



## Wohnhaus Pölt

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Addition of a new window layer (on the inside)



## Windows

### *What is the solution?*

This method can only be used for constructions with a single window plane, such as single or coupled windows. In order to preserve the external shape of the building, an additional window layer, consisting of double or triple glazing, can be installed on the inside of the historical window construction. The single window thus becomes a kind of box-type window, whereby the window layers do not necessarily have to be connected to each other. If from heritage point of view there is the requirement, that the addition of the window on the inside is not visible from the outside at all, this solution can be adapted accordingly.

### *Why does the solution work?*

With this solution a single window can be improved significantly from energy point of view – the new window on the inside can be a high-energy-efficient triple glazed new window. The advantages of this method of renovation are, in particular, the good seal, which can be easily achieved, the avoidance of complications in terms of moisture protection when installed correctly and the possibility of improving the thermal bridge at the window-wall connection. Meanwhile, the outer, historical window plane remains almost untouched and can thus be preserved and the historic appearance of the façade can be maintained.

### *Description of the context:*

Restoration of a century-old building whose façade dominates the historic

village centre of Welsberg in the Puster Valley. The early reconstruction measures that had been carried out were removed. Today the building contains three flats with a total volume of approx. 1500 m<sup>3</sup>. The entire refurbishment measure was carried out radically. The building was completely gutted, even the floor slabs were demolished and replaced by a steel construction. The 60 cm thick outer walls in stone masonry were insulated on the inside with XPS panels. In front of it, an independent timber construction with wood fibre insulation was placed. The old windows were left in the façade in order to keep the historic appearance. They were simply repainted in their former orange-red colour. In order to meet the energy standard, new windows were installed behind the old windows. For the comfort of the living area, a ventilation system and underfloor heating was installed, and the heating system was connected to the district heating network.

*Pros and cons of the solution:*

The pros of the solution are: high impact on energy efficiency of the window construction, Improves indoor climate (higher surface temperature, less draught) and possibility of improving the thermal bridge at the window-wall connection when installed correctly and preferably in connection with internal insulation. The cons of the solution are significantly impact on the inside of the building.

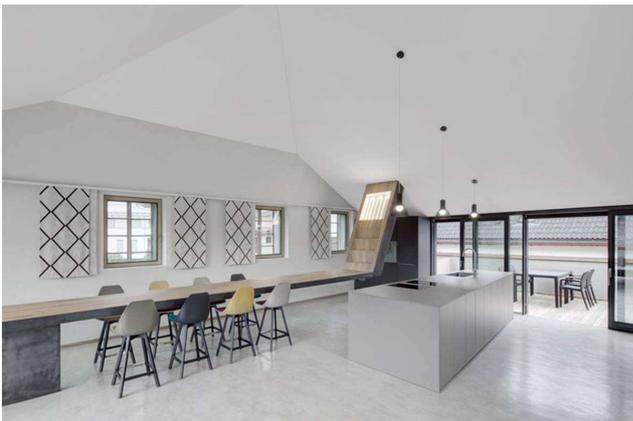
*Type of data available:*

Information available: Photos, Klimahaus award winner from 2015 – description available. <https://www.archilovers.com/projects/110041/wohnhaus-polt.html>; <http://www.raum.it/projekte-out-p3-30.html>; <https://www.klimahaus-awards.it/de/archiv-uebersicht/kandidaten-2015-47.html>

*Available pictures or publications of the solution:*



Residential house Pölt (single window) – after renovation, Source pictures: <https://oberstaller.it/de/projekte/wohnhaus-poelt/>





Thermal properties	Existing window	Refurbished window
Window type	Winter window	Winter window with new window layer on the inside
Glazing	Inner window: single glazing Outer window: single glazing	Inner window: triple Outer window: single glazing
Shading	No window shutters	No window shutters
Uw		
Ug		
Uf		
g-value glass		
Air tightness	No sealing	New window with sealing
Approximate installation year		

*Link to best practice example:*

<https://www.archilovers.com/projects/110041/wohnhaus-polit.html>

<http://www.raum.it/projekte-out-p3-30.html> <https://www.klimahaus-awards.it/de/archiv-uebersicht/kandidaten-2015-47.html>