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Appropriate Ventilation Solutions for the Iconographic Buildings from the Fifties – A Cross Disciplinary Investigation

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Abstract

In Denmark we currently have an increased focus on preserving the most valuable domestic building examples from the period 1945 - 60. New literature deals with these architectural heritage matters. The authors of this paper argue, that due to question of preservation the buildings physiology is not enrolled in the discussion, and argue that especially this issue can cause a huge damage on the aesthetics of the architectural expression, the facades and the use of the buildings in terms of comfort demands for people living here.

The starting point for the research is preservation, comfort and aesthetics. The primary topic of the survey is the building envelope as a transmitter of external climate to internal climate and vice versa. Three case studies and one reference building as principal renovations are used as information for new innovative and integrative solutions. Analyses and discussions will show a development to the introduction of mechanical ventilation in the building stock with a particular focus on decentralized ventilation systems. To evaluate the retrofitting initiatives a cross-disciplinary corporation between the professions of architecture and engineering are required: this integrated working methodology develops new renovation processes. Based on both quantitative measurements and on qualitative judgements the cases are analysed comparatively. Parameters such as ventilation solutions in facades are discussed as architectural consequence and value. User interviews will also inform the evaluation. Cases are chosen from earlier research projects and brought into the analysis in order to either see a development or to see more clearly how integrated evaluations of the ventilation and the preserving strategies can lead to a better understanding of an optimized intervention. The paper concludes that interdisciplinary ways of working will improve both architecture and preservation and comfort, and that higher value hereby is created. Furthermore the new initiatives from the industry are shown, which indicates a movement towards innovation of decentralized ventilation solutions.

Keywords: cross-disciplinary cooperation, indoor climate, decentralized ventilation, energy renovation solutions