

# Reflections on Design in the Context of Development

## Sources of Knowledge

Designers of the developing world may now be more aware that much of the knowledge informing their practice has been formulated in the colonial era. Colonial writings, in general, exhibit an Eurocentric orientation and mark a sharp break with pre-colonial intellectual traditions of the non-European world. The limitations of colonially inspired scholarship and training are increasingly recognised and eschewed in other social science disciplines. (Bernal, M., 1987). Rarely have such critiques systematically penetrated architectural scholarship, and therefore, its practice (Metcalf, 1984). The study of design in development has been impeded by theoretical structures which do not recognise that architecture in development has a different, though related, history to that of the architecture of the developed world.

## Investigative Trends and the Built Form

This paper grew out of a need to clarify where architects of the developing world stand in relation to their peers of the developed world with regard to the status of the history of knowledge and practice within the discipline. A growing body of research, now difficult to ignore, addresses the question of the development of knowledge in the field of architecture and planning in the colonial era as well as today. (King, A.D., 1984; Pradilla and Jiminez, 1973; Milter, 1977; Tarapov, 1984; Metcalf, 1984; Ive, 1985.)

Ive observes, "It would perhaps be too harsh and too sweeping to say that the quality of post-colonial academic 'human exports' to Africa has been little higher than that, on the average, of Europe's colonial human and non-

human export to the same places. Nevertheless, every vacuousness, every complacency, every neglect that can be found in the worst of the literature on the 'urban' or on construction in England can be found writ large in the typical products of expert consultancies, World Bank contractors, etc., applied unblushingly to the study of Africa".

Architecture as built form is inarguably situated within the urban construction sector mentioned above. As far as the inherited, imported literature and knowledge informing the theory and practice of architecture in development are concerned, the above critique applies with equal, or indeed, an increased urgency because of the poverty of theories currently being applied to explore built form in the developing world.

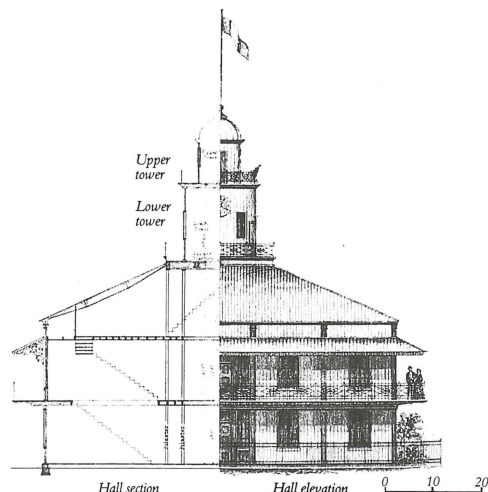
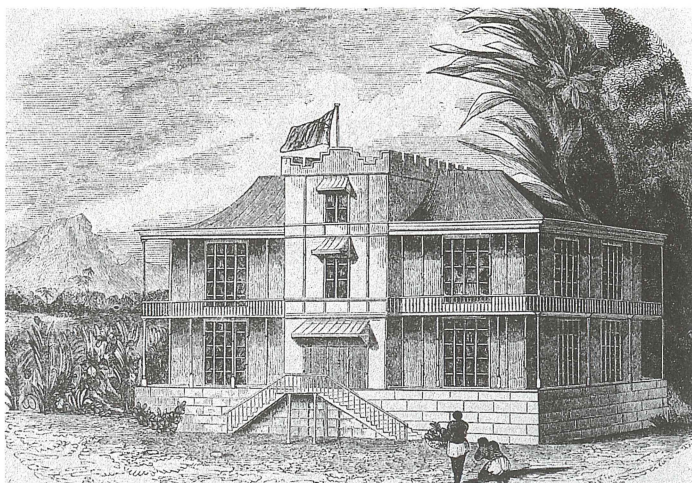
The strength of our argument here will rest in linking the building design process to the emergent directions in research on construction. Such research indicates that "In the first instance, and predominantly, construction has been industrialised, not via the systemised prefabrication of buildings, but via the industrialised production of all materials and parts, not by builders but by industrial manufacturers and heavy industry." (McGhie, W.J., 1982). This basic fact underlies the connections that need to be investigated between building and the more general development process.

Discussion of production processes and their implications for building design is not customary. Due to the absence of precedent within design history, we might begin by examining how present construction furthers underdevelopment, and then examine the relationship between building design and construction. Wells (1984) argues that,

**Text by  
Shanti Jayewardene.**

*Below: An iron palace for a king in Nigeria manufactured by Laycock in Liverpool, U.K. in 1843. Components were shipped to the site for assembly. (Courtesy Royal Institute of British Architects).*

*Below, right: This customs house was constructed of iron components by E. T. Bellhouse in 1854. The manufacturer also exported engine houses and passenger stations for railways throughout South America. (Courtesy Royal Institute of British Architects).*





"the problems facing the construction sector in developing countries are embodied in the lack of development of local industry, and of the local resource base, they may therefore be perceived as problems associated with the general condition of underdevelopment." Nonetheless, she has identified several mechanisms by which, specific conditions in the construction sector may aggravate underdevelopment. She has listed some of the ways in which this process becomes operative. Preliminary as they are, they serve here as a convenient starting point.

### **The Construction Industry and Design**

Within the construction sector, "the adoption of technology supported by codes, regulations and specifications developed for a different context inhibits the development of *local* supply industries and furthers dependence on *imported* materials, plant and equipment", which in turn, precipitates reliance on "foreign professionals, managerial expertise, contractors and skilled labour." She argues that, in all conventional approaches to the problem, what is not generally stressed is the fact that, "it is at the design stage of the construction process that all the major decisions determining the technology of construction, use of materials, requirements for skilled labour, use of unskilled labour etc. are taken". Thus any measure intended to stimulate development, "must start by coming to grips with the problems of controlling design". She is in no doubt that we could evolve procedures, standards, regulations and design systems sensitive to local resources, and corresponding to the managerial capacity of the construction sector.

She cites the "complete divorce of the responsibility for the design of a building, from the responsibility for its production (which has its origins in the social class structure of the last century) together with the professional, legal and institutional barriers which have accompanied this separation (as having) serious implications for the efficiency of the construction process." Accepting for the present the general direction of her argument, we are faced with the immediate problem of having to qualify the term design, and clarify the assumptions usually associated with it. What do we mean by design? And who, or what, controls it?

### **Design Theory**

Forty writing on design contends that, "design came into being at a particular stage in the development of capitalism and played an important part in the creation of industrial wealth." Far from being a "neutral and inoffensive artistic activity" he sees design as able to influence ideas and behaviour because it is capable of producing enduring, "tangible permanent forms."

He argues that design should not be confused with art, wherein the "conception and making of the object are undertaken by the same person" but, "design is the preparation of instructions for the production of manufactured goods". An activity therefore quite distinct from art, and firmly embedded in the process of production from inception.

"The history of design is also the history of societies: any account of change must rest upon an understanding of how design affects, and is affected by, the processes of modern economies." To understand design we should seek some understanding of the relationships between the people who interact to produce design and of the societies which require such designs.

### **Building Design**

In the capitalist sector of a less developed economy, the designer of buildings today has a twofold task. Which, at the risk of being pedantic, we may outline as follows:

1. Upon the client's request, the designer prepares instructions to organise space for a specified activity, generally restricted to a particular plot of land.
2. The designer prepares instructions for the methods by which the above spaces may be enclosed. This requires the assembly of a combination of manufactured goods, produced by a wide range of industries whose products have to be purchased on the open market. The designs are costed. Power to authorise production rests with the client.

The first set of tasks determines that the designer satisfies either the client's desire to make profit from the land and building, or the client's desire to obtain a specific social usage of the space. The second task partly engages the designer in the process of creation of material form through the selection and specification of manufactured goods, designed by others, prepared as a set of instructions for someone else who will execute the assembly.

While McGhie (1982) rightly points out today (in the UK), "The reality is that all materials and nearly all processes currently used in building are industrialised or mechanised to a greater or lesser degree depending on the material or process". (Similar research on construction in the development world is yet too uneven to use as source material.)

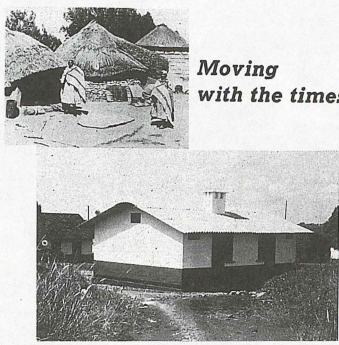
### **Individual and Social Elements of Creativity in Design**

Today, it is the architect who handles the design aspects of complex building. It is therefore necessary to examine this person's role in the construction industry, in order to discover how design decisions bear upon under-development, both in the cultural and economic sphere. The evidence suggests that it is not by an autonomous process that the designer of buildings arrives at a choice of forms, materials, components and modes of assembly. In making each choice, the designer is inextricably linked to the processes governing labour's relation to capital in the construction sector of the particular political economy under consideration.

As presented in conventional analyses of history, however, the broader implications of the designer's task are generally ignored. The creative or aesthetic element in design is given undue prominence. We would do well to question the validity of a concept of creative autonomy within the design process. A breakdown of the design process illustrates the general degree to which the designer is constrained by social organisation and material culture. We have yet to consider how the designer, when preparing the instructions for a specific form to be assembled, is also constrained by the image the client may wish to project through a building. A designer's alleged creative autonomy may once again be curtailed or made to conform to the clients' social standing or the ideologies they espouse.

The designer's personal contribution to the evolution of form is complex. Our understanding of the subject has not been furthered by wide generalisations ungrounded in serious empirical work. Design theory should firmly place the study of design in its material cultural milieu, and give due recognition to the individual and the social aspects inherent in design production of the built form. Contradictory and counterposed though they appear to be, their complex interaction merits study.






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its production and consumption. Perhaps it is useful therefore to try to identify when, in historical time, design in building production became a specialist intellectual activity separate from both construction management and other building trades. History shows us that due to the specialist division of labour accompanying capitalist production, a transformation that spans essentially from the thirteenth to the nineteenth century, building production itself registered immense differentiation in its organisational structure. The transformation from master builder to professional architect was a process whose beginnings are recorded in Europe some time after the fifteenth century. A complex series of well-documented changes in general industrial production and the class structure gave rise to so-called elite professions such as law, medicine, engineering, management, surveying and architecture.

Changes in contractual procedure and the specialist division of labour in building, reflect changes in the organisation of the entire construction sector. Capitalism made unprecedented demands of cost reduction, speed and quantity on a hitherto non-industrialised construction sector. This demand was especially heavy in the late colonial period. Industrialisation of the metropolitan construction sector began in order to service metropolitan growth, a growth which was in every sense intimately linked to, and dependent upon, the development strategies evolved for the vast colonial possessions. European industrialisation relied on the colonies to supply both raw materials and the markets for manufactured goods.

The pre-industrial construction techniques of the colonies, on the other hand, were bolstered with metropolitan exports, produced by emerging trends of mass production and of prefabrication in the metropolitan construction industry. (Herbert, G., 1978). This was of course a temporary measure, soon to be replaced with the policy of 'developing' the colonies. With 'development policy' the colonial world saw the introduction of changes in the entire economic structure of the colony, inclusive of the construction sector. Unprecedented building demands were precipitated by the economic and social transformation of peasant agriculture into primary producing plantation (cotton, jkute, coffee etc.) or mining (gold, diamonds, copper etc.) colonies.

Evidence suggests that the social organisation of building production prior to industrialisation did not require specialist designers, detailed drawings and quantity surveying. Design skills were part of a multi-skilled craft/management occupation. Designers, builders, clients and contractors are not easy to identify as specialist personnel. With the growth of industrialisation in general, and in construction in particular, building design and production became separate specialist activities. (Kostov, S., ed. *The Architect. Chapters in the History of a Profession*, 1977, also Forty, A., 1981).

It has been suggested that incipient professional consciousness in the new building designers was responsible for the elite status evolved for building design practice by its new middle-class practitioners. Forty has argued that "professionalism in architecture was due to capitalism in the building industry". He considers the emphasis of artistic aspects of creativity in building production to be unquestionably linked to specific historical transformations in the

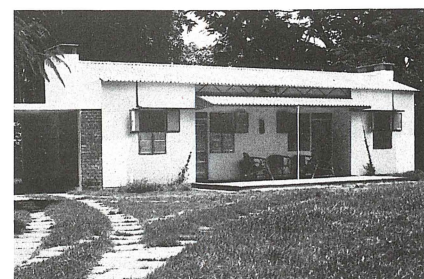


Photo of a prototype prefabricated house in Delhi, India, designed by architect Dr. Otto Koenigsberger and erected from components produced in India's first building components factory.

Design has first to be commissioned upon a social need. It has then to pass through a *collective* production process. Despite the ineluctable, distinctively social production of building, orthodox history tends to describe change in architecture in several simplistic modes. On the one hand, by examining style (Davies, P. 1985); or the ideas and theories held or expounded by designers (Pevsner, 1960, Banham, 1960/80); and on the other, more recently, by casual reference to social context and politics (Holod & Evin, 1984). Though other theoretical tendencies have of course emerged within recent western architectural historiography, their impact on the study of architecture in development is yet peripheral. (Tafari & Dal Co, 1986; Swenarton, M., 1981).

The consistent lack of treatment of the specific conditions of the social and material production of the built form in the architectural history of development, is conspicuous by its absence. Though discussion of this issue is outside the scope of this paper, it is useful to draw attention to William's perception of form as an activity. "What is at issue in form is the activation of specific relations between men and men, and between men and things" (1977).



building industry.

He remarks of British conditions "so successful were late nineteenth-century architects in establishing the importance of artistic skill as the basis of architecture that the popular image of architects ever since has been that of the artistic individualist with eccentric ideas. By building up the mystique of design as an art and basing it either on theories that could not be verified, or on qualities that could be judged only by "eye" or 'taste', architects effectively excluded the untrained from serious discussion of their work". (Forty, A., 1981).

Moreover the evolution and co-operation of an educated, middle-class, client structure accompanied the social divisions and artistic mystification of the building design process. The change from builder to designer was part of the deep historical differentiations which took place in the transformation of building production. A process well documented in 15th and 16th century Italy where, enlightened patrons argued a case for design separating itself as an intellectual activity untainted by manual labour and craft association. (Goldthwaite, R., 1977).

Williams has the following comments to make when discussing creativity and new formations in writing. "But to separate this as art, which in practice includes, always partly and sometimes wholly, elements elsewhere in the continuum, is to lose contact with the substantive creative process and then to idealise it; to put it above or below the social, when it is in fact the social in one of its most distinctive, durable, and total forms". Similarly, we could say that the idealising of stylistic innovation in the design process of building production, as art, is simply to misunderstand its true nature.

Professionals have fostered a tendency to immunise and exempt the production of building form from any contact with the processes of serious scientific enquiry. The discussion of style in architecture has thus remained the exclusive preserve of the cognoscenti.

### Style and Industrialisation

The loose, indiscriminate character of design terminology has bequeathed to contemporary architectural discourse (especially that of development) terms such as 'traditional' and 'modern'. They refer, in the main, to stylistic attributes of building. Indigenous building form is

increasingly proving to be a source of inspiration for designers working in a cultural milieu disengaging from its colonial past. However, contemporary work so inspired is certainly not traditional, though it appears so. Nor is it modern, for it does not appear so. An unpromising line of enquiry, premised on appearance, which leads nowhere. A more edifying line of enquiry may well ask, are buildings to be understood as 'traditional' or 'modern' on account of how they appear, or on account of how they are produced?

It is clear that 'modern' forms need not be accompanied by industrial methods of production. And 'traditional' forms may be achieved with the latest scientific discoveries in the construction/materials sector. We could possibly come much closer to understanding building in development if we paid the same attention to understanding the methods of production of its inseparable ideological and material constituents.

The absence of research work of a quantitative nature on the relationship between design and the construction sector force us to leave this an open question. What we can do is to make some observations pertinent to the issue of evolving a theoretical structure for examining building design in development related to the paradigms and approaches hinted at.

The most ancient European vocabulary of built form, Classicism, is today being replicated for mass domestic consumption. One design team behind this resurgence of innovation in production is Ricardo Bofill of Spain, and his office Taller de Arquitectura. They use historical research combined with the advanced technical methods of the French concrete prefabrication industry, to produce urban spaces and built forms of extraordinary scale — and within stringent time schedules and tightly-controlled budgets. Industrialised Classicism informs the overall aesthetic character of the projects, generally commissioned by public housing authorities. Bofill's work is nowhere referred to as traditional.

Peter Hodgkinson, Bofill's head of design is cited by Glancey (1982), as follows: "... we are learning to understand and develop our own answer to the doorway, window, cornice, frieze, capital, column, plinth and pediment, industrialising them ... changing their connotations, solving problems of panel

joints, trying to understand the limitations of moulds, cranes and other building equipment". In short, the designer is making the specifications for industry.'

In summary, albeit crudely, Bofill's work has amongst other things two important lessons for architects working in development. Firstly, industrialisation is not necessarily synonymous with the International Style, nor any one aesthetic convention, monotony or indeed, a reductive creativity. It has the potential to very well offer the opposite, depending on who controls it and whom it serves.

Bofill's work is interesting not so much for its revivalist content, but that it is an elite form offered for popular domestic consumption by industrialising the production of components. It is not clear whether industrialisation has in fact led to significant cost reduction in this instance, though the scale of work and the design approach do imply that cost and speed of erection were the principal impetuses to industrialise production.

Secondly, it teaches us that designers, by working in conjunction with the production and assembly sectors of the construction industry, may evolve forms/building assemblies independent of orthodox modes. By exercising control over some of the sources which lead to "underdevelopment" through the construction sector, designers would initiate a more informed architectural practice.

An historical awareness of the way the design process is linked to industrial production would lead to a design practice whereby challenging sources of underdevelopment became a self-conscious endeavour. Designers would have to learn to evolve appropriate building forms which encourage the opportunity to specify and/or design materials and components which derive from local or regional sources. In other words, they would design and specify assembly systems which derive from indigenous historical and cultural traditions and match local or regional construction capacities. The potential to enhance regional resources exists via the medium of promoting independent research and development of such sources.

To achieve this in practice, they would have to work against the currently prevailing separation between design and construction in the building sector. They would have to evolve a different discourse on architecture arising out of a clear need for a different architectural practice. This new discourse and practice



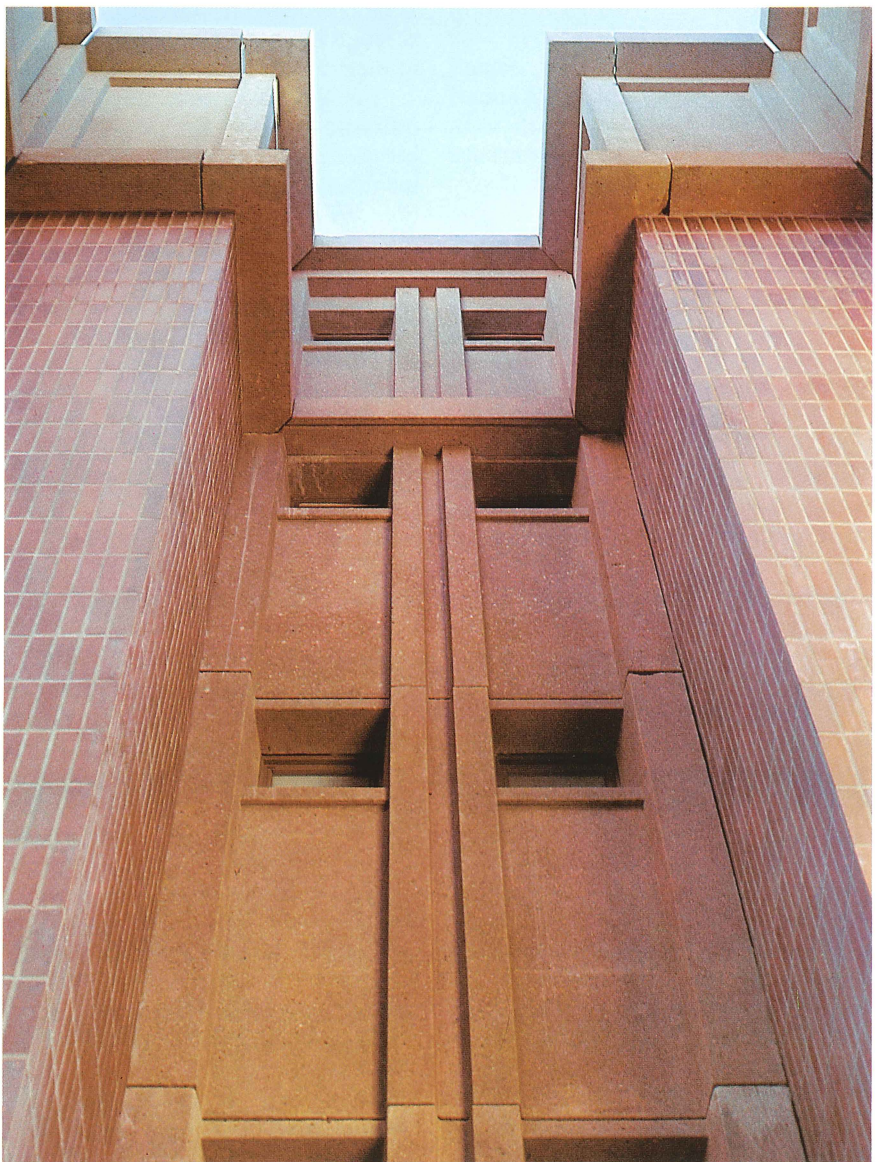
of architecture, is not so new in some planned economies like Cuba and China. (Zumthor, 1973; Hausmann, 1980).

An ability to reject, or to critically absorb imported built form and exotic aesthetic traditions, which can be an important facet of growing national awareness should not, however, inspire complacency with regard to underdevelopment and the construction industry. As we have argued throughout this paper, the consideration of aesthetics is a necessary though insufficient criterion for understanding, and significantly controlling, change in architecture for development. The conceptual sterility of theoretical paradigms which examine the production of architecture simply as formal vocabulary, individual creativity, or loosely-situated in social contexts, become even more serious when faced with new research material on the construction industry and its relationship to design.

Even if we place the study of architecture in the ambit of the building process where it rightly belongs, we will yet be unable to embark on an informed discussion of building in development; unless we can link it to activity in the construction sector in general. Because the construction industry is an assembly industry, it is reliant for its supplies on the "base industries, each founded on one basic material (stone, clay, sand, iron etc.)" and the "fabrication industries, each transforming or fabricating one or several products of the base industries into components or sub-assemblies to be installed in building (structural steel fabrication, pre-cast concrete manufacture, manufacture of lifts, sanitary ware, etc." (Ive and McGhie, 1982).

Thus, every change in the conditions of general industrial production of the base and fabricating industries has a direct bearing on the climate of design and production. Building design and production is no less nor greater part of the general process of social production, subject to the same forces propelling growth. There are few if any grounds for claiming immunity from this general historical postulate in any discourse on design in development.

*Right, above and right: Details of a large-scale housing estate employing industrialised techniques according to designs and specifications by Spanish architect Ricardo Bofill. Saint-Quentin-en-Yvelines, France, 1981. Panels were prefabricated in a factory and brought to the site. Photographs: Brian Taylor.*







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*Hall of Nations and Hall of Industries permanent exhibition complex in New Delhi, India, 1970-72 by Raj Rewal. A computer analysis showed that in a labour-intensive country where steel is scarce and expensive, the use of reinforced concrete would be far more economical than tubular steel. To meet the requirements of the brief, Rewal originally designed a space frame structure that provided the necessary large spans and built of prefabricated components; however, contractors preferred to construct in situ and this was accepted.*