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Sunlight and Architecture

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Sunlight and Architecture

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Light makes it possible for us to see, but sunlight lends drama to what we see.

Sunlight is probably the most powerful design element in architecture. It imparts emphasis and an additional constantly changing element — that of shade and shadow, which bring out the true nature of form and texture.

Solid form is accentuated and added to by the shadow it casts which recalls its design form. Hollowed out form — negative space — becomes significant in sunlight. Spidery elements, adjuncts to buildings and sculpture increase the interest of their own forms by the complex pattern of their shadows, which are in themselves a new pattern form which must be considered as an integral part of the elements that cast them.

Australia is a country of much sunlight and it seems logical and fitting that its architecture should be one that makes a feature of sunlight both from a practical as well as an aesthetic point of view.

The practical considerations are well known. It should go without saying that unprotected large glass areas facing the sun are a menace. Let us repeat that one should never use large glass areas on the East or West unless protected by scientifically designed sun control devices, otherwise a hot-box will be the result. All sun-protection devices must be outside the glass to be effective. The North is the ideal exposure, there the sun is above and can easily be shaded by a roof overhang, awning type projection, or horizontally fixed or moveable louvres to stop the high summer sun and allow the lower rays of the winter sun to come in and help heat the interior.

Many devices have been used effectively on the difficult orientations, East and West, which admit low rays of the rising and setting sun. The one giving fully effective control of sun and light intensity on the interior are movable vertical louvres made of various light-weight materials such as aluminium, wood, etc. These installations are costly and not always desirable. Very close to ideal conditions can be obtained by the use of various types of grilles, placed outside the glass. These can be of pre-cast concrete, terra cotta, etc., and the possibilities of design variation are limitless and a great deal of experimentation can well take place in this field.

Design for climate both physical and aesthetic can be the key to good building which thus becomes truly a part of its environment.

Much modern art and modern architecture have been concerned with visual contrast — opposition, i.e., sun and shadow. The oscillation between light and shade gives richness to building in contrast

Fig. 1. *Permanent Awning Projection on North Facade of Amenities Building, Banksmeadow, Sydney. Made of Zinc Anneal Steel.*

Fig. 2. *Movable Exterior Aluminium Sun Protection Devices at West Facade of Office Building, Sussex Street, Sydney.*

to the sterile glassy flatness which is all sun, or all shadow, lacking that so necessary visual contrast. Much recent building, mainly in the field of office buildings, has copied American trend of mass-produced "curtain" walls. These were designed mainly for cold climates, and all countries that have a high degree of industrialisation and production of mechanical equipment. Here such buildings are feasible only through the use of over-sized highly expensive air-conditioning systems. In such buildings, that quite blatantly expose their sheer glass faces in all directions, it is necessary to keep the interior fully closed by venetian blinds which negate all the advantages of glass. The result is that we get the glass box with an air-conditioning system using up enormous power, and additionally the electric light burning inside on a sunny day because the blinds must always be kept fully shut. What a price to pay for keeping up with the New York skyscrapers! It seems a hollow victory to be able to copy their overseas design tendency, aside from the well-known and unsolved problem of leakages occurring through these curtain walls.

Instead by using our common sense and inventiveness should we not exploit the necessity of climate and create a richness of facade that deals with the sun and produces visually far more satisfactory results. The problem is to live with the sun and get its benefit when we want it, and yet control it completely.

In Colonial times people were far more aware of this problem, and many traditoinal examples of Australian architecture are proof of this. The deeply cut sculptural facades and detail, the verandahs and overhangs are proof of sensitive good design of that period

Present day routine work sidesteps the issue by producing a solid brick building with as few openings as possible. This seems reasonable climatically, but surely unacceptable structurally and aesthetically. This and the complete insensitivity of such buildings to architectural detail, such as outside plumbing pipes in hard relief under strong sun as a facade feature, must give way to an architecture that brings together the practical considerations of climate with today's aesthetic intention in a happy marriage.

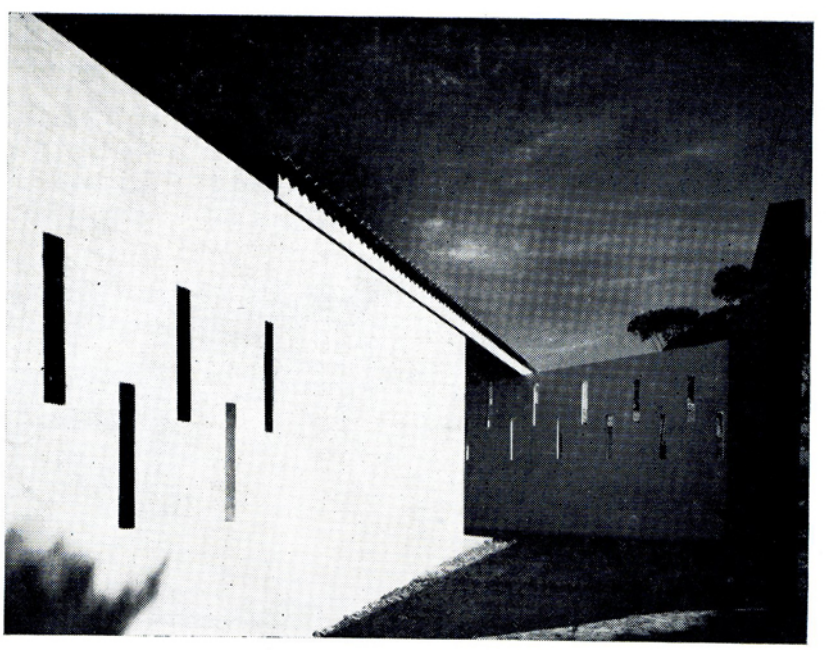

Fig. 3. *Pattern Quality of Grille Courtyard Walls and Featured Corrugated Edge of Roof in Hard Relief.*