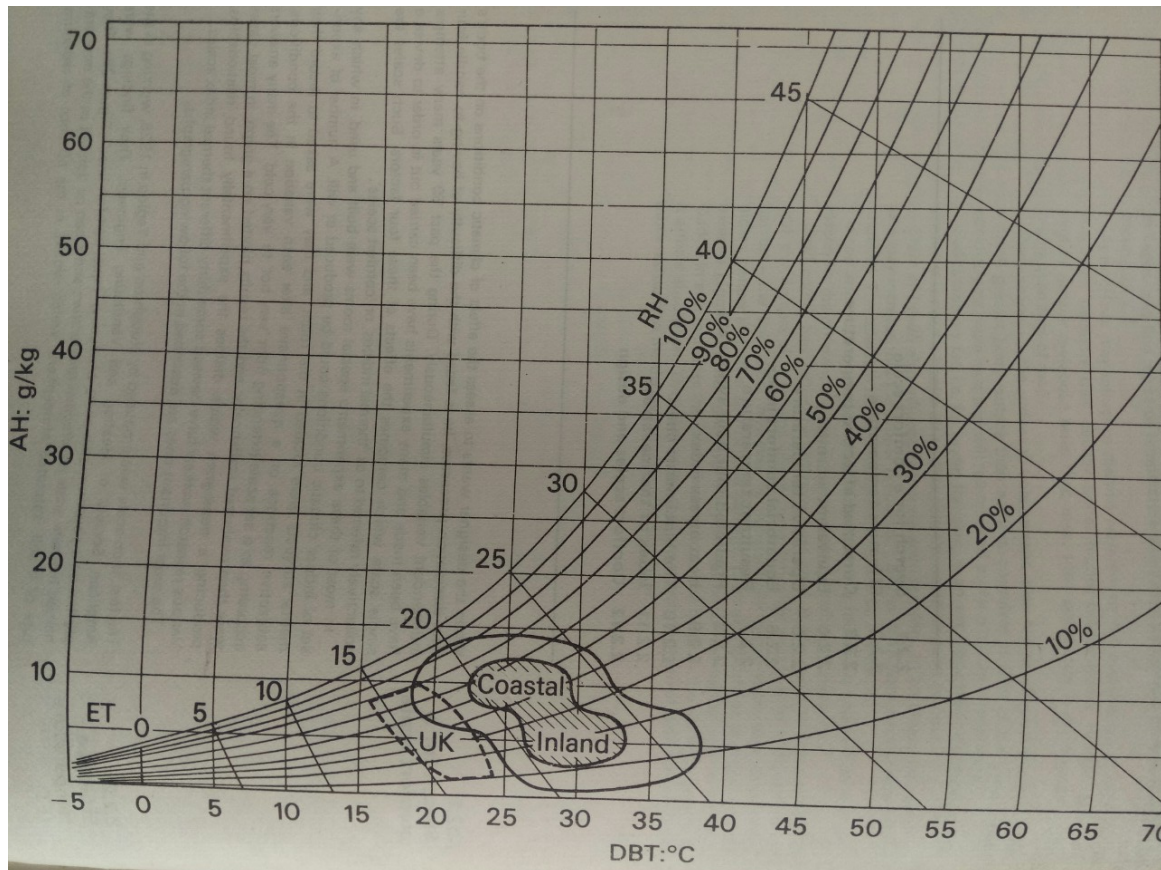
Horizontal and vertical shadow angles on perimeter scale

It is therefore valuable in determining the basic plan form. Graphical/calculation techniques are available. The main problems facing by design and architects of building in assessing passive, design lies in the need to use specialist advice.

BIOMORPHIC DESIGN- Building bioclimatic chart which is based upon a conventional psychometric chart into which

The boundaries of the thermal comfort zone, expressed by Air temperature and moisture content (humidity), are plotted.

Variations in external climatic conditions can be plotted on the same chart, normal in the form of arrange of daily conditions experienced during each month of the year. An ideal climate, the prevailing climate plots would fall within the comfort zone, thus obviating the need for heating or cooling.



Psychrometric chart with effective temperature lines

Further technique can be applied which allow consideration of the effect of number of building design options which called mitigate the effect of external climate on internal conditions.

The options include using increased thermal insulation level in the building fabric. Increasing the effective thermal mass by the choice and location of the construction elements and materials.

Encouraging increased natural ventilation and associated heat transfer throw building openings. Increasing night time ventilation when external temperature are likely to be at their lowest to promote calling. Using evaporative cooling on building surfaces or at openings. Adapting the design to promote radiative cooling from building surfaces.

CONCLUSIONS-It very well may be inferred that in conventional structures and powerful and normal cooling framework gives an agreeable warm solace in all seasons, which isn't found in current structure. Such sunlight based uninvolved procedures ought to be re designing and reevaluated to fuse inside present day building structures and materials. By joining with changed methodologies as per nearby climate conditions, individuals can live in uncomfortable with less utilization of power e and cooling. This can give

a maintainable arrangement an energy productive green structure of future.

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