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Project Nr. B I 5 - 80 01 87 - 109

ELEMENTS OF RATIONALIZATION

IN THE SANITARY DESIGN FOR THE BUILDING SECTOR.

Summary.

Today's designing of bathrooms and WC's means -above all with regard to the building of flats- to reconcile divergent regulations concerning structural design, installation, physical elements.

At the same time, ground-planning is affected by the user's higher pretensions to sanitary rooms although the dimensions of the flats hardly alter.

ABE

Both spheres are correlating and demand a careful handling of the architect in whose province they are coming within. But for the abundance of design-problems which are to be solved, generally it can't be expected that the architect knows all the necessary details to guarantee an undisturbed function of the technical rooms.

Therefore he should be given a decision support which allows him to reconsider the compliance with regulations of his design's first draft and to modify it in case.

Aims of this study:

- Interpretation of the designing standards and discussion of factors which may disturb the making of a correct design.
- Presentation of the cross-linked element variables.
- Development of methodical considerations to minimize the implicit interferences of the design.
- Development of a valuation standard to estimate eventual unsettling factors.
- Investigation on how to complete the methodical considerations to obtain:
 - a rationalized designing on a higher information-level
 - a basis for computerized sanitary room-designing.

Presentation

- Description of a changing in the user's attitude towards sanitary rooms by an interpretation of statistics
- Descriptive presentation of the functional, constructive, sound insulational and installational designing principles. Interpretation and valuation of particular variables with the aid of a model-catalogue and by the analysis of selected examples.

The following standards will be used:

DIN 1053,T.1/02.90	Masonry
DIN 1986/6.88	Drainage systems on private ground
DIN 1988 E 81	Technical directives for drinking water installation
DIN 4109/11.89	Sound insulation in buildings
DIN 18022/E86	Domestic kitchens, bathrooms and WC's; design principles

- To demonstrate the correlation between the particular variables a control circuit will be established which first harmonizes the variables among one another and, later on, in a superposition, all the variables with the design.
The variables which shall be harmonized and which are constituting the technical basis of the design will be called »controlled variables«. Their variability is caused by designing, technical, and physical criteria, the so-called »regulated quantities«. Disturbances in the control circuit are caused by
 - mutual influence between the regulated quantities
 - external influences on the situation.

Summary of the results

- Demands to the design because of ascertainable changes in the user's attitude:
 - on principle WC and bathroom should be separated
 - strengthened use of flexible bathrooms by an equipment which corresponds to the particular circumstances and offers rooms with variable dimensions.
According to DIN 1053, the possibility to thin load-bearing internal walls and a strengthened use of dry-constructed walls are of great consequences for this.
 - Analysis of the technical possibilities to establish an installation which allows a partial sanitary use of individual rooms.
- Preparation of a guiding principle for the architect which helps:
 - to interpret basical design and technical standards
 - qualitative valuation of the particular variables as potential sources of trouble disturbing to the design and as objects of other sources of interference which are influencing on them.
 - qualitative valuation of the cross-linking intensity between the particular variables by applying the model of the control circuit.

By that,

- disturbing factors can be eliminated on an early stage
- the work can be rationalized
- the technical quality of the design can be improved.

Perspectives

Based on the systems to solve the problems resulting from cross-linking, possibilities of a systematic accumulation of methods and data as a basis for a computerized designing will be discussed.