

Research Dialogue between Materials and Products in Architecture

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The materials life cycle consists of several phases. If application areas are targeted for architecture, comprehending the demands of the end-use phase might not be clear at the research and development phase, leading to an entity appearing fragmented. The aim of this study is to help bring order to the material research or development phases. The objective is to generate a review tool, which helps to observe different areas where architecture operates, and contemplate simultaneously the aspects during the different phases of the material development. The review tool of the material life cycle consists of tracking the raw materials until the re-used raw material, resulting in eight different stages of the material life cycle. In addition, each of the eight stages of the material life cycle is possible to observe with the five different viewpoints, which are present in architecture. These eight material life cycle stages and five aspects have been formulated as a chart. The chart consists of 40 different approaches facilitating discussion between different operators during the different phases of the material development. The chart might help set goals, frame areas, and improve comprehension of the research and development processes of the materials, especially when interdisciplinarity is involved in the research process.

Keywords: architecture, interdisciplinarity, materials development, materials life cycle, materials research.

In architecture, construction materials have certain characteristics and aspects to fulfil depending on where and how they are applied. Traditionally, practitioners have obtained an intrinsic understanding of the materials by gathering knowledge when interacting with the materials on a practical level. Professionals, who are specialised in understanding the role of materials or methods in constructing, such as construction workers, craftspeople, builders, and architects, must understand the relatively simple processes involved therein. Due to this basic understanding, the communication between professionals is effortless because the targets are easy to discuss; the concepts are clear; and the materials or processes are well known. Though, when new technologies or materials are intended to be applied in the construction industry, special expertise is required (Gieseckam et al 2016).

In architecture, materials are not just thought to constitute the protective shells, carry loads, or divide spaces. The material palette utilised in architecture is in general extremely versatile. Different materials must play well together leading to a meaningful and pleasant spatial experience, noting the function of the building, demands of the user, cultural aspects of the context, and overall cost of the constructing. Without a holistic perspective, the outcomes might be very practical or technically competent, but they may not necessarily be easy to implement in a living environment, where various aspects are meaningful.

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Abstract

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