



Bern University  
of Applied Sciences

A photograph showing the interior of a long, covered wooden bridge. The structure is made of dark, weathered wood with a complex network of beams and trusses. The floor is made of wooden planks. In the distance, a person is walking on the bridge, and a car is visible at the end. The lighting is natural, coming from the sides.

# 2023 INTER

## International Network on Timber Engineering and Research - 10<sup>th</sup> INTER meeting 2023

23. August 2023

Tour Book



## Technical Tour – Region Bern/Thun

### Full day tour, including lunch and coffee breaks

Meeting time: Wednesday 23<sup>rd</sup> August 2023, 7.30 am

Meeting point: Main train station, Bahnhofplatz 4, 2502 Biel (Main entrance)  
GPS 47.13315945047261, 7.243012813571095

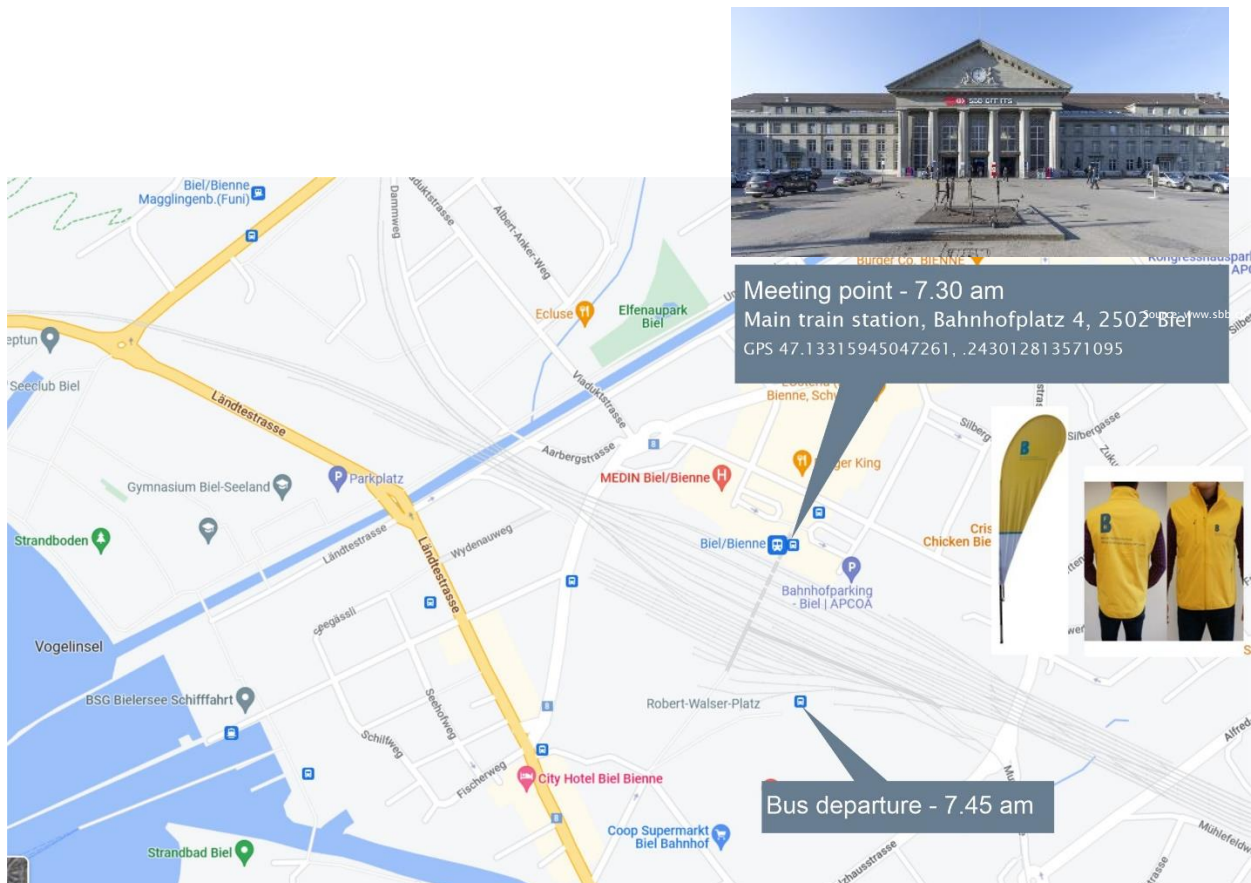
Return: 6.00 pm directly to Dinner, Magglingen

Please have look for a BFH-Flagg and person with yellow BFH vest!

Please, be prepared according to the weather conditions and with suitable footwear.

In case of problems please call: Steffen Franke 0041 79 770 9641 or  
Bettina Franke 0041 76 340 7523

Situation plan for meeting point, Main train station, Bahnhofplatz 4, 2502 Biel, Main entrance



## General Program for the day

Swiss companies and projects in the Bern and Thun regions will be visited during the tour.

- Visit Aarberg - Historic Timber Bridge
- Stop at Thun - Guided tour & leisure time in historic town
- Visit of Timbase, First Timber Basement in Switzerland
- Visit of IMMER AG - Multi-storey office building, *Lunch time*
- Visit Zaugg AG Rohrbach - Office Building and production hall, *Coffee time*
- Visit BASPO Magglingen - Sport research building, Lärchenplatz
- Welcome Apéro and dinner at Swiss Olympic House, Magglingen, incl. Swiss music
- Return to city of Biel/Bienne, Train station by convenient public transport, *Funicar in two groups at 10.27/10.57 pm*



## Detailed program for the technical stops

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### Time

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7.30 am Assembling for technical tour  
Main train station, Bahnhofplatz 4, 2502 Biel (Main entrance), see situation plan at page 3  
In case of problems, please call Steffen Franke 0041 79 770 9641 or  
Robert Widmann 0041 76 440 7243

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7.45 am Departure Biel/Bienne

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8.05 am **Aarberg**  
- Covered bridge  
9.45 am 40 min visit



9.45 am **Thun**  
- Timbase  
11.45 am Guided city tour  
Leisure time



12.00 pm **Uetendorf**  
- Immer AG  
1.30 pm Lunch break



2.30 pm **Rohrbach**  
- Zaugg AG  
3.30 pm Rohrbach  
Coffee break



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4.30 pm **Magglingen**  
Lärchenplatz



Kim Strebel Architekten GmbH

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5.30 pm Short walk to public terrasse BASPO – View and Swiss Alphorn

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6.00 pm **Swiss Olympic House**  
- Apéro and Conference Dinner  
11.00 pm

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10.00 pm **Return to Biel/Bienne, Train station**  
- by public transport – Funi Car  
11.00 pm Ticket provided

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## Timber Bridge in Aarberg

City: Aarberg

The history of this wooden bridge is closely connected with the town of Aarberg. In 1414, the crossing came into the possession of Bern with all rights and obligations. In the centuries, high floods destroyed it several times. Economic concerns were again and again the driving force for rapid reconstruction. The wooden construction rests on beautifully designed stone pillars. The maintenance of this important structure demanded enormous sacrifices; on the other hand, Bern collected up to 400 crowns per year through customs. In 1786 the bridge was renewed.

As was customary in the 15th century, the longitudinal beams, almost all date back to the old days, rest on oak saddle timbers, supported by stirrups on the piers. Since the Aare flows through the Hagneck Canal into Lake Biel, an opening is sufficient for the remaining water of the "old Aare". The renovation carried out in 1973 included all the structural elements. The architecture is dominated by the rhythm of hanging structures and rafters with an impressiveness that can hardly be surpassed. The bridge is a masterpiece and one of the most beautiful ones in Switzerland.

### Details

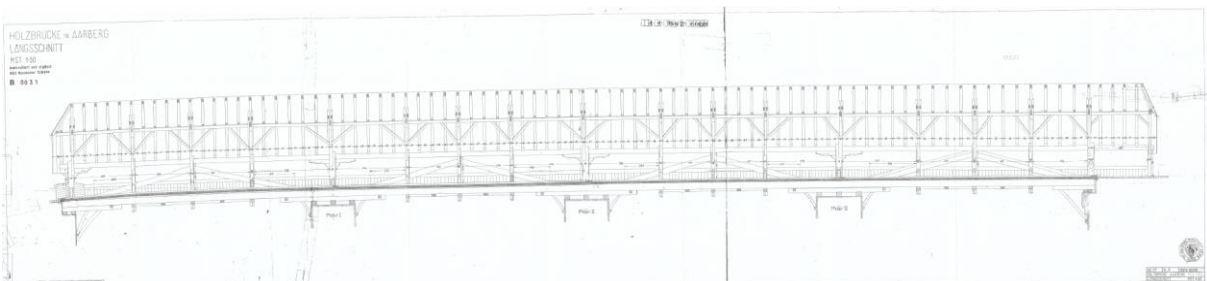
Construction type	Covered Bridge
Construction shape	Truss frame
Obstacle	Alte Aare (Running water)
Altitude	450 m
Built	1568 (retrofitted 1786)
Max. load	3.5 t
Length	86 m
Span	9.65 / 10.45 / 19.65 / 19.65 / 20.10 m
Usable width	5.1 m
Usable height	3.95 m
In charge	Kanton Bern
Access	Passable, Pedestrian
Supports	Stone pillar
Deck coatings	Oak Piles
Cover types	Beaver tail
Roof forms	Crippled hip roof
Facade coating	Railing formwork

Source: <http://www.swiss-timber-bridges.ch/detail/666>





*View of bridge Aarberg, photo S. Franke*

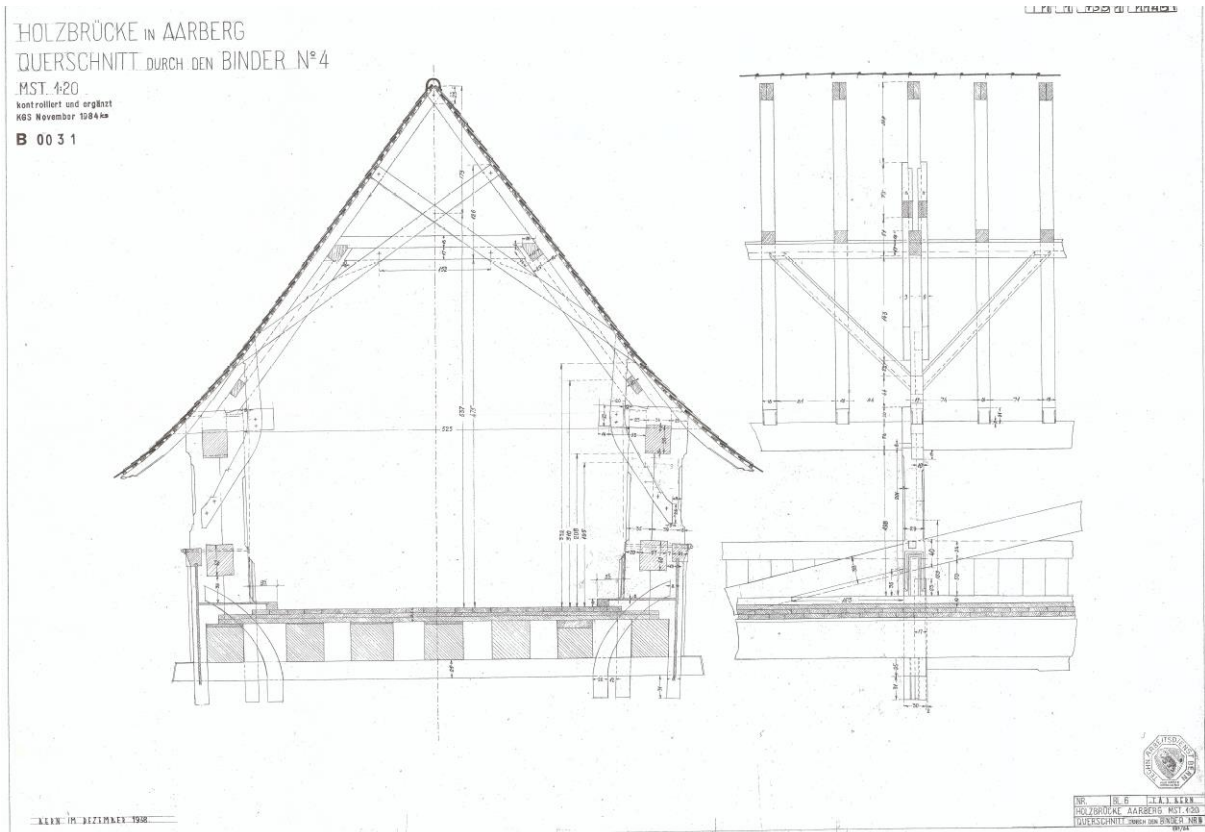


*Drawing, side view of bridge Aarberg, source A. Müller*



*Side view with column heads of bridge Aarberg, photo S. Franke*





Cross sectional drawing of bridge Aarberg, source A. Müller



View inside of bridge Aarberg, photo S. Franke



## Wooden basement - Timbase

City: Thun

An apartment building full of innovations was built in Thun. No concrete or steel was used in the entire house with 5 residential units - not even in the basement. Cross-laminated timber panels lie on top of a 160 mm thick insulation board. Black insulation encases the wood for moisture protection. The interior walls are non-load bearing; columns and the exterior walls support the cross-laminated timber floor slab. Thus, the basement is very flexible in use and can be used in many ways, thanks to the pleasant indoor climate due to the visible and tangible wood surface. The house in Thun is also the living lab of the DeepWood research project together with the Lucerne University of Applied Sciences and Arts and the Bern University of Applied Sciences. With DeepWood, the planning methods of Building Information Modeling (BIM) are being further developed.

The basement is a solid timber construction using cross laminated timber panels. TS3 joints allow for floor slabs without joists. The timber-framed external walls are well insulated, making it possible to dispense with a heating system. As a result, there is no conventional heating system in this building, although a hot air supply is available as a back-up. Blümlimattweg was the first project, a 45 degree TS3 joint had been grouted in a real building. TS3 only had experience of this in research projects. Another challenge of this project was the cold temperatures during grouting. For the first time, winter construction measures had to be developed and applied. The joints were locally heated with heating wires.

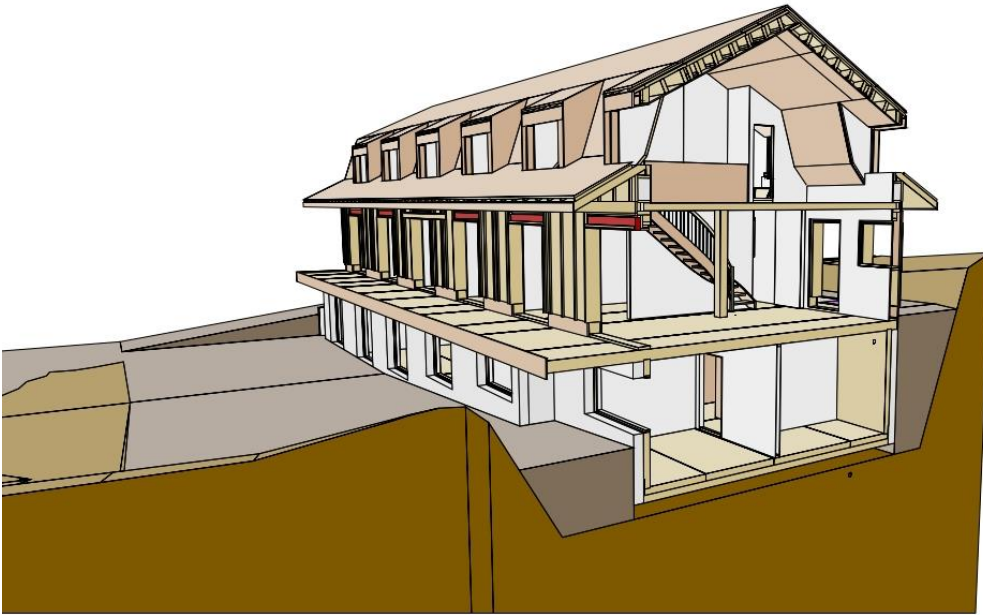
### Details Timbase

Construction type	Apartment building
Construction shape	Massive wood construction
Built	2021
Involved	HSL Architekten Zurich Timbatec Holzbauingenieure (Schweiz) AG Zurich Stuberholz AG
Material	178 m <sup>3</sup> Glulam and CLT
Specific	Number of floors: 3 Gross floor area: 998 m <sup>2</sup> TS3 technology: 360 linear meters of joints

Sources and further information:

<https://www.timbatec.com/en/holzbau/referenzen/2742-MFH-Bluemlimattweg-15.php>

<http://www.timbase.com>



Section through the building from CATIA 3DExperience, Source: [www.timbatec.com](http://www.timbatec.com)



Timber basement, Source: [www.timbatec.com](http://www.timbatec.com)





*Outside view, Source: [www.timbatec.com](http://www.timbatec.com)*



*Interior view, Source: [www.timbatec.com](http://www.timbatec.com)*

## Timber office building - IMMER AG

City: Uetendorf

Because space was becoming scarce at the existing location, the company IMMER AG in Uetendorf acquired an existing industrial hall. Partial demolition of the existing hall made room for the new four story building with office and craftsmen's centre. The new building is a timber construction with a column grid of 8.56 by 6.12 m. The wood for the supporting structure comes from the Bernese Oberland, the silver fir wood for the outer facades from the Emmental. The architecture for the new building was planned by SOBA-TEC GmbH in Uetendorf. The timber structure was developed by Neue Holzbau AG Lungern, and the timber construction was planned and assembled by Boss Holzbau AG Thun.

### Details

Construction type	Five story office building
Built	2019
Architect and Planner	Architect: Sobatec GmbH Planner: Neue Holzbau AG
Dimensions	Length 26.5 m / width 25.3 m / height 17.5 m
Material	Spruce Fir Timber-concrete composite structures

Source: IMMER AG, neue Holzbau AG, Jungfrau Zeitung (2019)

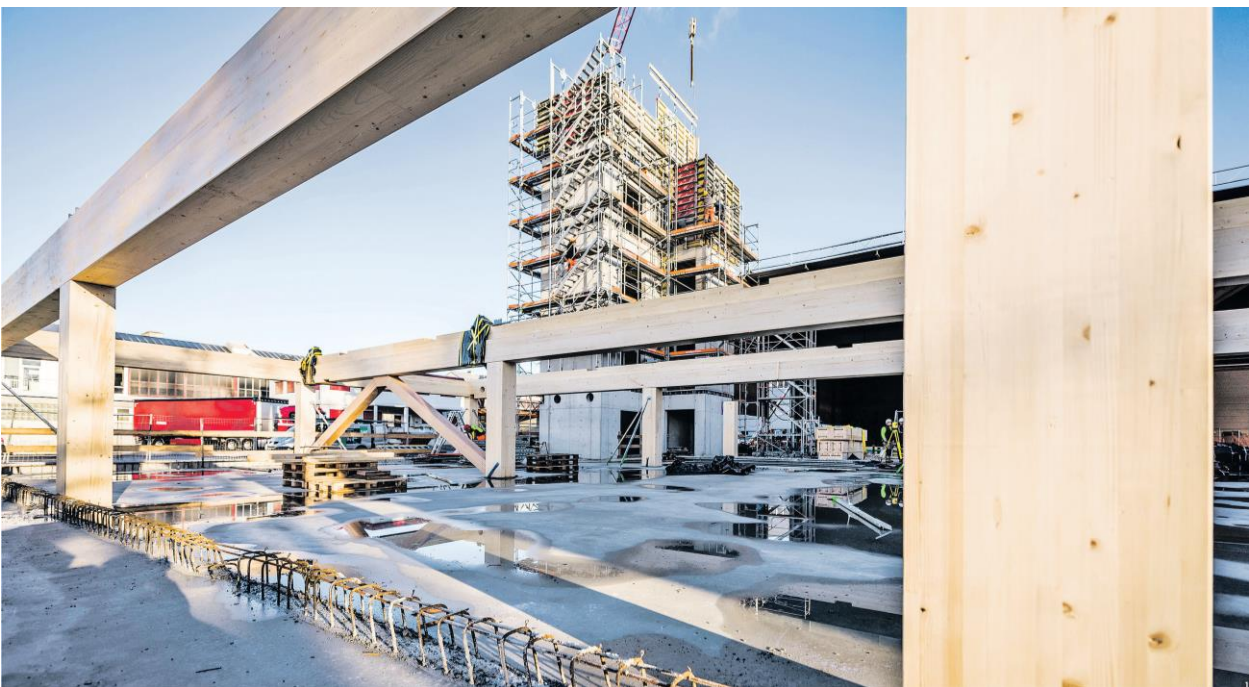


Photo: Willy Zurbrügg/zvg





*Photo: Willy Zurbrügg/zvg*



*Photo: Willy Zurbrügg/zvg*

## Timber office building and production site - Zaugg AG Rohrbach

City: Rohrbach

The main beams of the roof structure consist of straight glulam beams, 20 m long and 20 cm wide. The beams are superelevated to meet the deflections from the permanent loads. The vertical load transfer to the substructure is provided by glulam columns.

The roof elements consist of an OSB board and massive timber purlins. The roof elements are designed as a roof slab to transfer the horizontal forces into the substructure via visible wall bracing, made of tension rods.

The intermediate ceilings of the upper floor consist of board stack modules. They are supported by glulam beams in the gable walls and steel beams in the interior.

### Details

Construction type	Two storey office building
Built	2008
Architect and Planner	Zaugg AG Rohrbach
Material	Spruce and Larch
Specific	Structure: Timber truss structure Facade: Larch lamellas Roofing: Timber element



*View of office timber building of Zaugg AG Rohrbach, photo Zaugg AG Rohrbach*



## Description production halls

In three halls, Zaugg AG Rohrbach uses ultra-modern equipment to cut and process wood and assemble it, among other things, into ready-to-use wall or ceiling elements. Beams up to 60 m long can be processed in the new 2500 m<sup>2</sup> hall. Computer-controlled machines support the employees along the production.

## Details Timber Production Hall

Construction type	Timber and metal construction
Built	2015
Architect and Planner	Zaugg bauconcept AG, Rohrbach
Material	Spruce



*Top view of planning and production site of Zaugg AG Rohrbach, photo Zaugg AG Rohrbach*



*Inside view of the production hall, photo Zaugg AG Rohrbach*

## Office building - Lärchenplatz BASPO Magglingen

City: Magglingen

The Lärchenplatz and the university are formulated as a new ensemble that relates orthogonally to each other. The new three storey building at Lärchenplatz will be constructed largely in solid construction. The two-storey rooms on the front sides are suspended from the solid construction in timber construction via rigid roof panels. The building is enclosed by a vertical timber structure. This structure divides the volume and mediates between the spacious halls and the other rooms. The two double-storey halls at both ends of the building were built with timber construction. Wood as a building material locates the building in a forest clearing and forms the wooden façade of the two upper floors. The resolved floor plan with columns as main supporting elements for the vertical loads lead to partly large ceiling spans with more than 12 m in the main entrance area on the ground floor.

The theme of the recessed and glazed base with the projecting two-storey wooden structure above is striking. Furthermore, the building, which is deliberately kept low, is perforated with two courtyards, thus allowing attractive external access and good natural lighting. The various uses are arranged in a kind of circumferential 'bark'. Most of the offices, laboratories, etc. are located on the south and north facades as well as on the two inner courtyards. The sports physiotherapy and sports medicine departments are located on the ground floor with the unlit cloakrooms and ancillary rooms on the slope side. On the first floor, the performance diagnostics are located with the two-storey halls on both front sides of the building, and the various office uses are arranged on the first floor. The partial basement contains storage and technical rooms as well as a running track. (Excerpt from the jury report)

Consistent system separation and a flexible support structure allow for changes to the room layout at a later date. The project was planned with the sustainability tool "SIA Effizienzpfad Energie", which is the basis for the implementation of the stage goal of the 2000-watt society. All three areas "construction, operation and sustainability" are complied with for the new building.

### Details

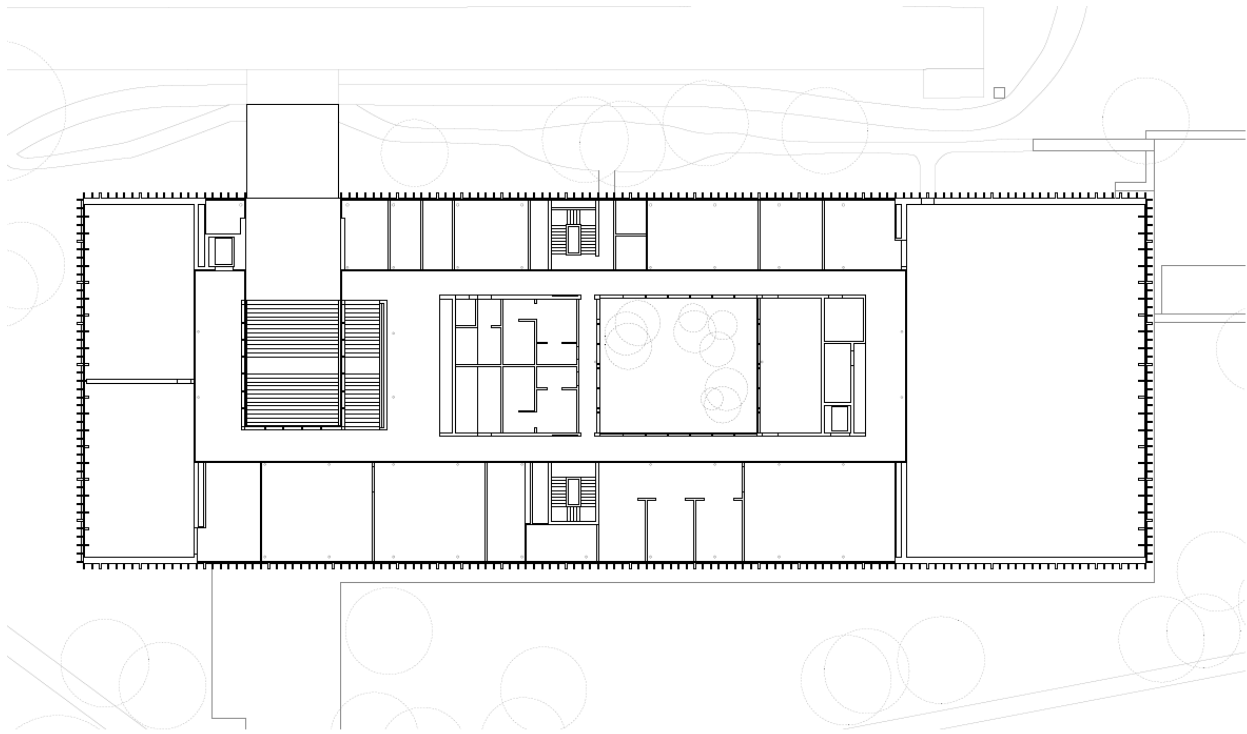
Construction type	Three storey office building
Built	2020 - 2023
Architect and Planner	Kim Strebel Architekten GmbH

Source: Kim Strebel Architekten GmbH





*Extension building for the University of Sport, Magglingen, Photo: Kim Strebel Architekten GmbH*

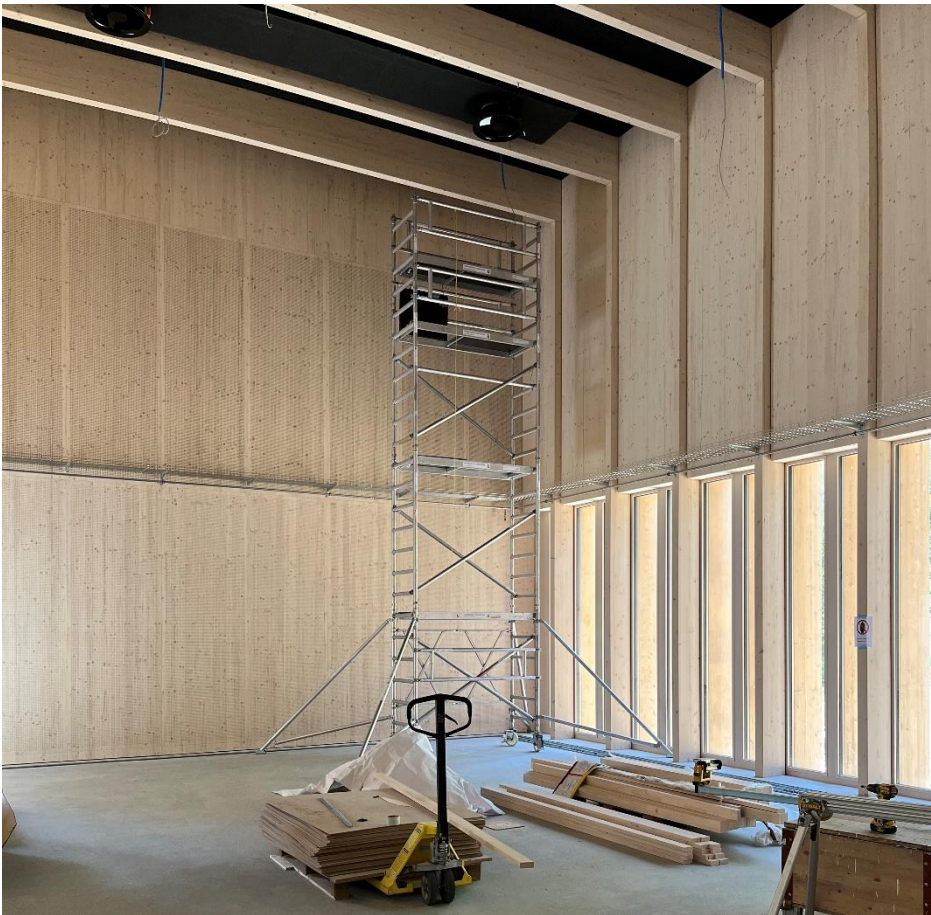


Grundriss Ebene 01 1:250    Neubau Hochschule Lärchenplatz    10.07.2023



KIM STREBEL ARCHITECTEN

*Floor plan first floor, Kim Strebel Architekten GmbH*



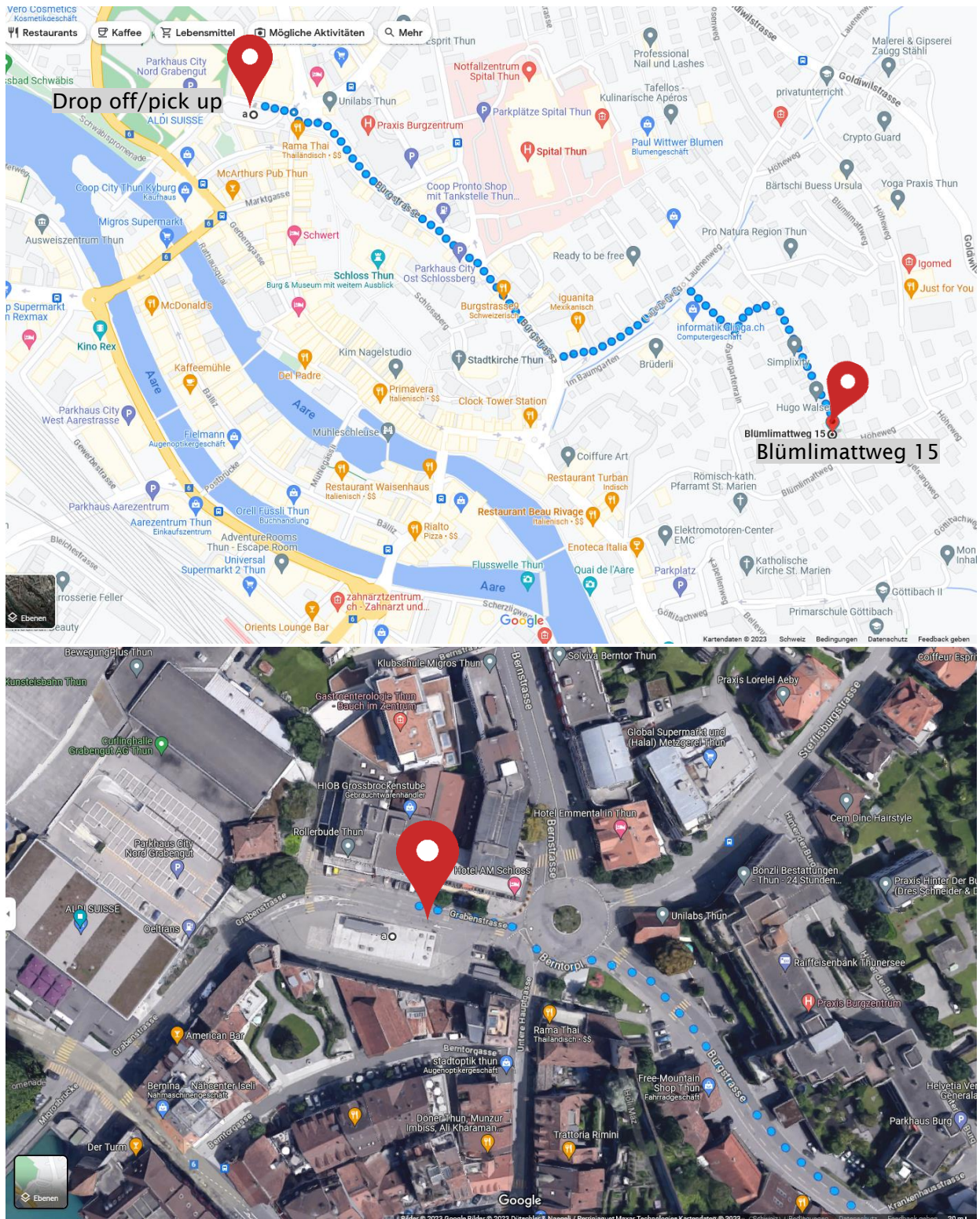
*Inside view in one of the laboratories, Photo: Kim Strebel Architekten GmbH*



*Inside views of the office / laboratory areas, Photo: Kim Strebel Architekten GmbH*



## Situation plan Thun



10<sup>th</sup> INTER meeting 2023  
Participant Handbook - Technical Tour INTER  
Wednesday, 23 August 2023

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<https://www.bfh.ch/ahb/en/news/events/inter-2023/>

Tour Partners

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