

Energy efficient and affordable housing for students in Vaasa

Teppo Rasku ⁽¹⁾ - Gianluca Grazieschi ⁽²⁾ - Xiaoshu Lü ⁽³⁾

⁽¹⁾ Voas, Vaasa, Finland - ⁽²⁾ Eurac Research, Institute For Renewable Energy, Bolzano, Italy - ⁽³⁾ University Of Vaasa, School Of Technology And Innovations, Vaasa, Finland

Keywords: Student Housing, Energy Efficiency, Life Cycle Assessment, Affordable Housing, Sustainability

Abstract The University of Vaasa is growing and attracting international students. Currently housing demand within the city is high, driving up private rental prices. At the same time, utility costs, particularly heating-related expenses, are significant. The Student Housing Foundation (VOAS) provides affordable housing for around 2700 students, offering many individuals their first independent living experience and contributing to the renovation of the city building stock. The average length of stay in one apartment is one year and seven months, which means a fairly high turnover. VOAS in collaboration with the University of Vaasa and the city administration, promoted the construction of a new student residential building with attention to energy efficiency, high indoor comfort and resource conservation. This work examines the strategies adopted to save energy, ensure comfort and maintain affordable housing for students. The impact of these strategies was evaluated through monitoring, key performance indicators and life cycle assessment methodologies. The project demonstrated a high level of energy efficiency, consuming about one third less energy compared to older buildings, while also delivering consistent reductions in emissions. The moderately high building costs were contained by the lower operational costs and grant funding, which helped achieve the life-cycle economic sustainability of the intervention. The intervention raised awareness about energy transition issues and helped address the student housing shortage in Vaasa. The building will serve as a living lab to explore how residents' housing and consumption habits can be influenced. Successful practices can later be applied to both new construction projects and existing buildings.