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Communal living for elderly – ecological, social and economical aspects

Starting point/Motivation

This research project is based on following topics: economy, sustainability and social efforts. Alternative communal living models should be evaluated in terms of energy-, spatial- and cost-efficiency. Demographic change implies an ageing population. In Austria, an increasing number of elderly live alone in large dwellings and need help from outside, if necessary.

Contents and Objectives

The hypothesis is posted, that the integration of communal living models in existing buildings during a thermal retrofit increases energy-, spatial- and cost efficiency. Living together means also a better quality of life, and by mutual help mobile services from outside might be spared. The other hypothesized advantages of the communal living models lie in the higher occupancy rate as well as shared use of certain spatial resources.

Methods

First national and international investigations are carried out. The 6th district of Vienna with a large building stock to be retrofitted and an existing infrastructure is selected then. The potential of energy-efficiency is explored via numeric simulation of two buildings of different construction periods. Four scenarios are considered: two occupancy models (individual and communal) and two sets of construction-related assumptions. Spatial efficiency is also explored by the scenarios individual and communal.

Results and Prospects

The heating loads for the two reference buildings could be reduced in terms of thermal retrofit and integration of communal living 55 % and 81 % (area-specific) or 76 % and 88 % (per occupant). Space (per occupant) is reduced 50 % (building A) and 39 % (building B). A rough extrapolation of the above results up to the urban scale for the city of Vienna points to a significant heating energy reduction of 520 GWh. Needless to say, aside energy conservation, the communal living pattern would also bring about large savings of space usage (approximately 3 million square meters in terms of net floor area).

Aside from these calculated effects of such communal living models there are in all likelihood additional benefits like reducing the urban sprawl, increasing the occupancy density and reducing the interventions of mobile services. Socially the effects of such communal living models are manifold. Experiences with similar projects in other countries illustrate, that the occupants feel less lonely and more secure.