

DESIGN

Interactive graphics in building design

A unique application of graphic input and output to engineering computer programs is the claim of consulting engineers Oscar Faber & Partners for its latest visual display facilities.

A television screen of the storage tube type with keyboard (Comutek Series 400/15 CRT Display System) together with a drawing board and pen (Comutek Graphic Tablet GT50/10) are linked into the firm's IBM 1130 computer. The equipment is used at sketch design stage and allows the design team—architect, quantity surveyor, environmental and structural engineers—to quickly assess a preliminary design in terms of daylight contours for rooms, heat gains and cooling loads for the 24 hours of any given day, and the bending moments and shear forces of beams. The result of any change in, say, the window design (eg use of double glazing, blinds, solar glass, reorientation and/

or change in size) can be easily established, and when the design team have reached agreement, hard-copy of the design data can be obtained.

The facility is at present only available to the firm's clients but may eventually be offered to outsiders as are the many individual programs which have been developed. The display system and graphic tablet, which together cost between £7500 and £8000, are at present used for about 1½ hours a day—so far only on designs for office buildings.

1 The basic equipment. The electronic pen is used both to trace the sketch plans, window elevations, etc, and to select the required analysis from a "menu" offered on the screen.

2 A perspective view can be obtained from any required viewing point.

3 Typical beam analysis for shear and bending moment. A plotter provides a scaled drawing for direct use by reinforcement detailer.

4 Inside and outside room temperatures plotted for 24 hours of the day selected.

5 Graphs of heat gain and energy demand.

