The proportions of solid wall and window, so fundamental to the late renaissance, worked well structurally, gave an even light and offered privacy for those behind. Above all, of course, the Georgian window was integrated into a superb architectural language. So it seems unlikely that the eighteenth-century architect would have been distressed by a lack of expertise in building science.

Thus it is the case that good design is usually an integrated response to a whole series of issues. If there was one single characteristic which could be used to identify good designers it is the ability to integrate and combine. A piece of good design is rather like a hologram; the whole picture is in each fragment. It is often not possible to say which bit of the problem is solved by which bit of the solution. They simply do not map on to each other that way.

However if modern designers are going to abandon traditional or vernacular solutions, they cannot afford to remain so ignorant of the structure of their problems as the Renaissance architect or George Sturt. As Chermayeff and Alexander (1963) put it:

> Too many designers miss the fact that the new issues which legitimately demand new forms are there, if the pattern of the problems could only be seen as it is and not as the bromide image (of a previous solution) conveniently at hand in the catalogue or magazine around the corner.

This 'pattern of the problem' is comprised of all the interactions between one requirement and another which constrain what the designer may do. Chermayeff and Alexander (1963) again:

> every problem has a structure of its own. Good design depends upon the designer's ability to act according to this structure and not to run arbitrarily counter to it.

We can observe some general rules about the nature of this pattern of constraints in design and we discuss these in a later chapter. First, however, we need to look more carefully at the way the performance of designs can be measured against criteria of success.

## References

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# 5

# Measurement, criteria and judgement in design

> 'She can't do Substraction,' said the White Queen. 'Can you do Division? Divide a loaf by a knife – what's the answer to that?' 'I suppose-' Alice was beginning, but the Red Queen answered for her. 'Bread-and-butter of course.'
>
> Lewis Carroll, *Alice Through the Looking Glass*

> There's no such thing as a bad Picasso, but some are less good than others.
>
> Pablo Picasso, *Come to Judgement*

## Measuring the success of design

In the last chapter we saw how a design solution is characteristically an integrated response to a complex multi-dimensional problem. One element of a design solution is quite likely simultaneously to solve more than one part of the problem. But how good a response is a design solution to its complex problem? How can we choose between alternative design solutions? Is it possible to say that one design is better than another and, if so, by how much? The question before us in this chapter, then, is the extent to which we can measure the degree of success of the design process.

It is far from easy to answer this question. In order to see how difficult it is, we shall consider the design of a garden greenhouse. There are a number of features of a greenhouse which can be varied. While the body of a greenhouse must inevitably be mainly glass, we have more choice when it comes to the frame. We might at least consider wood, steel, aluminium and plastic. The actual form of the greenhouse is even more variable with possibilities of domes, tent shapes, barrel vaults and so on. In fact there are many more design variables including the method of ventilation and type of door, the floor and foundation construction and so on. What the designer has to do is to select the combination of all these features