

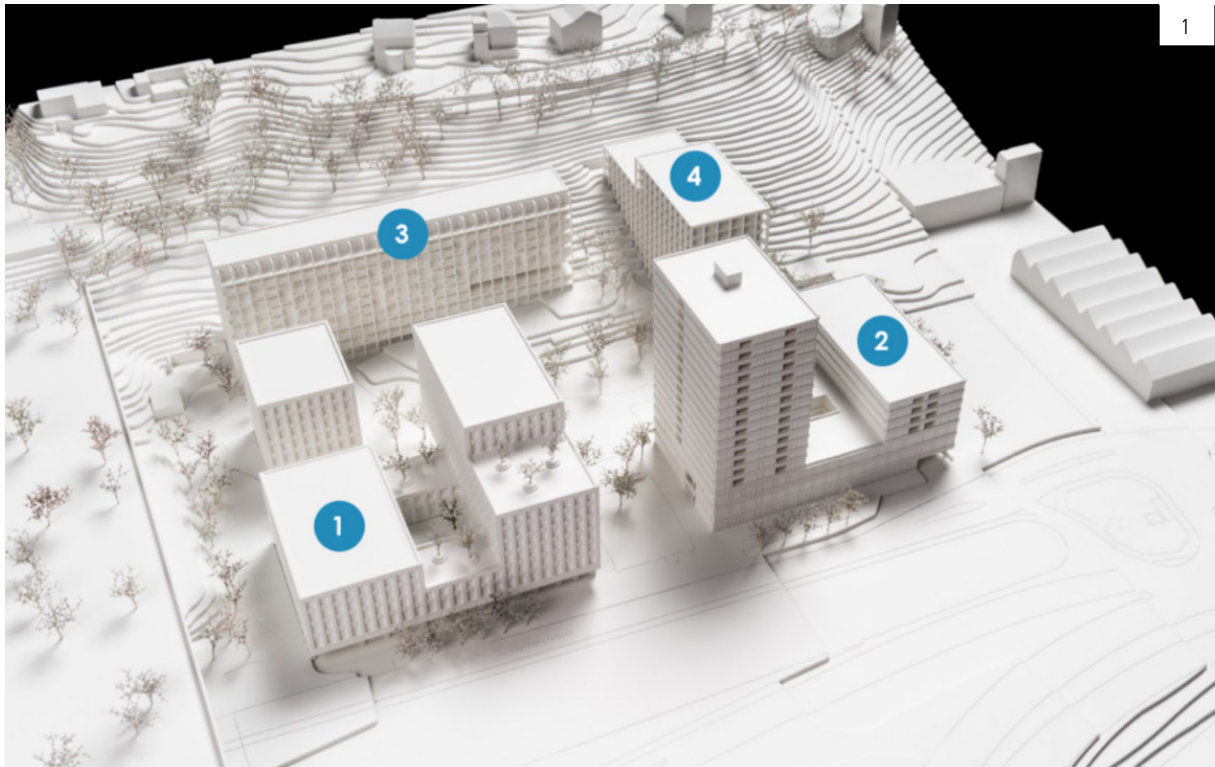


Image source: Eichhof West (www.eichhofwest.ch)

Project report

GERO^{therm}® VARIO geothermal probes

Eichhof West development
6010 Kriens, Switzerland



A sustainably designed urban district is being built between Kriens and Lucerne, where people will be able to live and work from 2025. The building (1) is being constructed for the Wirtschaft Arbeit Soziales (WAS) Luzern social insurance centre. The high-rise building (2) will feature a three-storey base for commercial uses.

Above it, another 14 storeys will be built in the western part. The 55 2½-room and 28 3½-room flats will offer wonderful views of Mount Pilatus and, from the upper floors, of Lake Lucerne. The part of the building to the east is aimed at larger households with 16 5½-room and 4 6½-room units. The 10-storey building (3) will have flats of 2½ to

4½ rooms. The residential building(4) will contain a further 60 units ranging from 2½ to 5½ rooms. The area will be completely free of traffic with an underground transport system. What is more, a generous green space will be created that invites for recreation and leisure.



1. General plan of the building (image source: www.eichhofwest.ch)
2. Geothermal probes already sunk, backfilled and pressure-tested (Image source: HakaGerodur)
3. GEROtherm® VARIO geothermal probe and grouting tube, ready for sinking (Image source: HakaGerodur)
4. Packaging of GEROtherm® VARIO geothermal probe and grouting tube (Image source: HakaGerodur)
5. Construction site photo ÜB Eichhof West (Image source: HakaGerodur)
6. Wall thickness distribution with internal and buckling pressure resistance of the GEROtherm® VARIO (Image source: HakaGerodur)
7. Pressure loss comparison: GEROtherm® VARIO and standard geothermal probe PN20 de 40 mm (Image source: HakaGerodur)

87 GEROtherm® VARIO geothermal probes were used for the probe field. Johann Bohrtech AG, which specialises in drilling geothermal probes, was on site with the appropriate drilling equipment and carried out the drilling professionally. The boreholes were then backfilled. Each geothermal

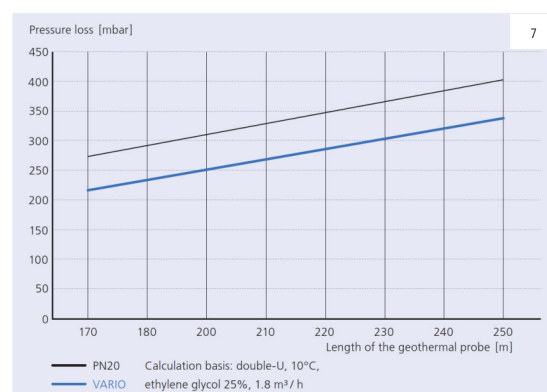
probe was tested and the results recorded using a measuring device for pressure and flow tests (in accordance with SIA 384/6). The probe connection is made by our GEROtherm® SAVE 180. They are equipped with a plastic ball shut-off valve, a filling and an emptying valve as well as flow

regulating valves. This allows optimal integration of each geothermal probe into the probe network and correct hydraulic matching of the various circuits to each other to achieve the best performance.



Length (m)	Wall thickness de 40 (mm)	Internal pressure resistance ¹ (bar)	Buckling pressure resistance ² (bar)
0	3.70	16	8.6
-160	3.70	16	8.6
-200	4.50	20	12.9
-250	4.50	20	12.9

¹ According to DIN 12201/2. ² At 20°C/60 h according to SIA 384/6.



Project data

Construction site



Eichhof West
Langsägestrasse 17-21
6010 Kriens
www.eichhofwest.ch

Client



BVK Personalvorsorge des Kanton Zürich
Obstgartenstrasse 21
8090 Zurich
www.bvk.ch

General planner



S+B Baumanagement AG
Technikumstrasse 61
8401 Winterthur
www.s-b.swiss

Drilling company



Johann Bohrtech AG
Untere Weidstrasse 5
6343 Rotkreuz
www.johannag.ch

Planner



PZM Zürich AG
Max-Högger-Strasse 6
8048 Zurich
www.pzm.ch

Products used

- 87 GEROtherm® VARIO geothermal probes, de 40 mm, length 240 metres
- 87 GEROtherm® grouting tube, de 25 mm, length 242 metres
- 87 GEROtherm® initial weight 19 kg
- 20 GEROtherm® rolls, de 50 mm, roll length 100 metres



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