

Active collaboration and the benefits of crowd intelligence



Reto Schneider
n`H International AG

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~~Current failings
in international
timber
construction~~

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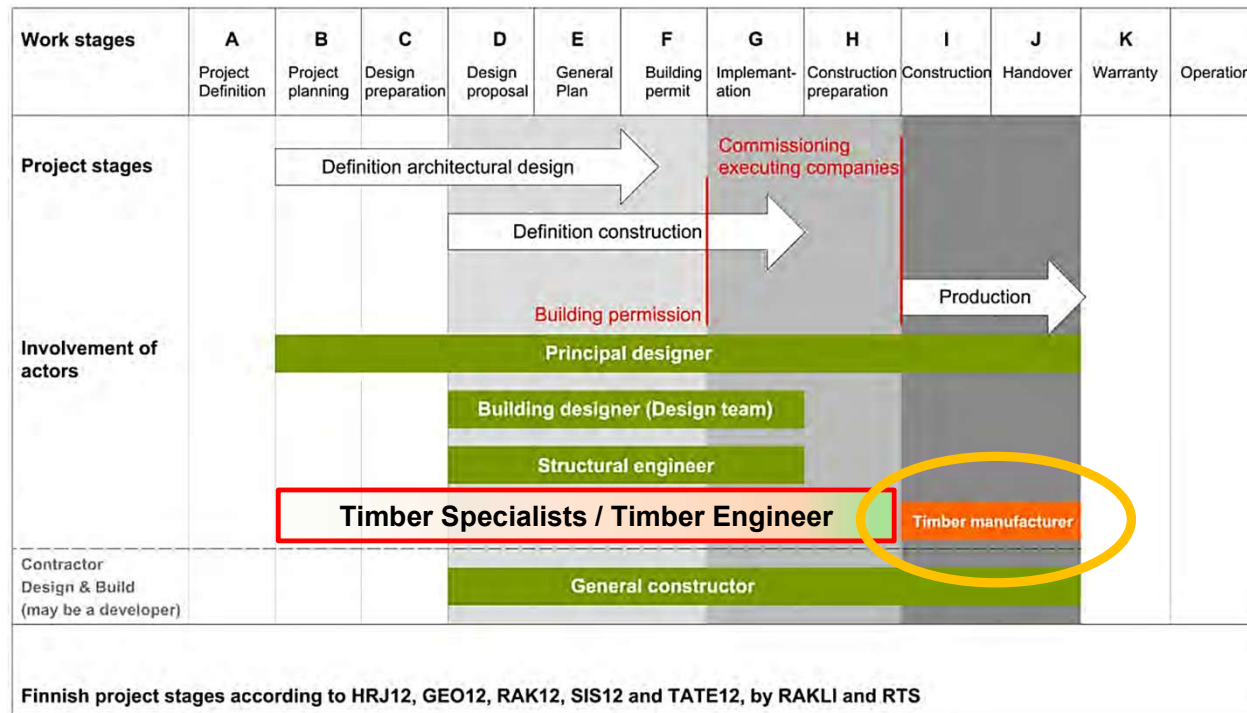


Abbildung 5: Finnische Projektphasen auf Basis der RAKLI/RTS Tehtävälueetelo 2012 Definitions.
Quelle: le Roux, Simon (Aalto University).

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Source: www.stern.de

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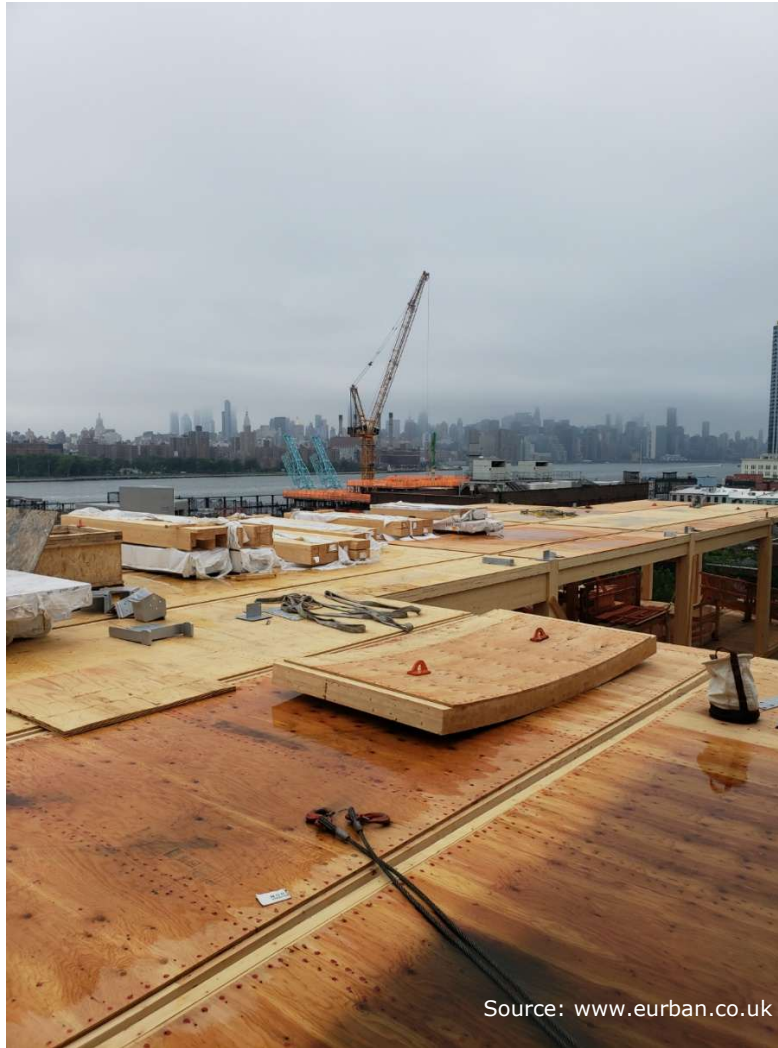
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Source: www.eurban.co.uk

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Source: Scan - confidential



Let`s talk about...

POSITIVE RESULTS
THOUGHTS

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Source: www.herzog-elmiger.ch

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Source: www.herzog-elmiger.ch

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Contents of the presentation

- General project information
- Collaboration Structure
- Working methodology
- Load-bearing structure in timber
- PoC – moisture monitoring
- Summary

Active collaboration and the benefits of crowd intelligence

Collaborator and innovator for the wood industry – driven by passion

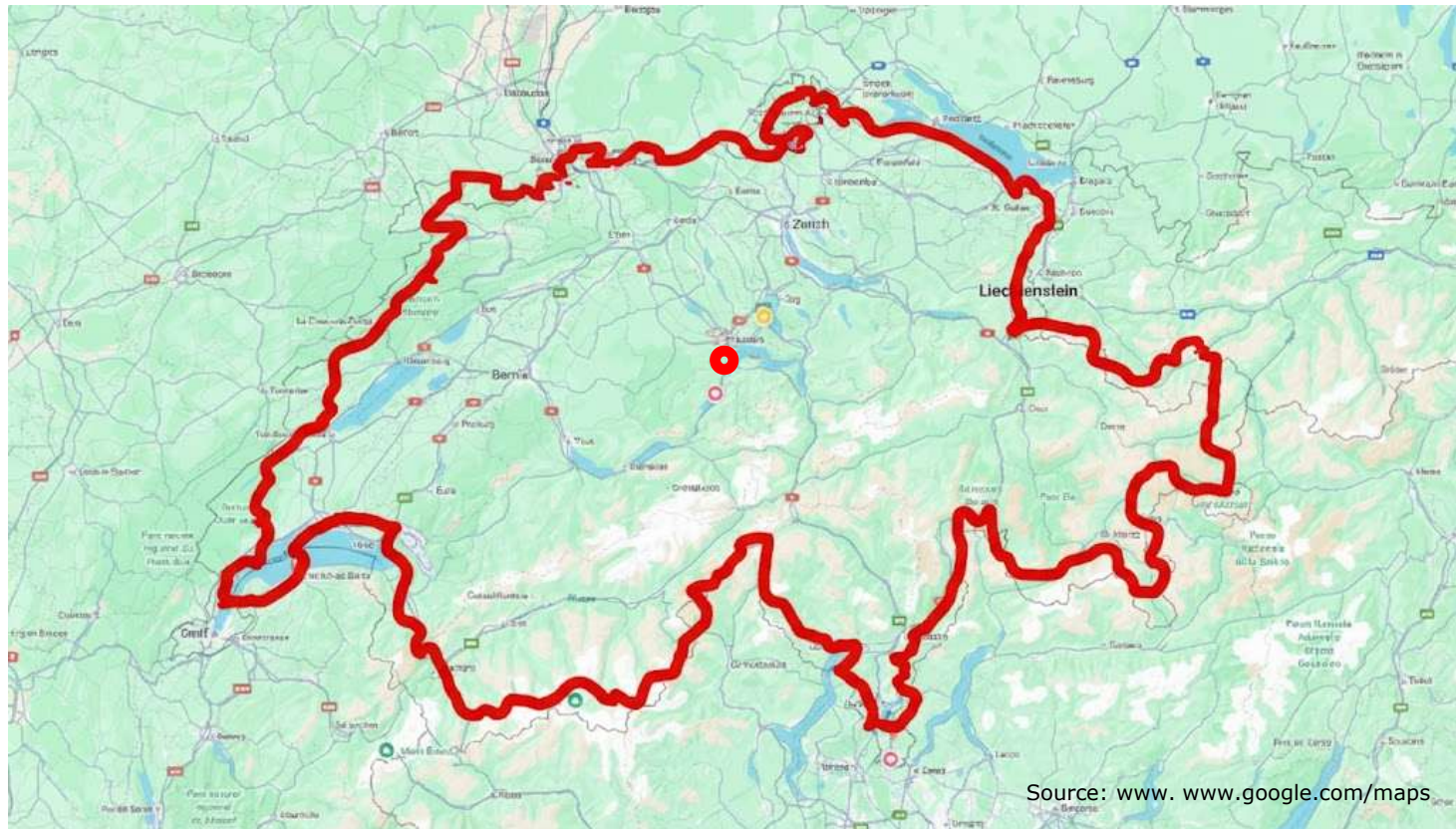


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- | | |
|--------------|--|
| 1989 – 1993 | Carpentry apprenticeship |
| 1993 – 1999 | Carpenter (production to assembly) |
| 2000 – 2005 | Part-time diploma course in project management / interior design studies |
| 2000 – 2012 | Balteschwiler AG (Production and Trading Company Field Service - Branch Management) |
| 2012 – today | Woodness (Freelancer, Expert, Influencer) Part time 30%
Mandates for the timber (construction) industry
Various further studies (a.o. CAS Digital Planning, Building, Use)
Various association memberships (including board and committee member of LIGNUM Holzwirtschaft Zentralschweiz) |
| 2014 – today | n'H International AG
CEO International Business Part-time 80% |

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General project information



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General project information




Krienser Firma sucht neuen Standort - weil sie dem Bypass weichen muss

Die Holzhandelsfirma Herzog-Elmiger befindet sich direkt neben dem Sonnenbergportal. Das Grundstück wird für den Autobahn-Bypass benötigt. Nun sucht die Firma einen neuen Standort - die Zeit drängt.

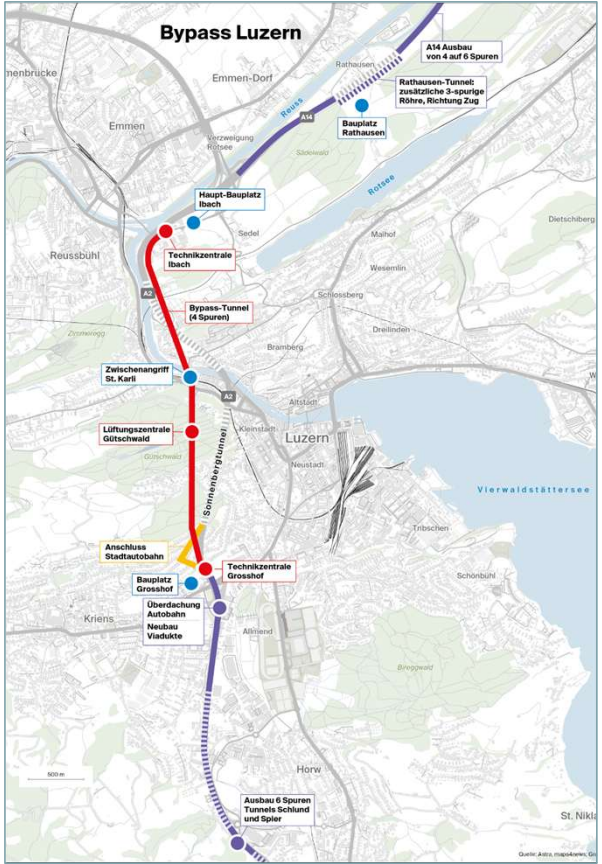
Beatrice Vogel
31.07.2020, 05:00 Uhr

Merken Drucken Teilen

Exklusiv für Abonnenten



Source: www.luzernerzeitung.ch

The image shows a screenshot of a news article from the Luzerner Zeitung. The headline reads 'Krienser Firma sucht neuen Standort - weil sie dem Bypass weichen muss'. The text explains that the wood trading company Herzog-Elmiger is looking for a new location because its current site is needed for an highway bypass. Below the text is a photograph of the Herzog-Elmiger AG building, a large industrial-style structure with a prominent sign. The source is cited as www.luzernerzeitung.ch.

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General project information

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Melanie Herzog und Michael Herzog, Inhaber der Herzog-Elmiger AG, haben anlässlich des 120-jährigen Jubiläums den neuen Standort in Obernau eröffnet. Bild: zVg/Herzog-Elmiger AG

Herzog-Elmiger eröffnet zum 120. Geburtstag neuen Sitz in Obernau

26 August 2025 10:34

Kriens-Obernau LU - Die Herzog-Elmiger AG hat nach 65 Jahren in Kriens den neuen Sitz in Obernau bezogen. Mit der Einweihung des neuen Standorts hat das im Holzhandel tätige Familienunternehmen am 23. und 24. August 2025 auch sein 120-jähriges Jubiläum gefeiert.

Source: <https://punkt4.info/>

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General project information

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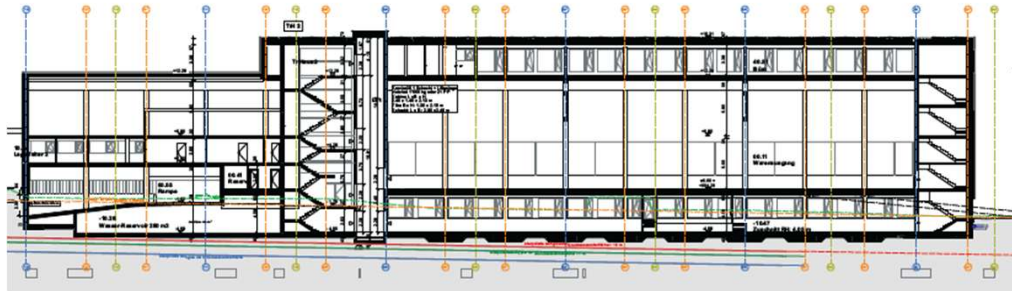
Source: ifc-File, Solibri Anywhere - www.2eck.ch

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General project information

- Groundbreaking ceremony: 12 June 2023
- New building and relocation phase lasted 26 months
- The building has dimensions of approximately 83 x 100 metres
- The height above ground level is approximately 12 metres
- Warehouse volume of over 150,000 m³

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Collaboration Structure

Engineering, timber construction including assembly and production of load-bearing structure

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PIRMIN JUNG

T **TSCHOPP**
Aus Berufung Holz.

HECHT 
ECHT HOLZ

bisang
Holzbau

 **HÜSSER**
HOLZLEIMBAU AG

n'H
neue Holzbau AG

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Collaboration Structure

The team already knew each other from previous projects, but this was the first time that the team had joined forces with two glulam producers.

This means that not only timber constructors have joined forces, but also partners from the timber industry. All companies are located within a radius of 40 kilometres.

Pro:

The volumes are constantly increasing, allowing each company to maintain its agility and ability to execute other orders in parallel.




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Collaboration Structure

In concrete construction, 30,000 m³ is routine – in timber construction, it is a revolution.

Initial situation – concrete in comparison 15,000–30,000 m³ of concrete is not unusual for large construction sites.

Large general contractors (GCs) have enormous capacities:
No. 1 in Europe: Vinci SA (FR) → 176,500 employees
No. 10 in Europe: FCC SA (ES) → 80,000 employees
(dated: 2023)

Such companies can easily handle several mega-projects at the same time.



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Collaboration Structure

In concrete construction, 30,000 m³ is routine – in timber construction, it is a revolution.

Reality in timber construction

Europe's strongest timber contractor:
Blumer Lehmann with ~600 employees
Next: Wiehag, Züblin Timber, etc. with 150–400 employees

In comparison:
Vinci has around 300 times more staff than Blumer Lehmann!



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Collaboration Structure

Consequence

If we want to implement timber construction projects involving 15,000–30,000 m³ of timber, structures, collaborations and processes need to be completely rethought.

Key message / call to action

We have only one chance to successfully master the timber boom. This requires:

- Pooling of resources
- Stronger alliances between timber construction companies
- Industrial prefabrication & digitalisation
- Common standards and scalability



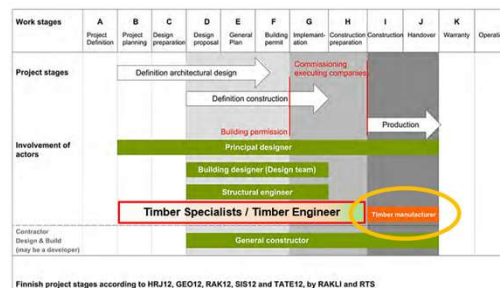
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Working methodology

The structural framework was developed in collaboration with n'H as part of the preliminary project. The architects quickly created a clean model based on our specifications.

This model was used for both the tender and the implementation planning.

Only cloud storage was used as a platform.



Finnish project stages according to HRJ12, GEO12, RAK12, SIS12 and TATE12, by RAKLI and RTS
Abbildung 5: Finnische Projektphasen auf Basis der RAKLI/RTS Tehtäväluetelo 2012 Definitions.
Quelle: le Reux, Simon (Aalto University).

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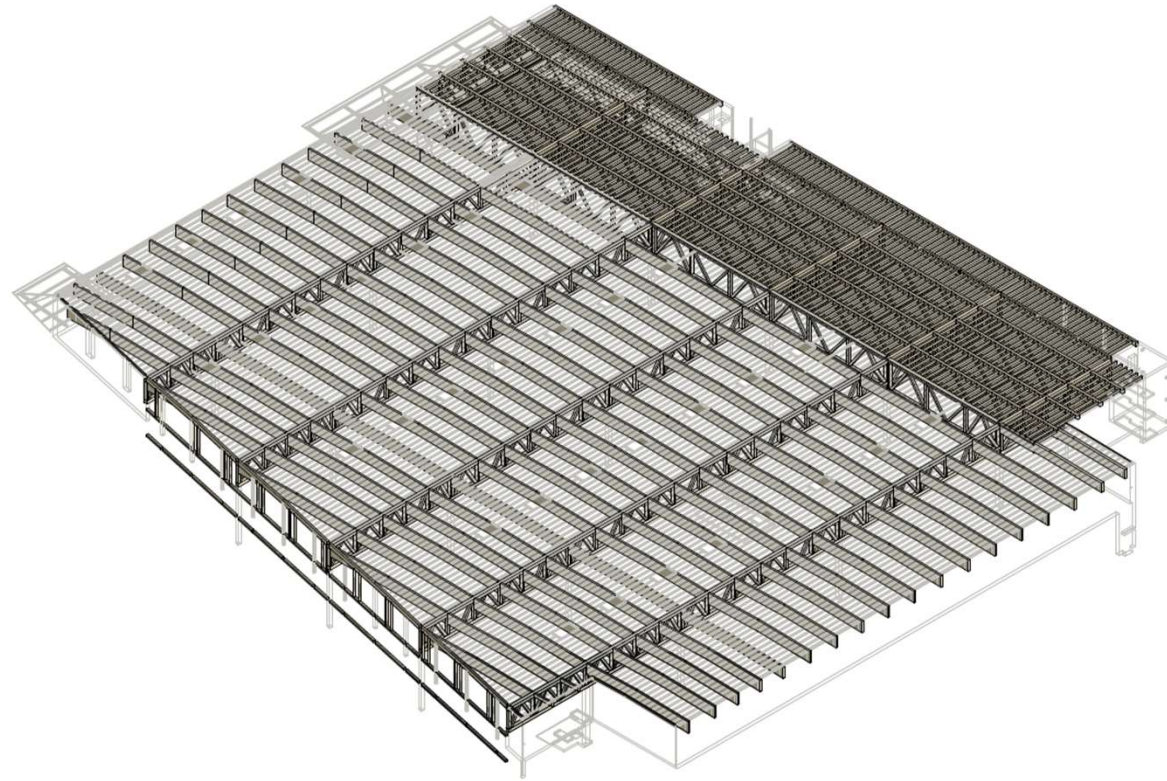
Working methodology



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Load-bearing structure in timber



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Load-bearing structure in timber

Dach- und Deckenkonstruktion		2'139.51 m³	1'645.77 m³	76.9%		
FW Gurten BSH Industrie GL24h	44.00 m³	ja	Hüsser/ Bremgarten/ LIGNUM-50-0011	1		
FW Gurten BSH Industrie GL28h	119.00 m³	ja	Hüsser/ Bremgarten/ LIGNUM-50-0011	1		
Nebenträger BSH Industrie 200-240mm GL28k	605.00 m³	ja	Hüsser/ Bremgarten/ LIGNUM-50-0011	1		
FW Gurten & Streben Pollmeier Baubuche GL75	116.00 m³	nein	Hüsser/ Bremgarten/ LIGNUM-50-0011	1		
Brettschichtholz Fichte/Esche	336.90 m³	ja	neu Holzbau/ Lungern/ LIGNUM-50-0014	2		
BSH, DUO Fichte/Tanne Österreich) kl. Querschnitte	32.90 m³	nein	neu Holzbau/ Lungern/ LIGNUM-50-0014	2		
Baubuche GL75 (Deutschland)	19.60 m³	nein	neu Holzbau/ Lungern/ LIGNUM-50-0014	2		
BSH/I, LAM/I Fichte Tanne (Schilliger)	540.08 m³	ja	Schilliger, Küssnacht/ LIGNUM-30-0071	3		
Dachlatten Fichte 30/50 mm KD kalibriert	0.79 m³	ja	Herzog Elmiger, Kriens / LIGNUM-80-0046	4		
3-Schicht Fichte C/C	76.48 m³	nein	Herzog Elmiger, Kriens / LIGNUM-80-0046	4		
OSB	248.76 m³	nein	Herzog Elmiger, Kriens / LIGNUM-80-0046	4		
Deckenkonstruktion	0.00 m³	0.00 m³	0.0%			
Bodenkonstruktion	0.00 m³	0.00 m³	0.0%			
Innenwandkonstruktionen	1.83 m³	0.00 m³	0.0%			
Ruheraum von Kueng AG Emmen	1.83 m³	nein				
Aussenwandkonstruktion	0.00 m³	0.00 m³	0.0%			
Fassade	75.00 m³	75.00 m³	100.0%			
Fassadenschalung Tanne rift / halbrift Starkholz	38.00 m³	ja	Schaerholzbau AG	5		
Lisenen für Fassade. Tanne. 60/40. 60/120. 60/170	30.00 m³	ja	Schaerholzbau AG	5		
Dach- und Deckenkonstruktion	2'139.51 m³	1'645.77 m³	76.9%			
FW Gurten BSH Industrie GL24h	44.00 m³	ja	Hüsser/ Bremgarten/ LIGNUM-50-0011	1		
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OSB	248.76 m³	nein	Herzog Elmiger, Kriens / LIGNUM-80-0046	4		
Küche 4.OG Schreinerei Markus Vogel	4.79 m³	nein				
Kücheneinrichtung Herzog Elmiger	5.89 m³	nein				
Einbauschränke	5.95 m³	0.00 m³	0.0%			
Garderobe von Schermo	0.90 m³	nein				
Schränke Druckerräume	1.10 m³	nein				
Empfang Schreinerei Vogel	3.95 m³	nein				
sonstige:	22.96 m³	0.00 m³	0.0%			
Schreinerarbeiten Büro - Schreinerwerk Sempach	22.96 m³	nein				
sonstige:	0.00 m³	0.00 m³	0.0%			
Dämmung (fakultativ - siehe Anleitung)	0.00 m³	0.00 m³	0.0%			
TOTAL OBJEKTE	2'307.82 m³	1'752.49 m³	75.9%			



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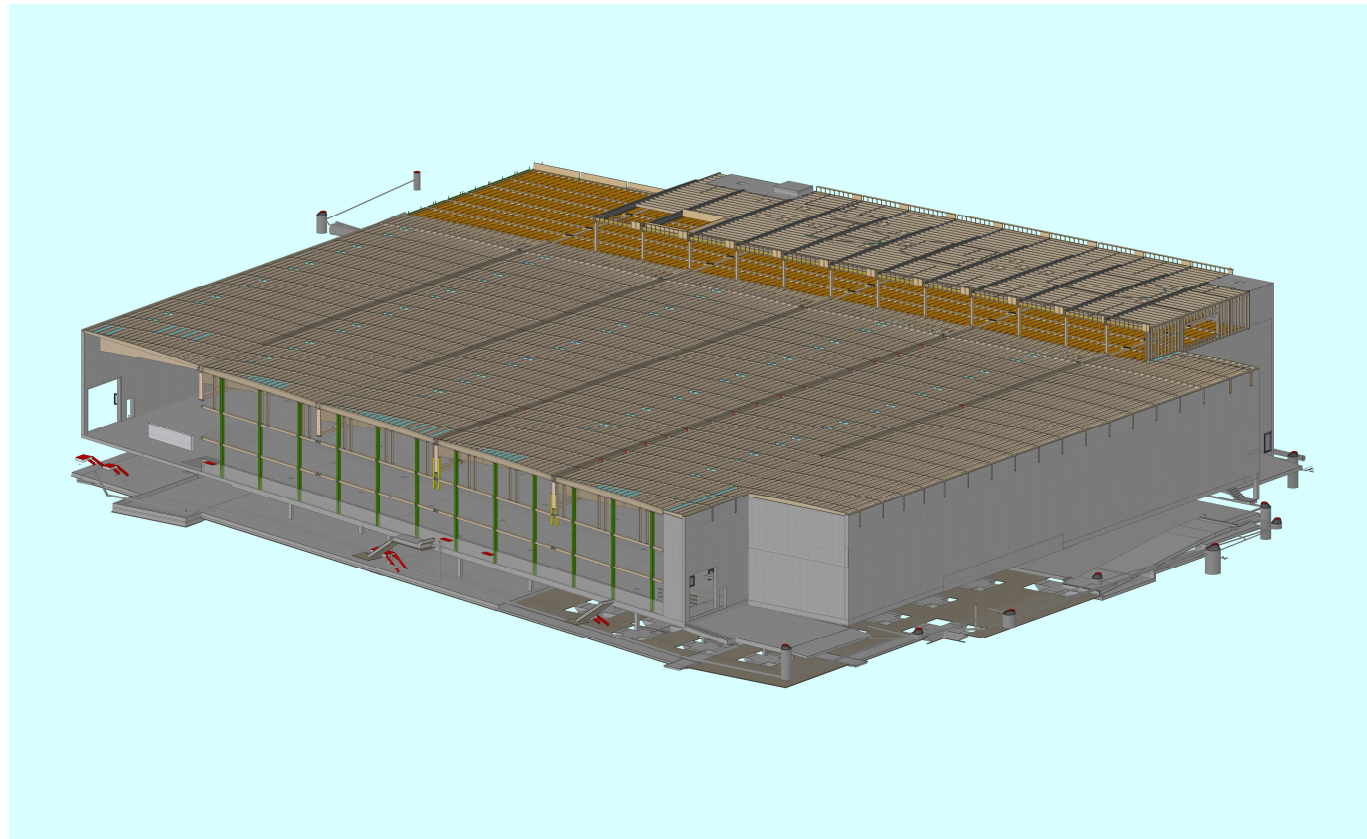
Load-bearing structure in timber

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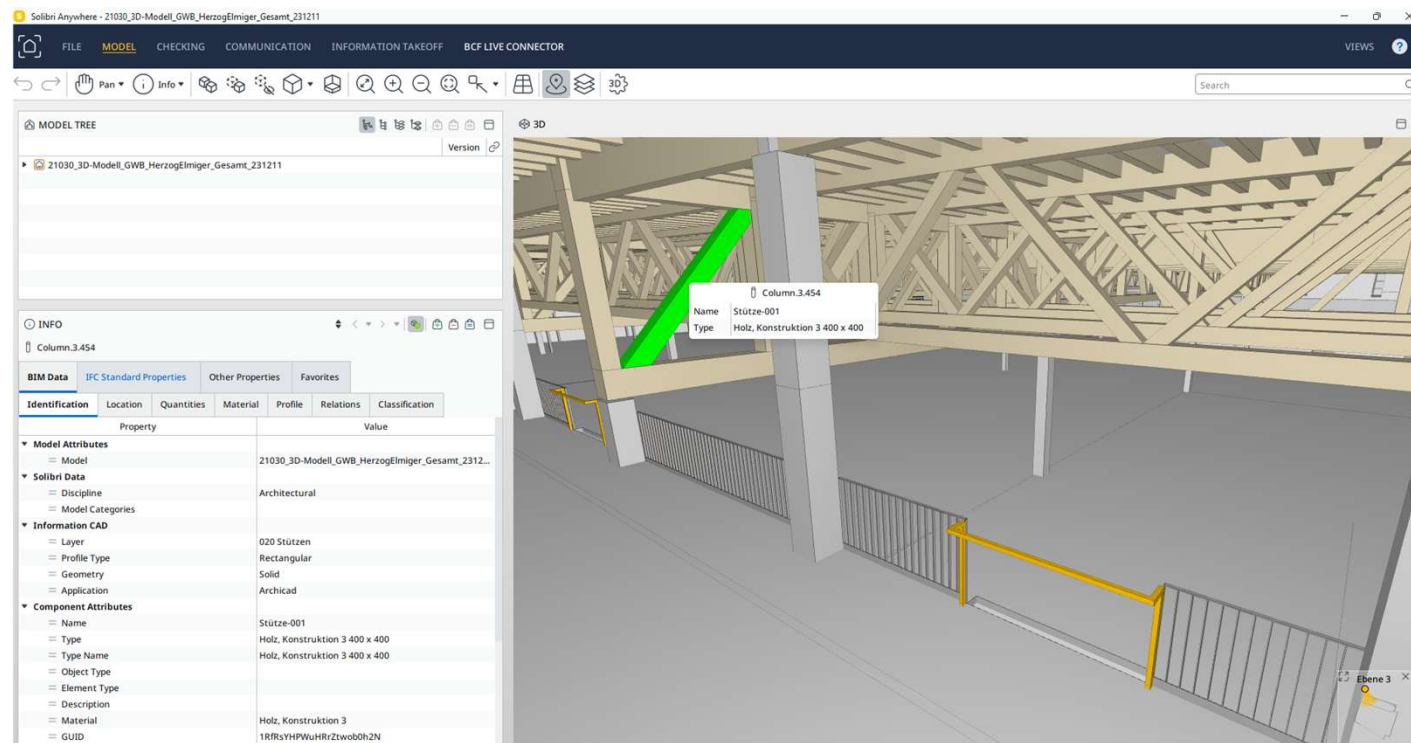
Load-bearing structure in timber



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Load-bearing structure in timber



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Load-bearing structure in timber



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Load-bearing structure in timber



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Load-bearing structure in timber



Hardwood glulam Ash

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Load-bearing structure in timber



Transport der Sonderklasse - just in time

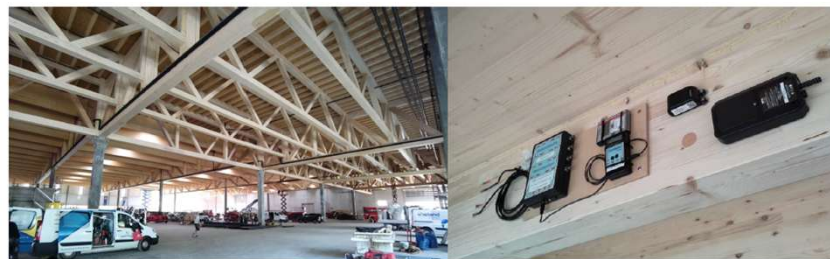
Source: Youtube, <https://youtu.be/CYIPfQ238CY?si=o5Yt8IEuiBj4auwo>

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PoC – moisture monitoring



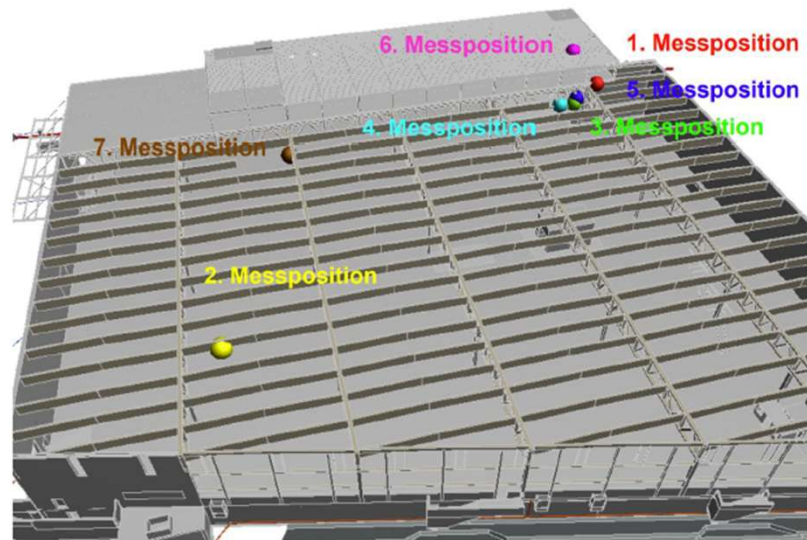
Purpose



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PoC – moisture monitoring

Set Up



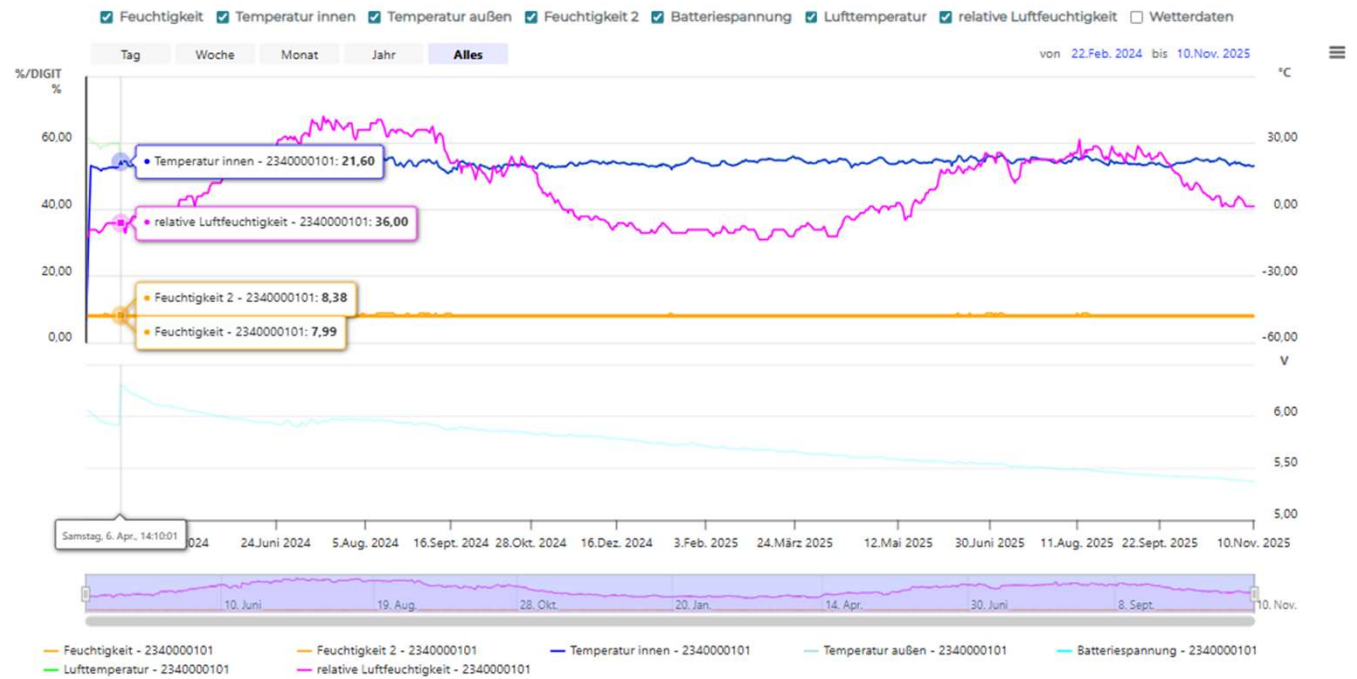
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PoC – moisture monitoring



Chart Sensor

<< Zurück



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PoC – moisture monitoring

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PoC – moisture monitoring

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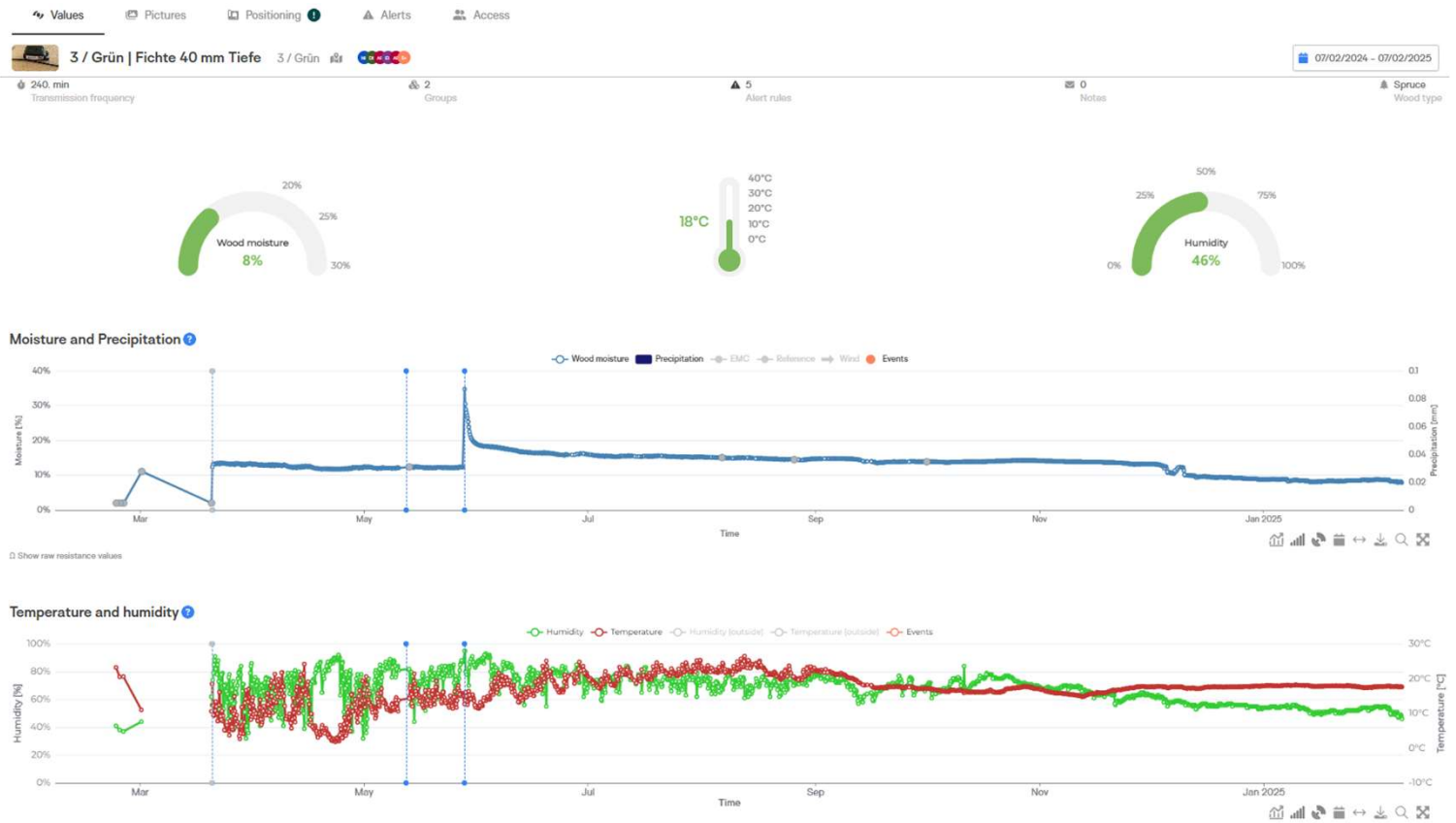
PoC – moisture monitoring



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PoC – moisture monitoring



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PoC – moisture monitoring

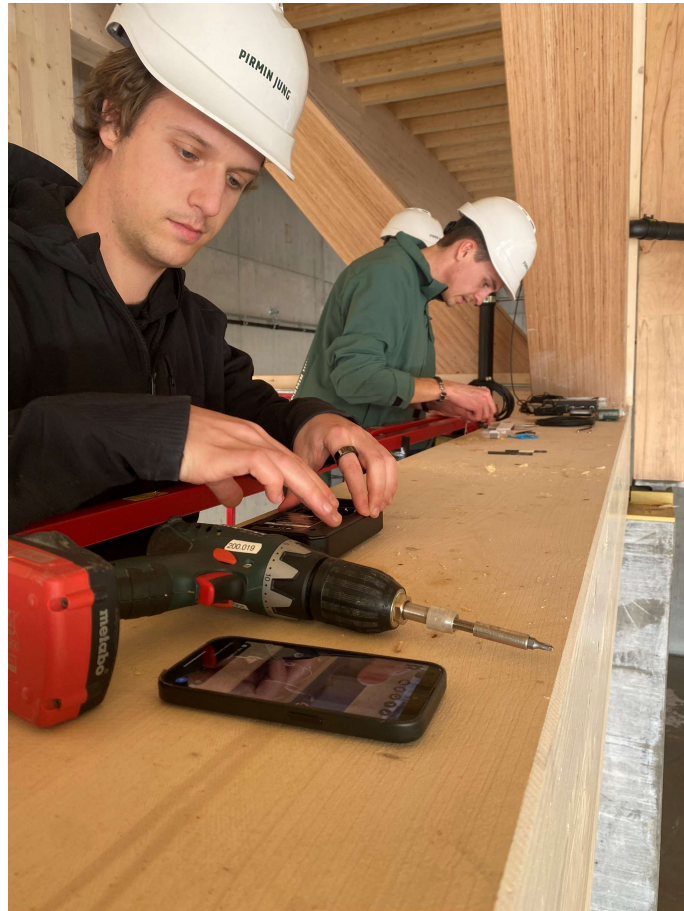
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PoC – moisture monitoring

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PoC – moisture monitoring



Dummy values for sensor comparison

You were told to be provided with values, that are recorded in a controlled lab environment. As time is short and this kind of measurements is time consuming, you will need to work with made up dummy values. To guarantee a maximal degree of transparency, I try to explain the process of creating the dataset as accurate as possible. When something remains unclear, please do not hesitate to reach out to me. You reach me on Teams or by mail: jonas.uhlend@bfh.ch
Please consider, that the delivered dataset does not necessarily need to have similarities with real data.

1. Testing Setup

We have cut a sample of 7*7*15 cm of each sample, which we place in a climate chamber. Three measuring systems that rely on the moisture dependent electrical resistance are attached to the screws, one sensor measuring the equilibrium relative humidity is placed in a hole in the bottom of the blocks.



Figure 1: Test setup

2. Creating the dummy data

Creating the dummy data consists of creating a dataset which represents the relative humidity and temperature in the climate chamber and running a WIFI simulation for the sample blocks. The climate file is very simple on 50 and 70 % relative humidity with a constant temperature of 20°C. for the WIFI simulation, a setup was done as seen in Figure 2. The materials were chosen from the database as seen on the figure, representing the materials tested.

In spring 2026, we will write a final report and share the results with interested parties.

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Summary

- The best solution was analysed with timber construction engineers and glulam producers in the preliminary project.
- Early involvement of specialists – without a contract for work and services
- On this basis, the costs, contracts and implementation planning were drawn up – with the work contract partner.
- The selected team also coordinated optimally in terms of data exchange and planning.
- Spending on coordination meetings and general project discussions was 30% more efficient.
- Quote from project manager, Work Preparation: “Excellent specialist engineers, a very satisfactory project in all issues.”

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Summary

- A satisfied customer – and research and development for practical application generates added value for follow-up projects.
- Good weather protection concepts cost money, but they generate even better projects and a better reputation for building with timber.
- Personal conclusion: We did not inform the companies – not even my employer – in advance that we were monitoring this project in terms of weather protection. Without warning, all partners implemented the weather protection very well. Even although it often rained for days on the main structural work (on site).

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Summary



Source: PIRMIN JUNG Schweiz AG

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Source: PIRMIN JUNG Schweiz AG

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Source: PIRMIN JUNG Schweiz AG

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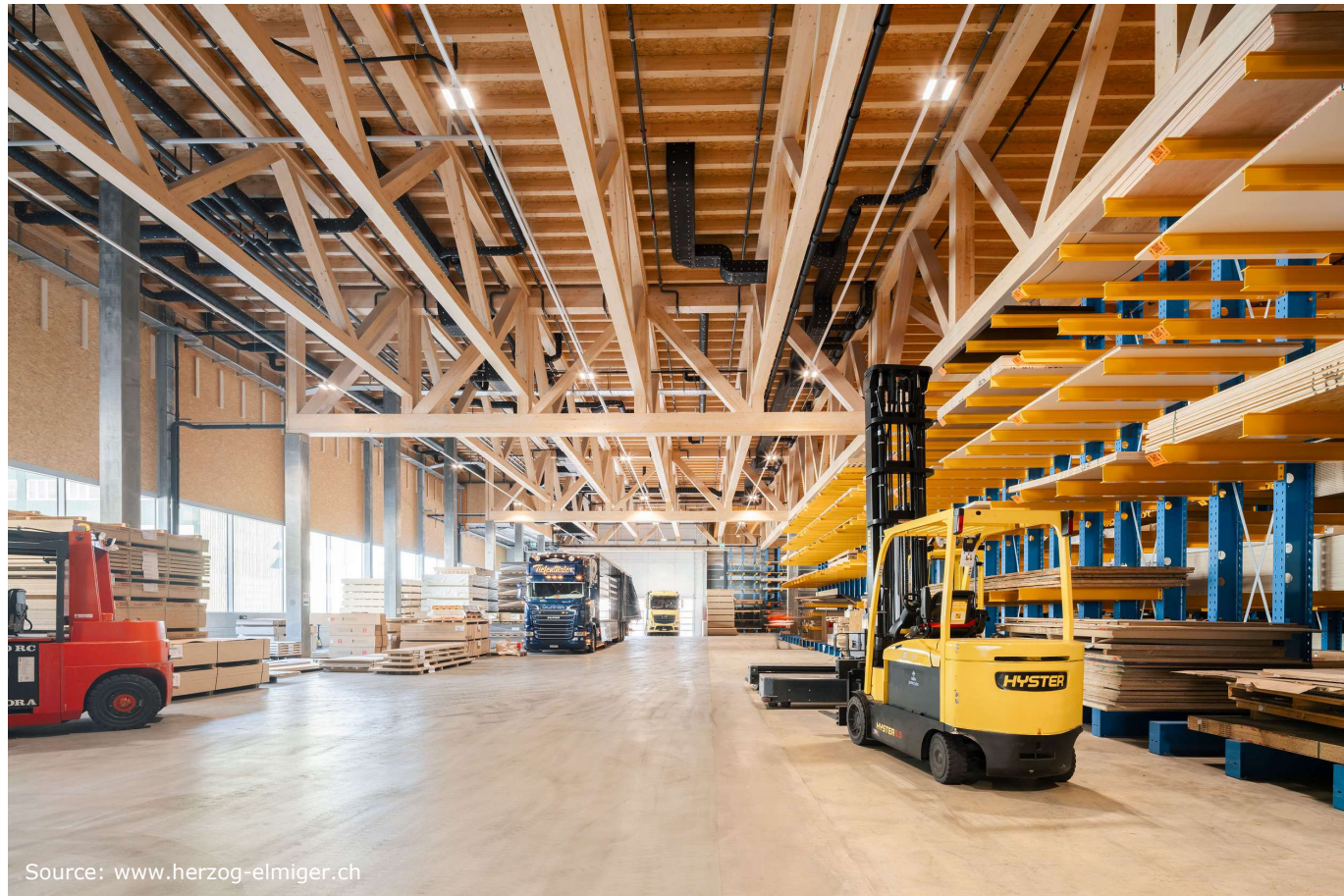
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Teamwork

Makes

Dream

Work

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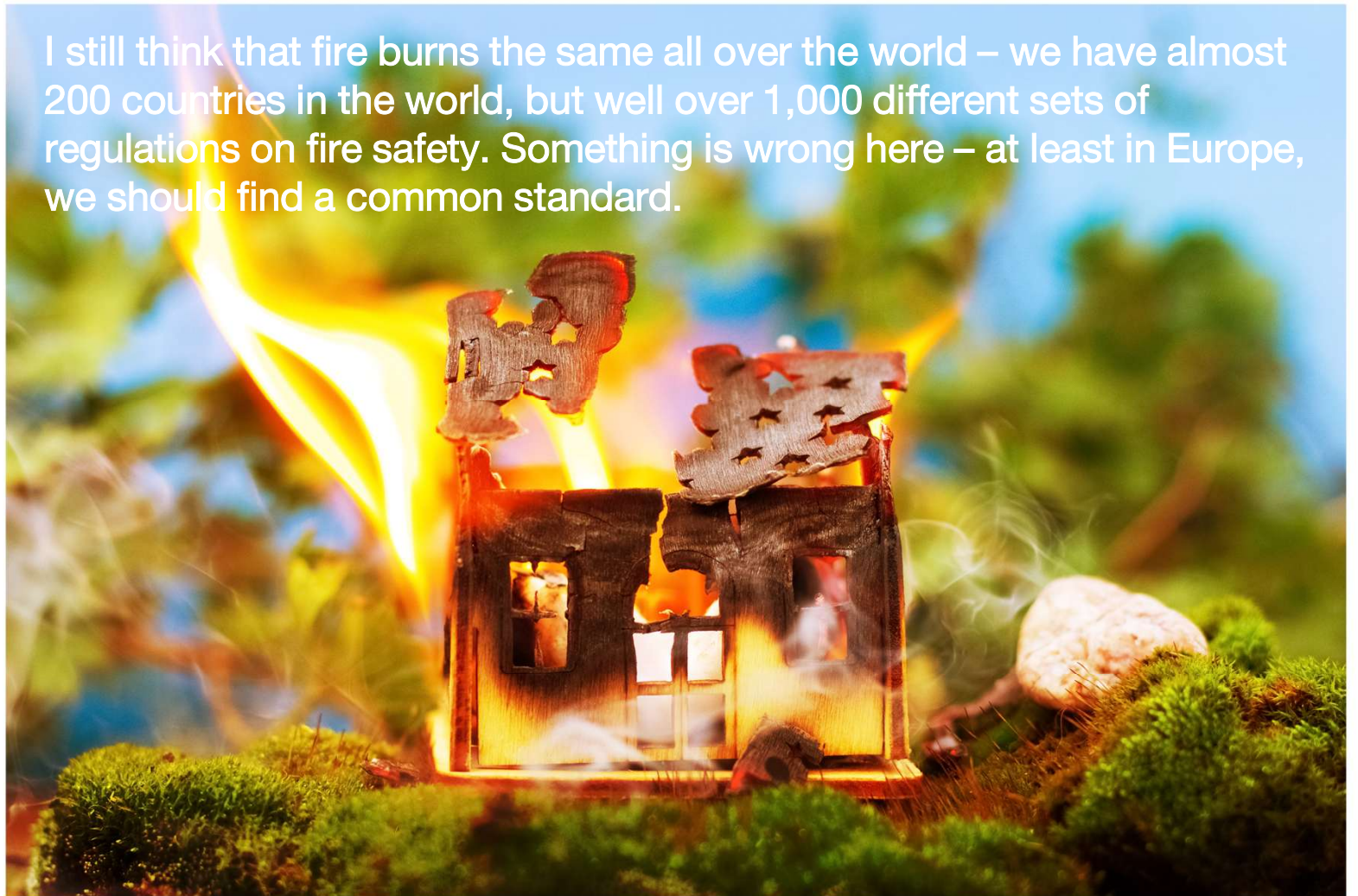
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I still think that fire burns the same all over the world – we have almost 200 countries in the world, but well over 1,000 different sets of regulations on fire safety. Something is wrong here – at least in Europe, we should find a common standard.

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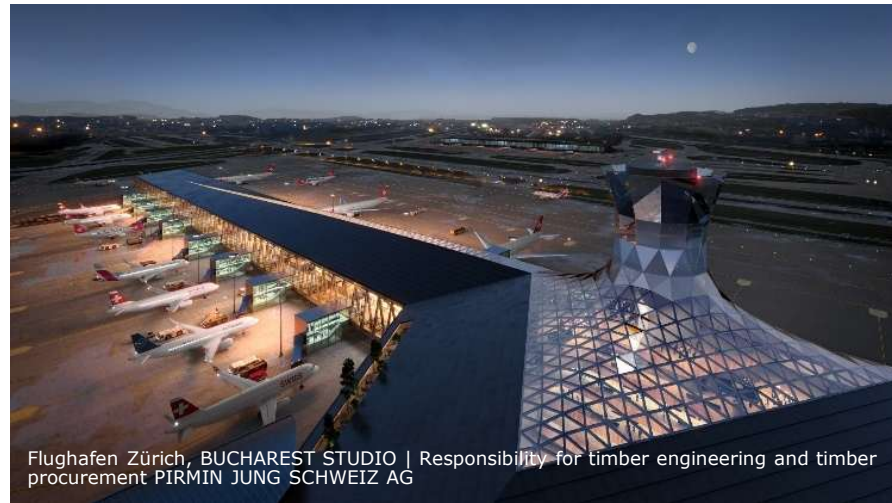


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Pi - Ina Invest | Implenia AG, ©Filippo Bolognese



Flughafen Zürich, BUCHAREST STUDIO | Responsibility for timber engineering and timber procurement PIRMIN JUNG SCHWEIZ AG

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Source: AI generated by Gemini - Czechia and Switzerland in the context of cooperation within the timber chain

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Thank you

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Also to:

To all companies involved in the realisation and the client for trusting us.

Also our partner for the research project.

RPM

tector

Scanntronik
Mugrauer GmbH

hunkeler
Der Fenster- und Holzbauer

KOPA.

B
H
Berner
Fachhochschule

Herzog Elmiger
Holz mit Herz

PIRMIN JUNG

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Contact

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GSA

Breaking the limits in timber technology