

the internal structure and order which give the building enough redundancy to be readable and understandable in its own terms. This is necessary if the building is to look as if it is an entity rather than random collections of shapes, materials, proportions and colours. However, the architect cannot ignore the external reference side of the equation. This structure must remain capable of a number of external referential tasks. These vary from building to building but might include an attempt to express the nature of the person or organization that owns the building and the activities that it is built to accommodate. Most often we also expect a good piece of architecture to make external reference to its context in terms of neighbouring buildings, landscape and the history of its location.

An example of some of this in practice can be seen in the illustration of James Stirling's famous engineering building at Leicester University (Fig. 4.12). There is no doubt about the strong sense of internal structure and order, and this is achieved by using several dimensions. There is a fairly restricted use of shape and form, a limited palette of materials, and these two are also connected. The various key materials of brick tiles, *in situ* concrete and aluminium-framed glazing are all used in their own particular way. We soon read this structure and begin to understand the 'style', and thus are able to predict the building as we move around it. However, the use of these materials and the geometrical shapes, particularly those created by the roof glazing, seem to make reference to the engineering that will be taught and researched inside. Stirling used a similar 'language' on a number of other buildings at about this time, in particular the History Library in Cambridge and the Florey Building in Oxford, this repeated use presumably giving him a better understanding of how the architectural language worked in terms of its grammar. However, none of the others ever seemed to me to offer quite the same degree of appropriate external reference as that at Leicester.

This balance of intention and perception seems notoriously difficult to get right, partly because inevitably architects will always be influenced by their architectural education in their perception. A first step is to recognize that the problem exists and begin to address it explicitly. An amusing example of this happening concerns the design of the Roman Catholic Cathedral in Liverpool by Sir Frederic Gibberd (Fig. 4.13). The building is basically circular in plan, having been constructed on the substructure intended by Sir Edwin Lutyens for a massive basilica-like structure that was never finished. Gibberd was a modernist and used a simple slanted concrete structure, producing a wigwam-like appearance. Between each pair of concrete supports various different structures appear, sometimes using triangular or wedge shaped forms. There is thus great redundancy in the whole ensemble, and the viewer is easily able to predict how the major part