

Movable House

Fact Sheet

Project:

Private residence, direct commission

Location:

Niederholzstrasse 88, 4125 Riehen, Basel, Switzerland

Key data:

Building dimensions (L x W x H): 10.34 m x 10.34 m x 3.00 m

Building volume: 374 m³

Gross floor area: 106.9 m²

Net floor area: 97 m²

Façade area: 124 m²

Building costs: upon request

Construction:

Structure (Cores): beech wood multilayer boards, Pollmeier BauBuche Q boards

Material: 7 boards 0.04 m x 13.5 m x 1.82 m = 172 m². Volume wood 6.87 m³

Roof elements: prefabricated concrete elements, white cement, Carrara marble

Weight per element 1.5 t - 4.8 t

Volume of concrete roof elements = 8.73 m³ = 21.8 t = 250 kg per m² roof area

Floor elements: prefabricated concrete elements, white cement, Carrara marble

Weight per element 5.4 t

Volume of concrete floor elements = 10.9 m³ = 27.3 t = 274 kg per m² floor area

Facade: light-weight timber construction, painted multi-layered panels

Painted wooden window frames U_w 0.868 W/m² K

Energy concept:

Heat pump

HP with integrated boiler, Alpha Innotec WZS 42H(K)3 with a capacity of 4.7 kW

Geothermal collectors

2 geothermal baskets BetaTherm with 2 kW, diameter 2.4 m (top) 1.4 m (bottom), height 2.7 m

Heating and cooling

Underfloor heating (winter) and cooling (via free-cooling, summer)

Photovoltaic

33 elements with 1.65m² and 295 Watt = 54 m² with a capacity of 9.735 kW

Phase Change Material (PCM)

Living room: 115 salt modules 25 x 39 x 2 cm, small-bedroom: 56 paraffin modules 30 x 40 x 5cm

The integrated Paraffin and Salt modules are equivalent to the storage mass of a 30 cm thick concrete slab undergoing a temperature change of 4 K

Project Team:

Client:

Nico Ros + Laura Möckli

Architecture:

Rahbaran Hürzeler Architects, www.rh-arc.com

Shadi Rahbaran, Ursula Hürzeler

Julian Nieciecki, Lisa Tran, Ilinca Zastinceanu, Eugenio Cappuccio

Structural Engineer:

ZPF Ingenieure AG, www.zpfing.ch

Nico Ros, Nicolas Gamper

Research Project Innosuisse / Building physics:

Institut Energie am Bau – FHNW University of applied sciences Basel, Switzerland

Achim Geissler, Caroline Hoffmann, Gregor Steinke, Roger Blaser

Geology

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230 Electrical / Photovoltaic

240 Heating/Geothermal

250 Sanitary work

280 Ceramic tiles

421 Gardening

Documentation/Photography

Webcam

Ryser GmbH, Riehen

Ernst Frey AG, Kaiseraugst

Element AG, Veltheim

Schreinerei Hürzeler, Magden

Schreinerei Hunziker, Schöftland

Jäggi Vollmer, Basel

SkyCell AG, Zürich

Selmoni Installationen AG, Basel

Tschantré Gebäudetechnik, Basel

Stieber Ehret AG, Basel

Cristofoli AG, Basel

Gartengestaltung Herzog, Riehen

Weisswert, Basel

Artxmedia, Basel

www.ernstfreyag.ch

www.element.ch

www.huerzeler-holz.ch

www.ihrschreiner.ch

www.jaeggivollmer.ch

www.skycell.ch

www.selmoni.ch

www.tschantre.com

www.stieber-ehret.ch

www.cristofoli.ch

www.gartengestaltung-herzog.ch

www.weisswert.ch

www.artx-media.ch

Construction phase:

Phase 1, Preparation:

Earth works, sewerage, foundation, March - April 2018

Phase 2, Structure:

Mounting of cores, roof elements and façade elements, roofing and water proofing, June 14th – 22nd 2018

Phase 3, Fit-out and installations:

Photovoltaic, technical installations and interior fit-outs, June 25 – July 19 2018

Completion summer 2018