Formal constraints

The formal constraints are those to do with the visual organisation of the object. They may include rules about proportion, form, colour and texture. There seems little doubt that we respond well to a certain degree of formal organisation. Music which has no rules becomes random noise whilst overly structured tunes are banal and have little lasting value. So it is with art and design in visual terms. Objects which present a totally disorganised jumble of forms, colours, textures and materials are not only difficult to understand in their own right, but hard to use in relation to other objects around them. We have a fundamental need for order and structure, whilst also appreciating variety and surprise. The trick of good design is to get an appropriate amount of order to meet the needs of the context or situation.

At their most extreme, formal rules may be based on modular systems or grids. The chief components to be found in the classical styles of architecture are based on clearly defined sets of geometrical rules. Whilst the romantic periods of design show less of a reliance on such organisation, the modern movement showed a renewed interest in geometric systems. Le Corbusier (1946) wrote of 'the necessity for order. The regulating line is a guarantee against wilfulness. It brings satisfaction to the understanding'. Formal constraints may become extraordinarily elaborate and result in the kind of visual gymnastics seen in Baroque architecture, but they can also demand extreme simplicity as exemplified by the famous aphorism of Mies van der Rohe: 'less is more'.

In the United Kingdom a whole school of ideas was developed by Sir Leslie Martin who designed with and researched geometrical rules for the organisation of space and form. His work carried on into the 'Martin Centre' at Cambridge which influenced a whole generation of architects and industrial designers. These studies of formal constraints in design can be seen in theoretical terms in major books such as *The Geometry of Environment* (March and Steadman 1974).

Symbolic constraints

The modern movement, most particularly in its international style, showed rather less interest in the symbolic properties of design. The alternative traditions of architects such as Antonio Gaudi and

Hans Scharoun show a much greater concern with the expressive qualities of design and the use of form and space to achieve specific effects rather than as an abstract assembly. Post-modern design has frequently made use of historical styles in a self-conscious attempt to reconnect contemporary life with the past and to express ideas about the contradictions of a more uncertain age.

However, we must be careful about the role of symbolism in the design process as opposed to its role in design criticism. Some designers do certainly use the generation of symbolic meaning as a central part of the process, and we shall see some examples in a later chapter. However, most of what is written about the symbolic content of design is in the form of critical analysis, as the architect and interior designer Eva Jiricna points out:

> You get an idea, but that idea is not really of a very philosophical or conceptual thought. It is really something which is an expression on the level of your experience which is initiated by the question. I don't think that great buildings have got great symbolic thinking behind them. I leave it to journalists and architectural critics to find a deep symbolic meaning because I don't think that anybody who looks at buildings can actually read the thinking behind them, and to me it's just totally useless.
>
> (Lawson 1994b)

A model of design constraints

We can now construct a fully three-dimensional block model of design problems from all the building blocks we have been exploring throughout this chapter (Fig. 6.6). The completed model of design problems now shows how, in theory, each of the generators may contribute each type of constraint. In practice, however, each tends to generate rather more of one type than another. Thus the client/user is responsible for the majority of the radical constraints and is likely to contribute some symbolic ones, while the designer is the main generator of the formal and the practical and also contributes symbolic constraints. More importantly, it is the designer's task to integrate and co-ordinate all these constraints by whatever device. We shall see more of this process in the next section but an interesting example from the work of Denys Lasdun will serve to illustrate the point here (Fig. 6.7). In his account of the National Theatre he explains how the horizontal platforms, which he calls 'strata', and which form such a dominant element throughout the building, serve as such an integrating device solving radical, formal and symbolic problems: