

Reviewing the Framework of Building with Adaptive Ability: a research-agenda-setting reflection

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Abstract

Building with adaptive ability is on the agenda of the building sector for many decades. In general, it is defined as the post-construction ability of a building to adapt to changing needs and requirements in view of efficiency and effectiveness regarding practical functionalities and technical performances, and ultimately financial investments. In recent years a relation is urged with the sustainability quest, leading to an increased attention both in research and practice.

While discussing building with adaptive ability within the sustainability quest, the use of terms is not well established. The general principle of 'flexibility' with its broad scope, and the inconsistent terminology and content of 'building with adaptive ability' in particular, causes much confusion. This means a hindrance for a good communication, dissemination and implementation of the latter. A dragging legacy is created for setting an agenda for future research, and consequently for achieving fully future-proof buildings as part of the concept of sustainable development.

To counter this legacy this paper provides an explicit framework for building with adaptive ability. It chooses an appropriate terminology and fixes a justified breadth-first substantiated interpretation, illustrated with real-life examples. Supplementary, it holds a critical reflection in view of certainties/uncertainties about the future, leading to the identification of a gap in the literature-based framework, thus in the current research agenda and consequently in current practical implementations.

The outcome of this paper results in: first, an explicit and adjusted framework of building with adaptive ability; and second, a recommendation and urge for future research on, and design, development and implementation of, building with adaptive ability regarding building skins components. The underlying objective is a further discussion on, and potential set up of a joint international innovative research on the ability of building skins to adapt to the ever increasing European and national energy performance requirements.

Key words

Building with adaptive ability, framework, reflection