

On-line handbook to support brickwork design

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Abstract

Computer assistants to building design are more and more oriented to construct repertoires of cases to be recalled as possible suggestions to a real design situation. For this purpose it is necessary that the cases be described by the parameters most apt to describe the design situations. In this way it will be possible to extract out of the repertory the existing case most akin to the design problem the designer is dealing with. This kind of help is the most fit to the usual behaviour of a designer which, in order to find the best solution to a design problem, resort to his culture, his knowledge of real cases, which he tries to adapt to the peculiar need of his present case. This paper presents an attempt to construct such a tool also if restricted to only one building component: the exterior brickwork. It is structured as an Hypertext, which allows a net of relationships much richer than the one of a conventional handbook

The first phase concerns the ways in which the information about brickwork has been dealt with in the traditional treatises. The historical period spanning from the roman epoch to our days has been considered as subdivided into three phases. The first one is characterized by Vitruvius's *De Architectura*; in the second, spanning from the XV to the XVIII century, the technical culture spreads through the treatises; the third one, from the XVIII century up to now sees the "universal" knowledge develop into scientific culture: the handbooks.

Some of the most popular treatises and handbooks pertaining to the last two phases have been taken into consideration in order to generate the repertory. From their analysis three main arguments emerged: material and its production, shape and dimension disposition.

All the knowledge extracted from the aforesaid treatises and handbooks has been organised in an hypertextual data base allowing cross queries in order to find interactively, the information about the recorded cases most useful to solve the actual problem a designer is dealing with.

The second phase concerns the construction of a tool aimed at the implementation of the "prototype refinement" i.e. directly inserting into the extracted case the changes transforming it in a solution of the design problem the building designer is dealing with.

From the models of the most usual dispositions (running, common, Flemish, English etc.) it is possible to construct the primary elements of the building envelope (different types of arches, corners, jambs etc.) according to the depth of the wall (from 1 to 6 headers).

The utilization of specific elements of the modelers library depends on the design case singled out in the previous query phase and on the constraints coming from the context in which the design problem is to be solved.

In course of implementation is the tool that models the exterior envelop using the repertory according to a given set of rules and criteria.