Mapping material experience in architecture

Characterization of material warmth

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When choosing materials for a building project, the architect considers aspects relating to structural performance, functional requirements, and experience. A typical material data sheet, however, only contains information on the material’s technical behavior. In order to apply or choose a material for its experiential qualities, the architect has to rely, primarily, on his own intuition and personal experience. The lack of parameters describing the sensorial, perceptual, or experiential aspects of materials prevents architects from comparing new and unknown materials to familiar ones, and results in a knowledge gap.

Can we provide a framework with comprehensive material information to architects, that facilitates the understanding and comparison of materials, based on the material’s technical behavior as well as its experiential qualities? To tackle this question, the goal of this research is twofold. First, a framework of material attributes is developed, which contains the widest range of aspects attributed to materials and relevant to the architect while choosing materials. Secondly, material warmth is studied as a proof of concept, to illustrate that experiential qualities can be described based on measurable material information.

This research illustrates that material experience is a very complex topic that is influenced by a number of factors, such as the senses used for evaluation or the context in which the material is applied. Nevertheless, this research succeeded in mapping how experiential material attributes relate to other material parameters and illustrates that material experience can be described based on links to known material parameters. By identifying links between different levels of information, the framework of material attributes does not only map experience aspects of materials, but describes them and eases their understanding. The framework of material attributes presented in this study, offers a conceptual framework to better guide an architect towards a material selection and design that meets the experiential intention. At the same time, this fundamental and applied research forms a solid base for further research into the experience of materials in architecture.