

# GLASS IN ARCHITECTURE

## AN INVESTIGATION ON THE RATIONAL USE OF MODERN GLAZING MATERIALS IN SRI LANKAN TROPICAL CLIMATE

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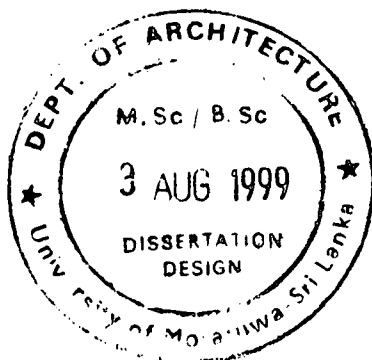
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Glass is no longer that brittle material fixed in small openings made in a wall in order to let some natural light penetrate the rooms.

In modern architecture, glass has become a wall or even a façade itself. Therefore, it has to fulfill all functions, such as protection against heat, cold, wind, excess luminosity, transparency some times, noise, fire, dangerous radiation, vandalism, burglary etc..., and this in an economical, durable and aesthetic way.

Glass has become an architectural material with an ever-increasing number of functions, always more attractive and efficient, allowing the most audacious concepts.

(Source: Saint-Gobain)

## ABSTRACT

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Glass is one of the most flexible modern materials with its variety of products available. However it has been using irrationally in modern buildings without paying much attention to the performance, maintaining aspects, energy conservation and the effect on the immediate environment etc., but only for the expressive quality it gives, from recent times. As a solution to avoid problematic consequences, glass should be used properly considering the qualities of glass and performance, functional requirements, expression, orientation, lighting conditions etc. The principle objective of this study is therefore to examine available glass types, their rational applicability and acceptance to get different expressive qualities.

A number of lighting performance experiments were carried out for this purpose with a scale model and different types of glass. Also a literary survey of the subject was carried out as related to commercial buildings. Illuminance ratios calculated using experiment results clearly revealed that the performance data given in the catalogues vary in real situations depending on the orientation to the cardinal directions, sky condition, and sun's positions in the sky dome throughout the day. Further it was found that the highest light transmission into the building is given through the clear glass and laminated clear glass respectively. Illuminance brought by Blue tinted and reflective glass of Grey, Blue, Silver and Pink descends in the same order.

The study reveals that except in very few commercial buildings and condominiums the use of glass in the Colombo Metropolis is highly irrational. Therefore this study proposes that application and usage of glass in the tropical climate and the technologies involved should be more effectively disseminated among the designers as well as the prospective builders.

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