

Abstract #: 100

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**Abstract Title: Co-designing with office workers to reduce energy consumption and improve comfort**

Abstract Text:

According to the EC Action Plan for Energy Efficiency, 30% reduction of energy use in offices and other commercial buildings can be achieved through occupant behavior change. Multiple studies support similar estimations for countries outside of the EU (e.g. Lopes et al. 2011). Depending on the building type, office occupants can perform various low energy actions to increase office comfort (e.g. Barlow & Fiala, 2007). However, sustained behavior change ensuring energy-efficiency may be difficult when not embedded and enforced in everyday office practices. This paper describes an approach based on co-creation methods as a means to engage office occupants and make them conscious of the impact of their actions on their office environments. The method includes co-designing of monitoring, self-reporting and feedback systems, enabled by modular hardware and an adaptable software platform. Office occupants become aware of the impact of actions constituting their everyday office practices by being confronted with results from measurements and observations. Through the co-design process supported by engineers and designers, occupants define ways of how sensor monitoring, self-reporting and feedback could be introduced into their office environments to stimulate and guide their energy-efficient and comfort-efficient actions in the context of everyday office practices. The co-design approach is currently being deployed and evaluated in an ongoing study, which is being conducted in three large office buildings, each involving an experimental and control group. Preliminary workshops have demonstrated the value of the co-design method in exploring how best to involve stakeholders across various functions in the organizations. Office occupants have been found to be particularly motivated to improve comfort, which can act as a pathway to shaping energy behavior.