

Wyssen Reference Project  
**Schattenbach Avalanche Walenstadt**  
**Modernization of the existing**  
**Avalanche protection**



**Safety** through **innovation**

**WYSSSEN** switzerland **avalanche control**



## Schattenbach Avalanche Walenstadt - Modernization of the existing Avalanche protection

**Project:** Avalanche protection Walenstadt residential area

**Place:** Walenstadt, SG

**Country:** Switzerland

**Year:** 2021

**Customer:** Walenstadt Municipality

**Protected Object:** Residential area, road

**Installed systems:**

- 7x Wyssen Avalanche Towers 12 shots with the 2K® Charge
- 1x wildlife protection horn
- WAC.3® Cockpit and Communication

**Video:** An impressive film of the construction of the avalanche towers can be found in our Youtube channel or directly under this link:  
[https://www.youtube.com/watch?v=F\\_K6sGKccGU](https://www.youtube.com/watch?v=F_K6sGKccGU)



### Initial situation

The Schattenbach avalanche near Walenstadt in the canton of St. Gallen (Switzerland) is a notorious avalanche that moves down into the valley as a large powder snow avalanche. The avalanche path descends steeply from "Chäserrugg" (2,300 m above sea level) to Walenstadt's residential area (430 m above sea level). Under dry snow conditions, the steep fall over the 200m high Schattenbach wall leads to the formation of a powder-snow avalanche that can cause serious damage to residential buildings. The municipality of Walenstadt has already sought to counteract the threat of the Schattenbach avalanche with various measures.

In addition to the construction of a catchment basin around 1980 and a tunnel to Walenstadtberg constructed in 2006, various structural measures were also implemented within the avalanche starting area. The snow drift barrier on the Hinterrugg was built in 1989 and has since prevented large amounts of snow from being transferred into the avalanche starting area. In addition, a mine thrower was deployed in cooperation with the Swiss army and used for precautionary avalanche mitigation since 1970. With the prohibition of the use of army artillery for the artificial triggering of avalanches, an alternative was now sought for protecting against the Schattenbach avalanche.



Image source: Avalanche Team Walenstadt

## Our solution

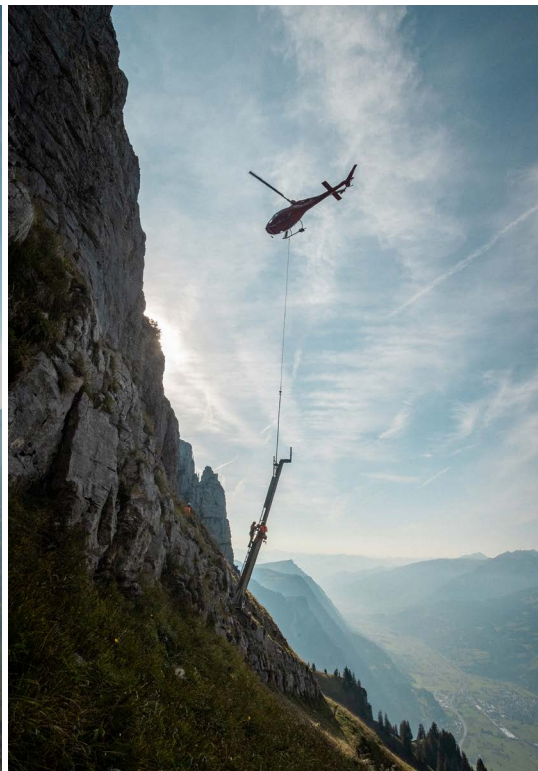
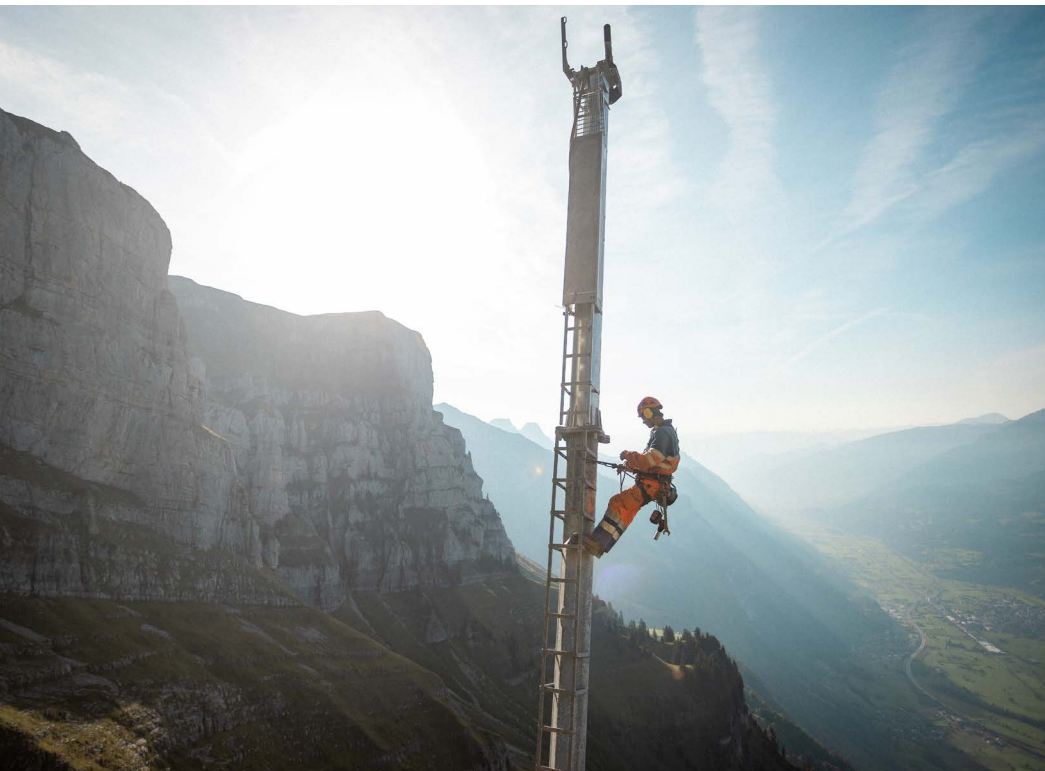
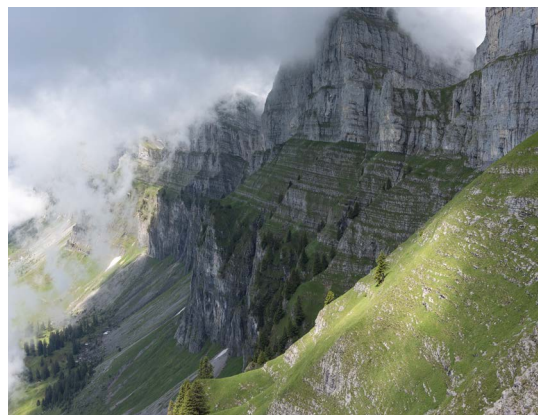
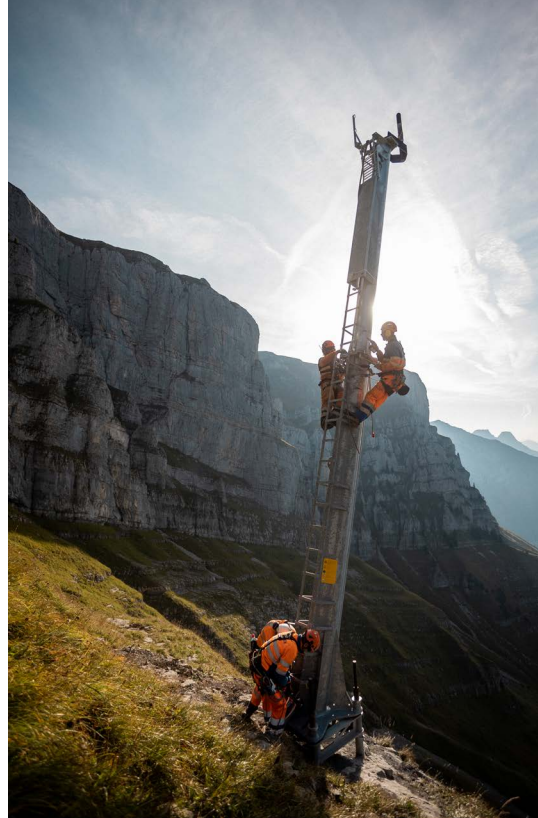
The installation of avalanche towers in the terrain guarantees the continuation of avalanche protection measures with safe and efficient methods that minimize the harmful effects of the Schattenbach avalanche. Since the avalanche towers make it possible to detonate charges even during periods of prolonged and intense snowfall, multiple discharges of the avalanche starting areas can now be performed in a single storm cycle. Since the detonations are performed above the snow cover, a large-scale explosive effect over a larger effective radius can be achieved. As a result, the seven installed avalanche towers provide effective coverage in the main avalanche starting zones. Overall, this method significantly reduces the necessity for lockdowns.

## Our measures

- Installation of avalanche towers at 7 of what used to be the target locations of the mine thrower, operated with the 2K<sup>®</sup> two-component explosive
- Installation of a horn for the early warning of wildlife before the initiation of blasting operations
- Real-time monitoring and operation of the avalanche towers via the WAC.3<sup>®</sup> software. This enables the Avalanche Protection Service to initiate action from any location via a tablet.
- Safe and quick documentation of daily assessments and decisions of the Avalanche Protection Service in WAC.3<sup>®</sup> Cockpit

## Even more safety with the module Communication

In parallel with commissioning of the new avalanche towers, the Walenstadt Avalanche Service will also adapt its communication of the safety measures to the general public this winter. Thanks to the communication tool, it is now possible to generate messages with information about various restricted areas and send them to residents automatically via SMS or voice call from within the WAC.3<sup>®</sup> software.



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