

**Zeitschrift:** IABSE reports = Rapports AIPC = IVBH Berichte  
**Band:** 55 (1987)  
  
**Artikel:** Appropriate language in visual concrete  
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**DOI:** <https://doi.org/10.5169/seals-42783>

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## Appropriate Language in Visual Concrete

Langage approprié du béton armé

Angemessene Beschreibung des Sichtbetons

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### SUMMARY

This paper discusses possible reasons and remedies for continuing public hostility to visual concrete. It is suggested that : commitment to the ideal of a single aesthetic for concrete is no longer appropriate ; that designers should develop several "languages" of detail and form, as well as texture ; and that choice of language for a particular building should be made carefully with regard to its location, its function and the sensibilities of those who will use it or see it.

### RÉSUMÉ

Cet article examine les raisons et les remèdes éventuels contre l'hostilité permanente du public à l'égard du béton apparent. La notion d'un engagement à l'idéal d'une esthétique est considérée inopportune de nos jours. Les projeteurs devraient développer plusieurs langages de détails et de formes, ainsi que de texture. Le choix du langage pour un bâtiment spécifique devrait être décidé avec soin selon son emplacement, sa fonction et la sensibilité de ceux qui l'utilisent ou le voient.

### ZUSAMMENFASSUNG

Der Beitrag behandelt mögliche Ursachen der andauernden Ablehnung des Sichtbetons durch die Öffentlichkeit und Abhilfen dazu. Es wird empfohlen, die Bindung an das Ideal einer einzigen ästhetischen Erscheinungsform des Sichtbetons zu verlassen. Die Projektverfasser sollten verschiedene Ausdrucksweisen für die Beschreibung von Einzelheiten und Formgebung sowie Textur entwickeln. Die Wahl der Ausdrucksweise für die Beschreibung eines bestimmten Gebäudes sollte sorgfältig getroffen werden und muss in Bezug auf die Lage des Gebäudes, dessen Funktion und die Benutzer oder die Betrachter des Gebäudes abgestimmt werden.



## 1. REJECTION AND ENTHUSIASM

This paper examines the problem of public hostility towards reinforced concrete, and how engineers and architects might respond to it.

A vast literature already exists on this topic. Most writers acknowledge that concrete buildings have often been finished too cheaply, that traditional detailing for weather has been ignored, and that surfaces have needed more care and attention. Much has been learned of ways to correct these faults, but the best efforts of designers have still not overcome widespread animosity, which has been recorded in popular song and in serious literature [1]. In contrast, designers and builders have shown great enthusiasm for concrete construction since its introduction [2]. Current magazines devoted to concrete demonstrate the continuing strength of this commitment.

A deep commitment to a new material or technique is very necessary in the early stages of its development, but it has disadvantages. Coupled with brutalist functionalism it has led to the claim that *all* concrete buildings must necessarily be beautiful. The "glamour shots" of the professional architectural photographer are taken as evidence, when the perception of the average person is closer to that of the amateur photographer. (Browne demonstrated the difference some years ago [3]). The enthusiast remains confident that public acceptance is only a matter of time. However, much shorter periods have been required for the acceptance of other innovations, admittedly less drastic. These include exposed (unrendered) brickwork inside as well as out; space-frames which have moved from factory to smart international hotel; and mirror-glass buildings which, after initial opposition, are now widely accepted.

Perhaps we could learn from the worlds of industrial design and even fashion. There, the designer does not have as much power as engineers and architects to impose his ideas on the public. Market forces ensure that, while still "showing the way", he remains extremely sensitive to the response of the public.

## 2. THE NATURE OF CONCRETE

A common theme in concrete design has been to "express the true nature of the material" and thus find *the* aesthetic of reinforced concrete. However, a glance at Figures 1 to 6 shows the wide range of forms successfully adopted for commercially competitive concrete structures.

It can be argued [4] that some uses are simply a display of bravura and are contrary to the true nature of concrete. However if Nervi, for example, won the competition and (presumably) made a profit with his hangars (Fig. 5), how can one say he was wrong? In the final analysis much of the "nature" of the concrete we see around us is the nature of its economics. Cast in situ, its surface is usually flat, and though precasting makes possible more complex shapes, there is a risk of boring repetition. It is difficult to tell from their form alone whether the uprights for the Hull Tidal Surge Barrier (Fig. 7) are of steel or concrete. The same applies to the piers, masts and box girders of many bridges. The framing of Lloyds Bank building in London was conceived in steel, but was largely realized in concrete [5]. In these circumstances, the designer who wishes to "express" the nature of the material is reduced to consciously and artificially emphasizing its surface qualities.

Even when the building form is irregular, it often proves uneconomic to exploit the "plasticity" of concrete. Mendelsohn's Einstein Tower was finally built in rendered brick. The problems encountered with the initial flowing form of the Sydney Opera House roofs (and the solution which utilised precisely spherical segments) are well known (see e.g. [6]).

Thus there seems to be no one true nature and no one true aesthetic of concrete. Commentators write of "languages" appropriate to a material or form

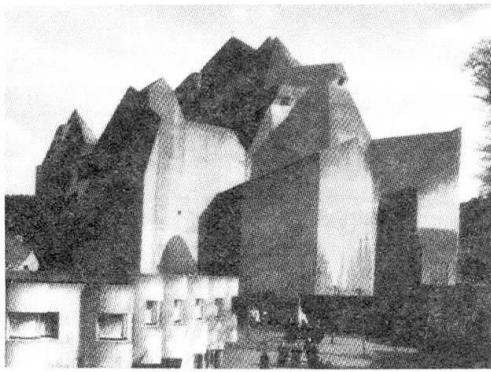


Fig.1 Church at Neviges (Böhm)

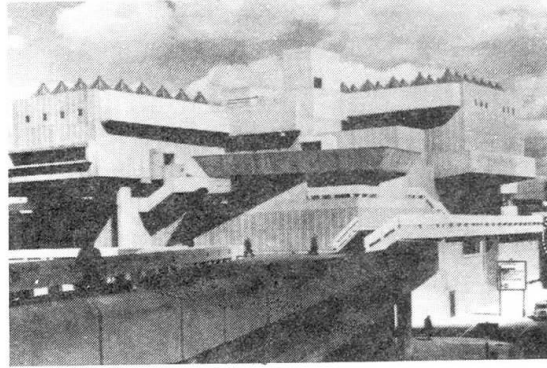


Fig.2 Hayward Gallery (GLC)

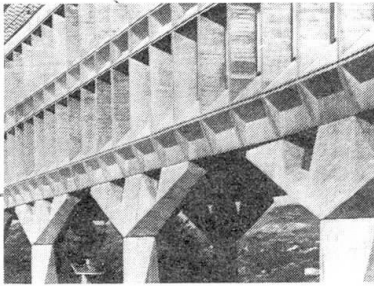


Fig.3 IBM, La Gaude (Breuer)

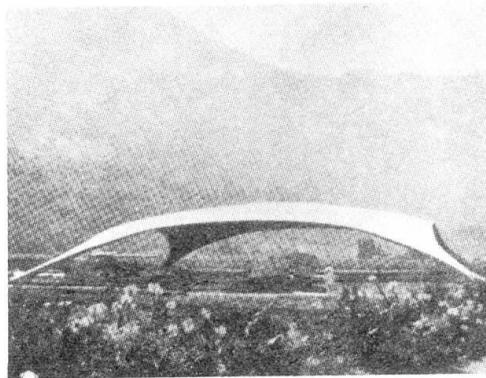


Fig.4 Garden Centre, Camorino (Isler)

of construction. The words of such a language are the common forms and standard details and its grammar is the way in which such elements are combined in buildings. As Marsh [7] has pointed out, if there are not several languages of concrete construction there are at least several "dialects".

### 3. REVERBERATIONS

There may well be psycho-analytic explanations for public hostility to concrete, but a search will be made here at the level of "appreciation of architecture".

The differences in the formal aesthetics of Figs. 1-6 are evident. It is widely recognized that buildings also stimulate in us memories, metaphors, similes and allegories. We can call these associations or "reverberations" [8]. Obviously, the responses aroused in architects or engineers are rather special. These might be related to: a close familiarity with all aspects of the material; a love of sculpture; a heightened sensitivity to texture, outline and tone; a preference for elegance or parsimony; a preoccupation with order or functional efficiency; a contempt for ornamentation; an enthusiasm to influence society; an interest in historical reference.

The layman's reverberations will perhaps involve similar buildings loved or hated in childhood. Many concrete structures, seen by us as exciting and innovative, may seem to him ponderous, cold and lifeless. Featureless vertical planes may give the impression of a fortress (Fig. 2). Bulky, coffered precast panels framing tiny windows are equally unfriendly. The layman is unaware of the aesthetic and practical reasons for such systems [9]. He is unable to make the necessary abstraction to enjoy primary geometrical forms as the architect would (Fig. 8).



Massive piers, two or three storeys high, at the base of multi-storey buildings are proportioned to harmonize with the total form as seen on the drawing-board or in the model-maker's shop, and overwhelm the visitor on the pavement. Vast concrete staircases are edged with "handrails" in the form of small walls whose proportions relate to the overpowering bulk of the building and not to the person who would expect them to guard and assist him.

The measures taken to avoid weather problems and add interest to the surface often increase its "visual weight" and give it an aggressive appearance. The methods used are often as violent as the resulting surface, and contrast with the care evident in screeding or brick-laying.

#### 4. SOME SUGGESTIONS

We can perhaps learn by looking at other materials. They are no more consistently beautiful than concrete though they may, like stone, have more mellow reverberations. Steel at its best can be elegant and slender [10], but the heavy soot-laden trussed railway bridges near our city centres, bristling with rivets, cover-plates and brackets, show no evidence of this. Steel designers have, however, recently worked out a modern aesthetic that competes with that of nineteenth-century steel. Even the most enthusiastic commentators on Renaissance architecture [11,12] have discussed the problem of the blank masonry wall and the "dreariness" of stucco. Nevertheless, masonry construction may offer us not only tested details, but clues on the aesthetic treatment of massive structures.

The apparent or visual weight of concrete is paradoxically greater than that of steel or masonry. The observer is likely to see a three-dimensional concrete surface as solid rather than void. This tendency has long been recognized in the design of shells, and attempts to avoid it have included turning up the edge or slicing the form. A concrete wall may appear heavy because we know there is no limit to its thickness, but we estimate the thickness of a masonry wall from the size of its blocks. Also, traditional masonry detailing seems designed to concentrate our attention on the surface, giving the wall a two-dimensional quality. On the other hand, the bold projections and deep coffering of many concrete walls give them a strongly three-dimensional and visually heavy quality. Perhaps a new "language" of detail could be developed which would at some points reveal the true thickness (or "thinness") of the panels, and at others, bring the interest forward by the use of surrounds and features in other materials which do not read as heavy as concrete.

If we insist on blank, featureless, truly off-form walls, perhaps we could take maximum advantage of the complexity of building function to arrive at an interest of form which will overcome the boredom and power of a featureless bulk. We could also introduce what might be called "macro-texture" of detail. This would bridge the gap in scale between the "micro-texture" of striation and board-marks on the one hand and the overall building form on the other (Fig. 9).

Definition of scale is a common problem with concrete, because it is a basically continuous material. Precast elements provide clues by which the size of a building can be estimated, but too often at the expense of monotony. On blank surfaces scale has to be consciously introduced by emphasizing formwork joints or panel joints. Sometimes, however, functional requirements provide the basis for a continuous gradation of scale which ties the whole composition together extremely well (Fig. 10).

The fact that reinforced concrete is a modern long-span material permits designers to plan on a grand scale (and in most cases economics or functional requirements demand this). This may lead to unfortunate results, but many aesthetically successful buildings consist of concrete spanning and supporting members infilled with other materials, usually brick or tinted glass (Fig. 6). We must abandon the early ideal that the only good concrete building is an all-concrete building.



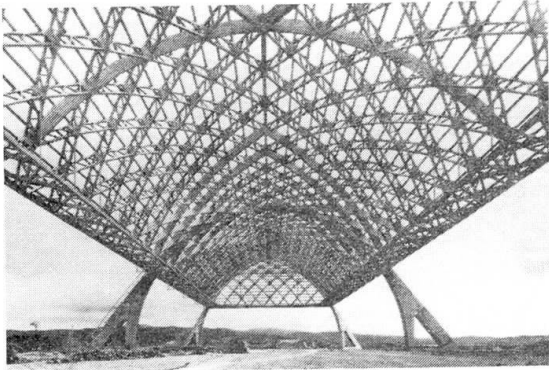


Fig.5 Aircraft Hangar (Nervi)

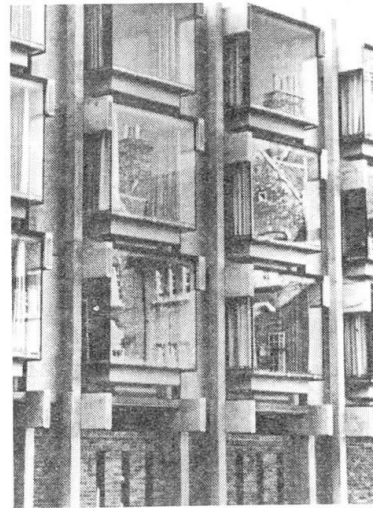


Fig.6 Wolfson Building, Oxford  
( Arup Assoc.)

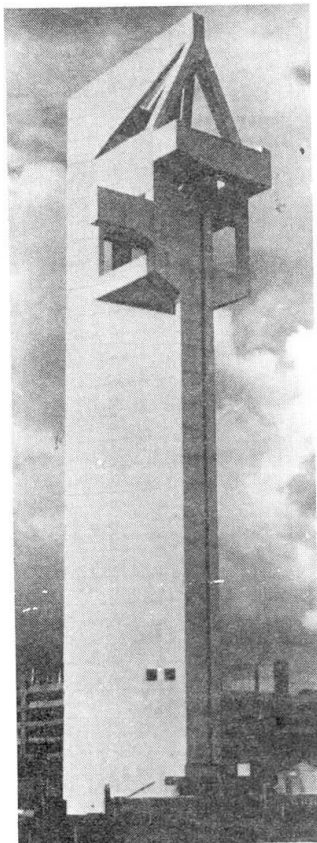


Fig. 7 Tower for  
Hull Barrier

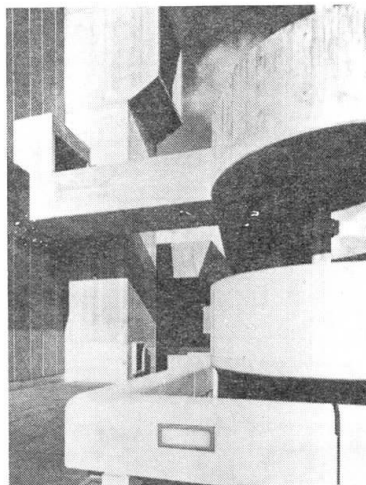


Fig.8 Hayward Gallery,  
detail

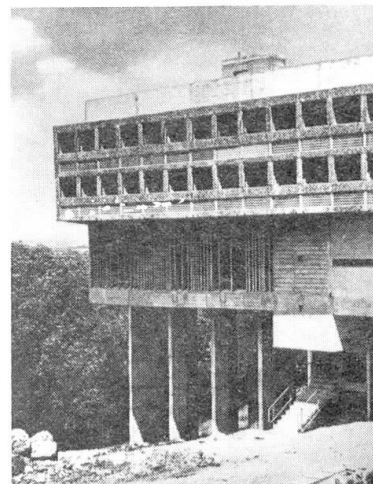


Fig.9 La Tourette  
(Le Corbusier)

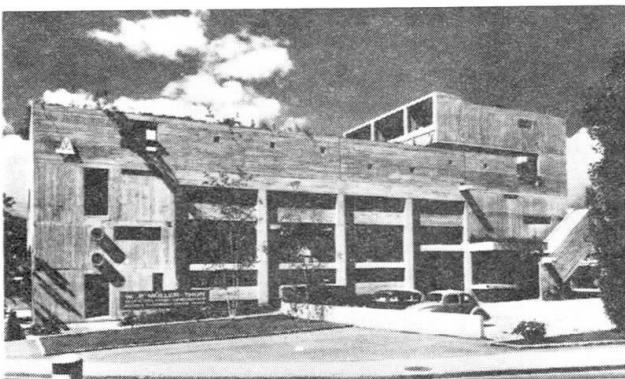


Fig.10 Factory at Thun (Studio 5)

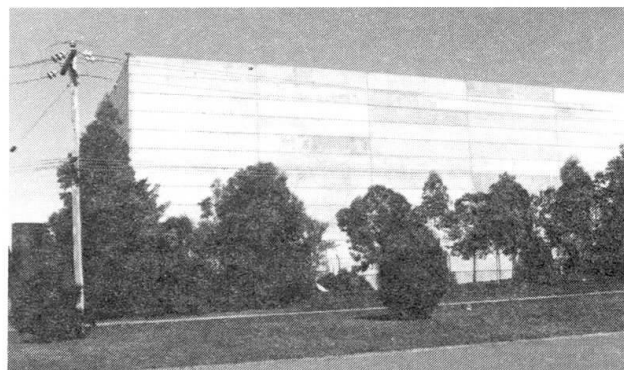


Fig.11 Warehouse (Melbourne)



Some of the suggestions made above may seem like a betrayal of Modern Movement or functionalist principles, but have these principles really served concrete well so far? Most commentators now accept the need for careful thought and extreme care with surfaces and one might ask what is the real difference between the striations on a modern concrete wall and the fluting of a classical column? Such techniques might be a means of introducing visual concrete to the public in a more friendly guise.

## 5. APPROPRIATE AESTHETICS

The aim of this paper has not been to demolish the concrete aesthetic that is dear to many engineers and architects; the functionalist, "brut" approach. However it is felt that this is best reserved for heavy industrial structures and bridges which are normally viewed from a distance [13]. Elsewhere it should be used with discretion. It is perhaps suitable for a building such as La Tourette where it reflects the austere life-style *chosen* by the monks. Plain untextured panels may be quite adequate for a warehouse on the edge of a factory estate in an outer suburban location (Fig. 11) where nobody cares much about what goes on inside. Such walls serve as an excellent backdrop for medium sized trees. However, banking firms learned several decades ago that they attracted more customers with a glass front than with a classical portico. The fortress image of many art galleries and museums is equally inappropriate. The suggestion is, therefore, that we seek to establish a more "user-friendly" architecture of concrete form and detail, as well as surface, and that this involves searching in every individual case for the *appropriate* aesthetic.

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