Alberti's "perspectival projections" which had been published some 80 years earlier (following Brunelleschi's invention of the principles of perspective) served as the basis for the new orthogonal projections which we use, with very few changes, to this very day. A close look will reveal that the history of visualization through projections is an intricate story that poses a great many questions, such as those eloquently evoked by Evans in a remarkable study (1995). However, at a simple, operational level, it is the solidity of this common base of all but the entire body of graphic representation in design that makes it possible to carry out valid comparisons among representations of different individuals or groups.

At the hands of the individual designer, representation fuels the private design search process, which is inevitable at the outset of a new task. When the design is solidified, its representation ceases to be a private matter and it takes on a public nature: when presenting to colleagues, juries, clients, or the public at large, one aims at gaining approval. To this end, one must choose the representational strategy that is best suited for the messages one hopes to convey to a target audience. When laborious water-washed drawings were prepared in the Ecole des Beaux Arts, the students knew that there were strict representational norms that they had to observe in order to succeed, and they spent most of their time training to master these norms. In modern times norms are less strict, and participants in competitions, for example, are instructed as to what information their drawings must include, although normally they are not told how they are to present the required information. As we have seen, norms do develop as a function of professional trends and under the influence of wider cultural realms like the arts, and as a result of scientific and technological developments. Cultural and social conventions, then, determine to a large degree the kinds of images that designers endeavour to construct and put in the public eye through representation.

It is most interesting to inspect periods of cultural shifts in which old norms of representation appear inadequate. In the 20th century we encounter two such periods: the 1920s, with the birth of Modernism, and the 1970s, when postmodernism largely replaced it. Klevitsky (1997) has shown how, alongside new representational means like the collage, the relief or the proun, which were basically two-dimensional, abstract three-dimensional compositions were also introduced into design training offered by two avant-garde schools of the 1920s, the Bauhaus and the Vkhutemas. These compositions were made of readily available materials like wood, metal, fabric, cardboard, glass, and so on – all materials that could also be used for the construction of product or architectural models. The three-dimensional abstract compositions, however, were not models. Rather, Klevitsky (ibid.) refers to them as a special kind of "three-dimensional sketches", not quite sculptural but definitely in search of compositional distinction. Many of those compositions had a very dynamic character. Students who exercised representation in all two- and three-dimensional media were expected to have broadened their conceptual horizons while also expanding their representational capacities, so as to better explore and express new conceptual design potentials.

In the 1970s the new spirit of postmodernism that invaded architecture brought new design paradigms and agendas to theory and practice alike. In practice, some of the major innovations included a desire for richness of form to the point of compositional dissonance, exaggerated forms, independence of the building envelope, and a taste for classicism. Design theory strived to

liberate architecture from abstraction and over-functionalism. Instead, the creation of an architecture of "narrative contents" became a leading concept (Klotz 1988). State-of-the-art work was concerned with telling a story at least as much as it was concerned with solving design problems; parallel

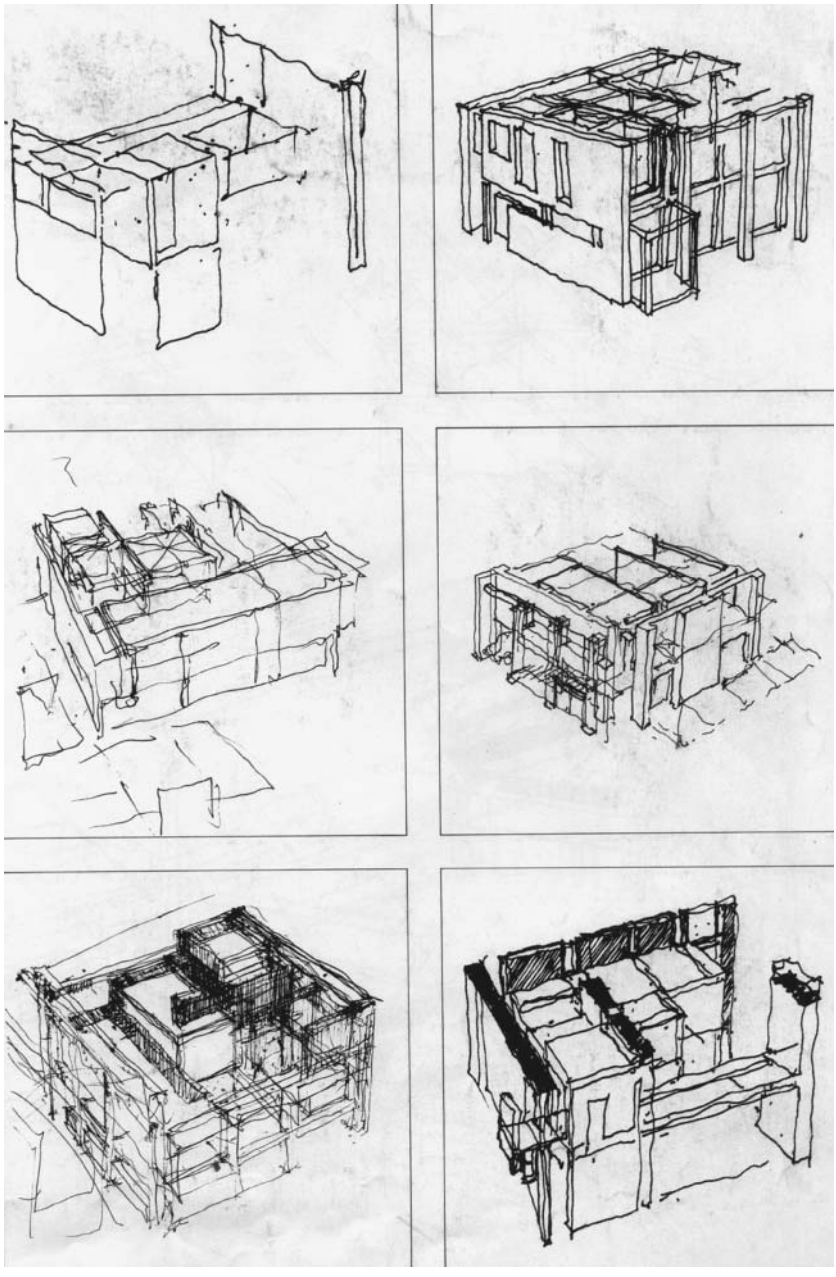

Figure 9.3 Peter Eisenman, published sketches for "Houses of Cards," 1980s (from Eisenman 1986, p. 23). Reproduced with the permission of Oxford University Press.