SAD
Simulator aided design

The multi-level, multi-dimensional nature of architecture means that the only way to experience it and evaluate it is by moving within the buildings and the environment they constitute. Until today, architectural projects could only be observed after they had been finished. The recently developed environmental simulator is the solution to the problem. With the simulator and scale models we can observe the experience of moving around within the buildings and thus make a significant improvement in the certainty of the assumed architectural experience and content while the project is still under design.

CONVENTIONAL PRESENTATION TECHNIQUES

For hundreds of years architecture has been created using very much the same technique of demonstrating it. The architect's tools have been pencil, rubber, triangle, dividers and scale ruler. We have made do with plans, sections, facades, perspectives and scale models. This will give a clear idea of the proportions of what is being designed, but on contemplating how realistic such a presentation is compared to the actual buildings, obvious deficiencies in the conventional methods become apparent.
A ground plan or a projection provides no notion of how the project will be felt when finished; the presentation is two-dimensional.

In a perspective drawing three-dimensional space is presented in two dimensions. The result is a static picture from a single point of observation.

Three-dimensional scale models give a clearer picture of a plan, but as the model is constructed without details, and on a small scale it is less real. Details, colours, materials etc. are not satisfactorily conveyed to the observer. Distortion is generally caused by the fact that the model is seen from bird’s eye view rather than from actual eye level.

Photographs of scale models and AEP pictures offer a reasonable idea of what the plan would look like when realised. Picture series of consecutive views are an attempt to simulate in the observer’s imagination a conception of the environment being designed.

The static nature of the conventional techniques of demonstration has made demonstrating the experience of moving through an environment laborious for the architect and complex for the layman.

Modern TV and video technology have opened up the way for demonstrating movement through an environment which is still being designed. This new technology has made possible the development of the environment simulator, which provides a moving picture of a scale model of an environment. The models are photographed by an endoscope which is lowered into the model to the level at which it would be viewed in reality. The endoscope can be moved mechanically so that it also simulates the experience of moving in the environment.

The environment simulator’s control system is based on a microcomputer, making possible rapid, versatile camera control.

The environment simulator makes it possible to go round the buildings, approach them, and go by them at different speeds at the initial designing stage. The designer can make alterations in the scale model, store different consecutive shots and thus compare the alternatives.

A sound track for remarks, commentary and sound effects can be added to the recording. It is also possible to photograph parts of the actual environment and present them side by side with the pictures of the scale model.
An environment simulator takes a scale model illustrates a building better than any static presentation or photo series.

DEMONSTRATING THE PLANNING LANGUAGE

For clients and decision-makers the advantage of the simulator is that it visualizes things easily. The realistic nature of the picture makes it easier to express an opinion right at the designing stage.

The arrival of the simulator in scale model photography opens up new vistas for the designer. It is possible for the architect to submit to his client, the decision-makers or the users a more readily comprehensible picture of either completed design projects or alternatives.

The simulator video tape offers the layman an excellent opportunity of taking part in the elimination of alternatives. A clear picture of the design process is given so that users can easily follow and participate.

The environment simulator is also a challenge to architects in that it gets the designer away from the bird's eye view down onto "street level".

Right from the outset the emphasis in design is on those points from which the building will actually be seen, rather than on abstract considerations like plans or the composition of a geometric entity. The emphasis falls on those features which are seen and perceived by moving around in the environment.

Using the environment simulator as a designing tool replaces the bird's eye view with the content of the designed area or building. In order to emphasize the new approach and design method we use the term SAD - Simulator Aided Design.

As a highly developed device in the presentation, design and illustration of architecture, the environment simulator will increase the emphasis on the interaction of movement and time with architecture.

Our experiencing the environment is not fixed to the present moment, but includes memories of the past and anticipations of the future. Visual elements are seen as being interacted, consisting of successive phenomena - we experience things four-dimensionally. In architecture this dimension of experience can be revived, ordered and rhythmically grouped.

Understanding the dimensions of time and movement is of great importance in the development of a new architectural theory, and in the creation of a new content in architecture.
As a result of research which has continued from 1977 to 1986 we have succeeded in developing a so-called third generation environment simulator which guarantees a more accurate, non-shaky video tape. We have at our disposal a complete SAD laboratory and research staff. We are in a position to provide information on the latest SAD research and methods as our SAD research group is constantly producing new information on the relations between time, movement and architecture.

TECHNICAL DATA

ENDOSCOPE DIMENSIONS
6.5 x 270 mm, 6.5 x 330 mm

MINIMUM EYE LEVEL
3 mm (1.5 m|1:500)