

ABSTRACT

Cost-benefit analysis of an energetic renovation
using the example of the primary school
"Josef Gasser" in Neustift, Vahrn

An analysis of all public buildings certified by the KlimaHaus agency shows a high energy renovation potential: 58% of the buildings are classified in the worst energy class G, 57% are heated with a boiler, of which 20% are operated with heating oil. However, energetic refurbishment must always be considered as an individual case and can be approached in a variety of ways regarding the refurbishment objective and technical implementation. In this report, various renovation options for the primary school "Josef Gasser" in Neustift (municipality of Vahrn) were investigated and subjected to an economic analysis. The considered remediation variants are not to be understood as generally valid remediation proposals, rather a methodical approach for the evaluation of a renovation is to be shown based on the investigated case study.

In the present case, the investigation was limited to those three scenarios which, as actually possible restructuring variants, also have a concrete probability of implementation. The first variant includes, in addition to the unavoidable costs (door replacement, interior painting repairs, mobile shading renewal, etc.), the necessary window replacement. The second variant also includes the installation of thermal insulation (16 cm mineral wool). As this is a school building, a third option was to install an additional ventilation system with heat recovery. In addition to the energetic and economic expediency, the financial support options (especially GSE – Conto Termico) were also taken into account

and included in the comparison of the refurbishment options. From an economic point of view, the second renovation variant is the most attractive, followed by variants 1 and 3. The latter represents the economically most unfavorable variant due to the high investment, operating, maintenance and replacement costs for mechanical ventilation.

Nevertheless, the report concludes with a discussion of the advantages of mechanical ventilation in residential areas, as the quality of the interior space of school buildings must be given very high priority. A living space ventilation system guarantees the necessary air exchange independent of the user and provides energetically efficient high air quality, which benefits the attention and productivity of the students and teachers. The supply air is filtered by pollen and fine dust, performance-reducing or even health-endangering air pollutants (CO₂, VOC, formaldehyde, radon, etc.) are removed in a controlled manner. However, this added value is difficult to quantify from an economic point of view and has therefore not been further explored in this study.