

HIS Elderly Home Schoenegg, Bern CH

PROJECT SUMMARY

Renovation of a historically protected senior residence, with an extension to the rear of the west wing, new floor plan layout and energy saving measures.

SPECIAL FEATURES

Mech. ventilation with heat recovery, insulation and adaption to new senior living concepts.

ARCHITECT

BSR Architects, Bern
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OWNER

City of Bern



IEA – SHC Task 37

Advanced Housing Renovation with Solar & Conservation



Before



After

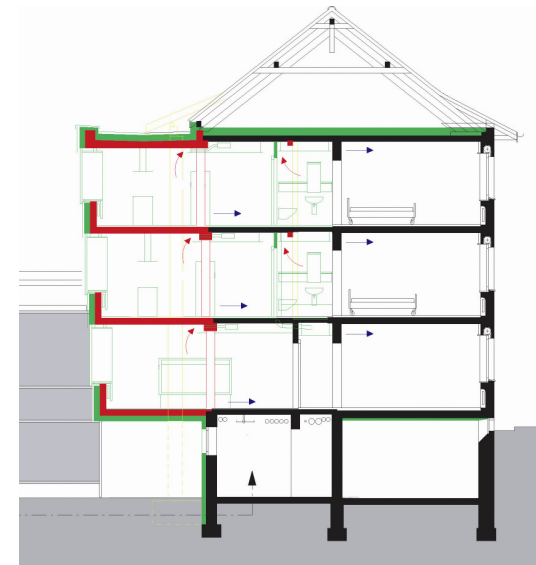
BACKGROUND

This senior residence, built in 1872, has seen many cycles of renovation. It now stands under protection as an historic structure. The south and west sides could, therefore, not be insulated. However, all windows could be replaced and a mechanical ventilation with heat recovery installed.

The north, rear side was extended and a new façade constructed. The floor plan of the west wing, built in 1948, has been reorganized to better fulfil contemporary senior housing concepts. The whole building has been provided

SUMMARY OF THE RENOVATION

- New north façade extended outwards
- New windows
- Mechanical ventilation with heat recovery
- Room tract extended
- New occupant grouping concept



Section



Floor plan of renovated tract



CONSTRUCTION

New roof construction $U\text{-value: } 0.15 \text{ W}/(\text{m}^2\cdot\text{K})$ (top down)

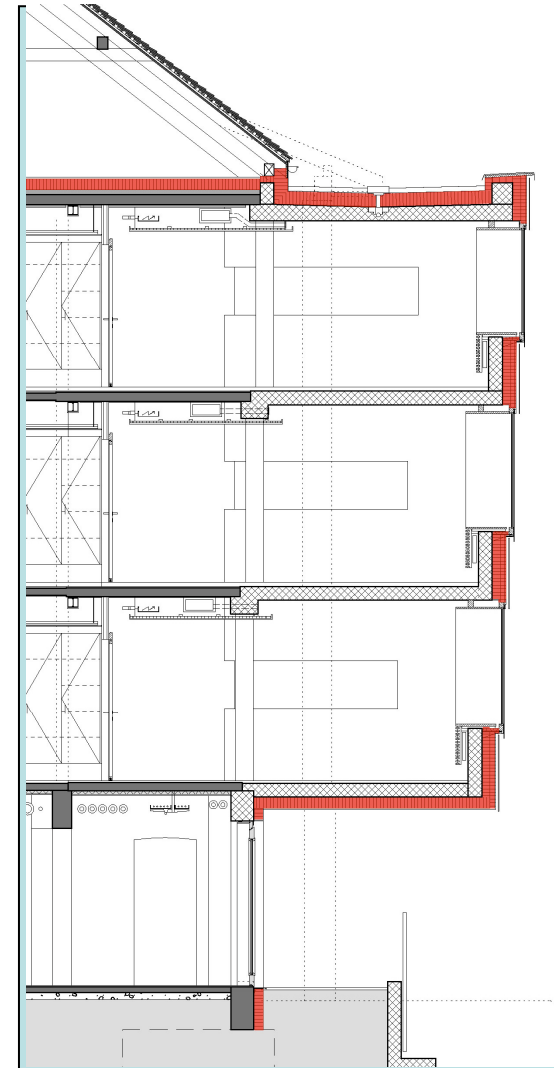
Plywood Spanverlegplatten V20	22 mm
Wooden cross lathing 2x80mm with cellulose insulation	160 mm
Plywood	20 mm
Styropore insulation	50 mm
Cork, perforated ceiling base	165 mm
Gypsum plaster	15 mm
Total	432 mm

New wall construction $U\text{-value: } 0.19 \text{ W}/(\text{m}^2\cdot\text{K})$ (interior to exterior)

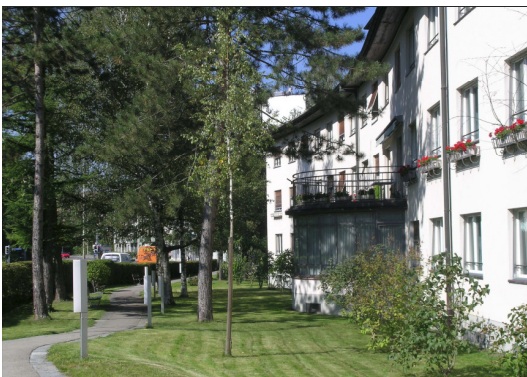
Concrete spandral (existing)	200 mm
Mineral wool insul. blocks Flumroc DUO	200 mm
Vented air gap	40 mm
Spandral glass	8 mm
Total	448 mm

Floor cantilevered $U\text{-value: } 0.22 \text{ W}/(\text{m}^2\cdot\text{K})$ (top down)

Wooden parkett glued	10 mm
PE foil	25 mm
Concrete, steel reinforced	200 mm
Mineral wool insulation Flumroc Type 3	160 mm
Mineral plaster for exterior	20 mm
Total	415 mm



Section from the extension of the north wall



Summary of U-values $W/(m^2 \cdot K)$

	Before	After
Attic floor	0.38	0.15
Walls*	0.80	0.19
Basement ceiling	0.98	0.30
Windows*	2.90	1.30

*North facade

BUILDING SERVICES

An efficient heating plant already existed, a gas fired combined heating and power system.

A new ventilation system was installed with a counterflow heat exchanger, efficiency 80%. It consumes $4.3 \text{ kWh/m}^2 \text{ a}$.

RENEWABLE ENERGY USE

None

ENERGY PERFORMANCE

Space + water heating (primary energy)*

Before: 220 kWh/m^2

After: 88 kWh/m^2

Reduction factor: 2.5

*calculated with SIA 380/1: 1988

INFORMATION SOURCES

Enz, D., March 2007, *Baurenewerung für die Zukunft*, Flumroc AG, Postfach, CH-8890 Flums, www.flumroc.ch

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