Effect of renovating an office building on occupants' comfort and health

An intervention study was performed in a mechanically ventilated office building in which there were severe indoor climate complaints among the occupants. In one part of the building a new heating and ventilation strategy was implemented by renovating the HVAC system, and a carpet was replaced with a low-emitting vinyl floor material; the other part of the building was kept unchanged, serving as a control. A comprehensive indoor climate investigation was performed before and after the intervention. Over a 2-week period, the occupants completed a daily questionnaire regarding their comfort and health. Physiological examinations of eyes, nose and lungs were performed on each occupant. Physical, chemical and sensory measurements were performed before and after the intervention. The renewal of the flooring material was performed after a sensory test of alternative solutions in the laboratory. Before the floor material was installed in the office building, a full-scale exposure experiment was performed in the laboratory. The new ventilation strategy and renovation of the HVAC system were selected on the basis of laboratory experiments on a full-scale mock-up of a cellular office. The severity of occupants' environmental perceptions and symptoms was significantly reduced by the intervention.