Timber and Technology

Educational wooden structures



Timbatec
Timber and Technology

Educational buildings from wood

Demographic change and continuing population growth mean that the need for infrastructure to fulfil public functions continues to grow. This is particularly true in the education sector. In this magazine we highlight the topic by looking at educational buildings made of wood and provide in-depth content through interviews with personalities from the fields of education and architecture.









- 1 New school building on the Plateau de Diesse, Prêles
- 2 Extension of school building Feld, Richterswil
- 3 Interior of the new school building Plateau de Diesse, Prêles
- 4 School with wood form Bern, Aeschi by Spiez

3 Editorial

Dear partners, Dear customers, Dear wood and timber enthusiasts!

Timber construction is continuing to gain ground in the construction industry, with impressive growth. We are pleased to see this development. In particular, large public infrastructure projects such as education and healthcare buildings are increasingly being constructed in timber. The revision of the Public Procurement Act has established the necessary legal framework for in-house procurement, enabling public clients such as municipalities or cantons to utilise wood from their own stocks (e.g. from the local forest or from the forest stocks of the local community) when planning and constructing buildings.

The need for additional school space is driven by a number of factors, including demographic changes resulting from population growth, the necessity for renovation of existing school buildings, and the advent of new forms of learning. A model calculation for the whole of Switzerland has indicated that approximately 3,000 additional classrooms will be required over the next ten years, particularly in municipalities experiencing population growth.

This magazine showcases completed projects that demonstrate the versatility of Swiss timber in the construction of modern buildings. These projects are accompanied by statements from experts involved in the construction and operation of these structures. Dagmar Rösler, President of the Dachverband Lehrerinnen und Lehrer Schweiz, and Prof. Dr Marion Sauter from the Bern University of Applied Sciences, provide insights in interviews on the implications of education and the historical and architectural aspects of educational buildings.

Climate change will become a key issue for business in the coming years. To effectively address climate change, it is essential to implement a multifaceted approach, starting from the ground up. The objective is to eliminate the use of oil, gas, and coal. In the construction sector, we must eliminate the use of cement, concrete, steel, and aluminium. Why? The production of these materials requires a significant amount of energy, resulting in the emission of large quantities of CO₂. The high volume of wood available makes large-volume (educational) buildings suitable for CO2 storage certificates (carbon removals), which Timber Finance will be launching in 2024. For further information on how this can benefit building owners, please refer to page 14.

In addition to the ecological benefits, there are other advantages to choosing wood as a construction material. Wood has excellent tactile properties and creates a comfortable atmosphere in buildings. This benefits our students, pupils, and teachers every day.

We wish you an exciting read.



Johann MaîtreDivision Manager
Romandie
Office Delémont

Photo source

- ©luca da campo und École des Joncs in
- 2515 Prêles, Architektur: riforma architecture sa 2 @DUCO, HOME OF OXYGEN, Veurne
- 3 ©luca da campo und École des Joncs in
- Michael Sieber Fotografie

Title photo:

liew school building Plateau de Diesse, Prêles Bluca da campo und École des Joncs in 2515 Prêles,

Exterior view of

building with a

view of the main entrance and the

natural surroun-

the Prêles school

"From tree to school building" – New school complex in Prêles

In Prêles on the Plateau de Diesse, a three-storey school building was constructed entirely from wood. The municipality's own stock of Swiss timber was actively brought into the project and used by the client through in-house procurement. This project represents an excellent example of a complete success.



The use of timber for the construction of schools offers a number of advantages, including: Timber buildings can be erected extremely quickly and efficiently thanks to millimetre-precise prefabrication, which is an advantage in view of the rapid demand. Furthermore, timber construction is often more cost-effective than solid constructions over the entire life cycle of a building. In addition, timber buildings act as carbon sinks, as trees absorb and store CO₂ as they grow. The continued binding of CO₂ by wood used in buildings actively contributes to climate protection.

The timber construction method employed in the example presented here is also highly localised. For the school building in Prêles, the municipality sourced its own wood directly. The spruce and beech wood used in the

construction of the school building in Prêles was sourced from the surrounding forests of the Plateau de Diesse. It was used for various components of the school building. The new Federal Law on Public Procurement (BöB) provides the legal basis for this in-house procurement. Timber must be planned for at an early stage, as the manufacturing processes in procurement and production must be planned and the timber is preferably felled in winter. In addition to providing engineering services in timber and building physics, Timbatec was also responsible for procuring timber on a large scale.

The construction is based on the skeleton construction principle. All load-bearing elements are made entirely of wood, including the cores of the climbing zones – these are made

of clad CLT panels. A timber-timber ribbed ceiling, supplemented by a weighting layer to integrate the building services, enables rapid construction and perfectly fulfils the sound insulation requirements. Ideally positioned on a hill, the building offers a marvellous view of the natural surroundings of the village and the recreational areas of the region.



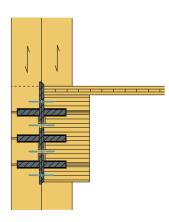
"From tree to school building" – complete reportage

Specially designed, upright timber columns act as a tensile component between the storeys to fulfil the seismic design.



Specially designed steel-timber connection to absorb local tolerances for load transfer.





Building owner

Commune du Plateau de Diesse, 2515 Prêles

Architect

Riforma architecture SA, 1700 Fribourg

Timber engineer

Timbatec SA ingénieur bois, 2800 Delémont

Timber construction

Charpentes Vial SA, 1724 Le Mouret

Wood gluing producer

JPF-Ducret SA, 1430 Orges

Production and joinery of CLT-/ mulitlayer plates

Schilliger Holz AG, 6403 Küssnacht am Rigi

Construction data

- Building volume over terrain: 12700 m³
- Wooden surfaces: 3468 m²
- Net volume of wood used: 1093 m³
- Costs, BKP 1-9: CHF 14,3 Millionen

"The choice of wood for a school is a powerful symbol. It represents the community's dedication, sustainability, environmental responsibility, and the future."

Mario da Campo

Architect

School room extension with a tight schedule

In response to a significant increase in pupil numbers, the municipality of Richterswil has made the decision to expand the space available in the Feld 1 school building by approximately 1500 square metres. The construction of two additional storeys was completed in record time during the summer holidays, utilising the TS3 technology.

Initial situation and construction

How do you extend a reinforced concrete school building with a supporting structure with spans of 7 × 10 metres and a roof with insufficient load-bearing capacity while the building is still in use? This was the task facing the project team led by general contractor Allreal.

Previous solutions for such tasks involved erecting a steel interception grid on the existing roof, which distributed the loads of the extension to the existing load-bearing walls and columns of the existing building.

However, such solutions require a large construction height for the interception grating and significantly extend the shell construction time. This is not ideal when only five weeks are available for the shell construction. The TS3 timber construction technology co-developed by Timbatec offers an alternative approach. TS3 enables the construction of timber ceilings as biaxial load-bearing flat ceilings, similar to concrete construction.

With this construction method, the school building was erected in the same load-bearing structure as the existing building, but in wood instead of concrete. Precisely prefabricated CLT panels up to 3 metres wide, 280 to 340 millimetres thick and up to 13.5 metres long were laid on site in a very short space of time on a falsework and connected using TS3 technology to form a large, multi-axis load-bearing floor slab. This meant that the shell of the entire two-storey extension could be completed during the summer holidays. The interior work, which is even less noisy in timber construction, was then carried out at the same time as the school continued to operate.

The Richterswil school extension is a prime example of how existing concrete architecture can be efficiently extended in timber. This is an exemplary application of modern timber construction.



TS3-Technology

TS3 technology is the result of more than ten years of research and development by Timbatec in collaboration with industry partners and leading research institutes such as the Bern University of Applied Sciences and ETH Zurich. The process uses a rigid cast resin (without pressing pressure) to join wooden components into large solid wood panels for the construction of floor slabs. Together with the specially developed column head, the TS3 technology enables large biaxial load-bearing slabs made of wood - without the usual supporting beams. Point-supported flat slabs do not require load-bearing walls and can be freely positioned according to the building floor plan. The load-bearing structure enables versatile room utilisation that can be easily adapted to different

requirements. These advantages enable a flexible room layout and easy conversion of the rooms in the Richterswil school building. With TS3 technology, the loads can be transferred directly to the existing load-bearing columns and walls below. In order to minimise the weight of the extension, a timber construction was planned early on in this project. Another advantage of the timber construction method in combination with TS3 technology is the fast construction time. The prefabricated elements were transported to the construction site and assembled directly. As a result, there was less construction noise and the extension of the school building could be carried out without interrupting operations.

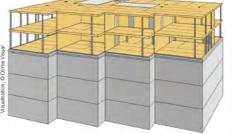




"The TS3 technology enabled the extension to be completed in record time without interrupting operations."

Stefan Rüegg

Timber engineer Managment office Zurich



Visualisation

TS3 technology

add storeys.

makes it simple to

Column and panel construction with TS3. The panels are laid on the interior walls and on supports in the exterior area. This allows the façade to be designed independently of the supporting structure. Note the different window arrangement in each of the four sections. An "atrium" (recess) was realised in the inner courtyard.



Construction data for the extension

- Number of storeys: 2
- Gross-Floor space: 1757 m²
- CLT: 549 m³
- TS3-Floors 1970 m²

Additional construction data:

- CLT- Plates: 650 m³ (incl. internal walls)
- Glulam: 50 m
- External wall elements: 400 m²
- Joints in TS3-Technology 540 metre

Cost

Timber construction approx. 900 000 CHF

Building owner

Community Richterswil, Richterswil (Client representation: Landis AG, Geroldswil)

Architect

Batimo AG, 4800 Zofingen

General contructor/total contractor

Allreal Generalunternehmung AG, 8152 Glattpark

Timber engineer

Timbatec Holzbauingenieure (Schweiz) AG, 8005 Zürich

Timber construction

Saxer Holzbau GmbH, 8046 Zürich Ideal Holzbau AG, 6275 Ballwil

Production and joinery of CLT

Schilliger Holz AG, 6403 Küssnacht am Rigi

Central entrace from wood

In order to improve the security and reception area of the Lycée Français de Vienne, a new porter's lodge was built. This wooden lodge serves as the main control centre for the school's site, with the ability to monitor and control access to all areas. The new porter's lodge serves not only as a representative entrance area but also as an essential part of the infrastructural logistics.



Concierge porte with entrance.

The two school buses, which run twice a day between the Lycée and the Grinzing kindergarten for the young children, have found a new turning point in the area of the Studio Molière delivery area thanks to the realisation of the project. This change eliminates the previous route through the school park. Instead, a covered area now functions as an extension of the box and also serves as a convenient entry and exit point.

A new break area for pupils has been created by cleverly zoning the park using fine, staggered fencing. This newly created area also includes a semi-public waiting area for parents, while the new porter's lodge is located in the centre. This system monitors all areas and regulates access to the grounds.

A well-insulated timber transom façade not only ensures a pleasant indoor climate, but also provides effective thermal insulation for the porter's lodge. The roofed interlock area facilitates seamless communication from both sides, while the pre-greyed beams and HPL cladding of the wooden supports on the outside create an aesthetically pleasing atmosphere.



It is worth noting the integration of the trees to be felled as seating in the waiting area, which represents a successful combination of nature and functionality. Timbatec was responsible for the timber construction planning for the supporting structure, superstructures and details in this project. They were also involved in the awarding of the contract and supervised and monitored the construction work, ensuring the highest quality and precision.

- 1. School buses
- 2. Bus turnaround
- 3. Entry-/Exit point
- 4. Concierge porte
- 5. Park/break area
- 6. Parents waiting area within park area





Concierge' lodge in the existing building (left) and upgraded in the new building with integrated lock, shuttle bus turn around and recreation park.





"Small, functionally demanding buildings pose a particular challenge. They require compact and precise solutions that are best realised in timber construction."

Peter Grell Architect

Building owner

Agence pour l'enseignement français à l'étranger, 1090 Wien

Architect

Peter Grell, Architekt ZT, 1090 Wien, www.atelier-grell.at

Timber engineer

Timbatec Holzbauingenieure ZT GmbH, 1020 Wien

Executing company

Timber construction and builder

Prameshuber & Partner GmbH, 1110 Wien

"Dagmar Rösler, let's talk about education"

We discussed a range of topics related to education with Dagmar Rösler, including personal experiences and current issues. We emphasised the importance of education, the benefits of building schools out of wood, and the focus on learning environments.



If you think back to your school days or school entry, what spontaneously comes to your mind?

The first thing that comes to my mind is my primary school time in a small village. We were three classes in one classroom. In addition to the regular lessons, we did lots of great things with this village school, such as camps, performances with the school choir, theatre productions and so on. I can well remember that I always loved going there.

How would you characterise the economic importance of education?

There is nothing more important for the prosperity of each and every individual in a country and for society as a whole than good education. This applies to the general population, but also to the highest achievers. It is not for nothing that we talk about education as our country's most important resource. It is an investment in the knowledge and skills of children and young people. And in the long term, in the population and therefore in the future of our country. I often struggle with well-known phrases, but this one by John F. Kennedy gets to the heart of the matter: "There is only one thing more expensive in the long run than education – no education".

What significance does education have for you personally?

For me personally, education is very important, and by that I don't just mean institutionalised education at school, but all kinds of education, including the support that parents give their children, early support in daycare centres and playgroups and later, of course, in

primary school, vocational school or secondary school. Every education adds value to society. The aim must be to support young people in their talents so that they can find an occupation that is meaningful to them.

What developments in the education sector do you see as positive? – Are there any negative developments from your point of view?

I think it's good that people have been thinking about equal opportunities and social mobility for some time now. In a primary school in particular, it is important that everyone is encouraged and supported according to their talents and can pursue a career in which they can utilise their strengths. Origin should not be allowed to determine the future. We are not yet where we should be in Switzerland. But at

"There is only one thing that is more expensive in the long run than education: no education."

John F. Kennedy



Dagmar Rösler is mother of two daughters and Central President of theUmbrella Organisation of Swiss Teachers.

least the realisation that there is still work to be done and that changes need to be tackled is an important development in my opinion.

Then we have had integrative or inclusion-orientated schools for around ten years. Children with very different needs and talents attend mainstream schools as much as possible. I think this is also an important aspect in terms of the social significance of schools, as mentioned above. The negative aspect of this is that schools, and therefore also teachers, sometimes reach their limits with the resources provided (support lessons, time).

How do you feel when educational buildings are made of wood? – Do you also see advantages in this?

I'm not a professional in this area, but I can imagine that wooden buildings offer a pleasant learning environment in terms of the room atmosphere, sound and humidity. This in turn undoubtedly has a positive effect on children's behaviour and provides them with good conditions for learning. In addition, an environment with wood is also a role model for sustainability and the ecological construction method is a contribution to environmental protection.

What do you think: How should a school building be planned today so that it will function for the next 100 years?

It is probably impossible to plan something today that will still fully meet the needs in 100 years' time. Today, however, it is safe to say that children and young people need plenty of space and room to concentrate. They need places to retreat to where they can learn in peace and quiet and rooms where they can fulfil their urge to move. The complete school environment is important for children and young people to feel comfortable and motivated to learn.

In addition, and not to be forgotten, are the demands placed on school buildings in connection with daytime structures (lunch, after-school care). For me, this includes the following points:

- Furniture and facilities meet the needs of the children
- Bright, friendly rooms and room design, not forgetting rooms for staff
- Sufficient storage space and options for individual room design

To what extent does the building culture of schools play a role in adapting to modern, pedagogical approaches and innovative teaching methods?

When it comes to constructing a new building, structural considerations for modern, pedagogical approaches are certainly of central importance. I am always in favour of involving teachers in the planning of new spaces. They work on site and have a great deal of knowledge about the needs of children and young people and therefore also about the space requirements so that lessons can be organised in a contemporary way.

Thank you very much, Dagmar Rösler, for your exciting views on the subject of education.

"Marion Sauter, let's talk about architecture of educational buildings"

Marion Sauter, a passionate schoolchild and student in equal measure and now a professor at BFH, shares her experiences and research findings in an interview. She examines the historical development of school building sites and their connection to neighbourhoods. She also emphasises the importance of architecture in the education sector, in particular flexibility of use, construction standards and their impact on inspiration and atmosphere.

How did you perceive school as a child?

Starting school was a big step for me. As a little girl, I left the small children's room at home and spent the whole day learning in a large school building with lots of rooms, corridors, children and teachers. Looking back, this moment in children's development should always be kept in mind in its entirety. The architectural design and planning of school buildings is not only about type, light and flexibility, but also about the children's sense of security and well-being in a process between detachment and rediscovery.

How did you come to architecture, and in particular to specialise in building culture?

I found the combination of mathematics and art, my favourite subjects at school, in architecture. The broad recognition of architects in society reinforced my decision. At the interface between architecture and science, I was fascinated by the combination of form, construction and aesthetics, building culture, which I then specialised in.

What role does architecture play in the creation of a conducive learning environment?

Building culture in connection with schools has a long tradition in Switzerland, and there has always been a pioneering spirit that has been recognised internationally. In 1932, the exhibition "The new school building" was held in Zurich. Pioneering pavilion school buildings were presented, which were optimally lit and combined indoor and outdoor spaces - away from prestigious school buildings and towards child-friendly proportions and scales, no more five storeys and no heavy portals with door handles that were out of reach of children's

hands. Flexible furniture systems were used, enabling new forms of learning. However, the pavilion concept did not prevail, as the school concepts and practical realisation did not necessarily harmonise.

In 1953, educational buildings were once again the subject of an exhibition in Switzerland, again with great appeal. The pavilion school building was varied and supplemented with different learning spaces, and new cross-sectional systems were developed. Lighting continued to play a major role. The school grounds were given a permanent place in the urban planning. Where possible, the school was embedded in a park landscape and supplemented with sports fields that are also available to the public. School and neighbourhood were interlinked.

What trends do you see for the future of educational buildings and building culture? How could these trends affect the design and function of school buildings?

Schools today could once again initiate a change in building culture, especially in terms of sustainability. Decisions are also made about materials, and wood is an ecological alternative to concrete and masonry. Away from prestige buildings and towards school buildings that are open to new design concepts. The projects already realised in timber show an interesting variety in the architecture and the flexibility that can be achieved depending on the usage requirements. Timber construction can score points with the possibility of modular construction, and in years with high student numbers, expansion is just as easy as later dismantling and rapid relocation to another site

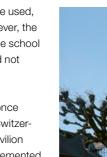


Photo: made evaluable

"School buildings have always

received special attention in terms of design, as they represent the appreciation of children and young

people. If all new school buildings

were built in wood, it would be a

big step forward."

Marion Sauter

Prof. Dr Marion
Sauter is a qualified architect and
professor at the
Bern University of
Applied Sciences
(BFH AHB) in
Burgdorf.

How to create an inspiring learning environment and the promotion of creativity in school buildings?

The question of inspiration in school buildings is difficult to answer. I myself have experienced very different fit-out standards, from historically grown, concrete modernism to high-quality designer fit-out standards. designer fit-out standard. In my day-to-day work at Bern University of Applied Sciences, I am currently experiencing a sober, worn-out building that is no longer being extensively renovated as the new wooden campus is already planned. I have experienced inspiration at every location. Ultimately, flexibility of use and the personality of the teaching staff as well as a pleasant atmosphere resulting from harmonious co-operation are decisive

factors. The architecture must provide an inspiring framework, but must not dominate everyday school life.

Do you believe that the increased use of wood in educational buildings can help to raise awareness of sustainable building culture at an early stage?

Yes, if we succeed in increasing the use of wood in public buildings, we can sensitise society at large to this material. Children in particular are open to new things and thus learn indirectly at a young age that wood also offers solutions for large-volume buildings. This knowledge is then relatively automatically linked to the concepts of sustainability, CO₂ emissions and climate targets during their school years. Just think of the "Fridays for

Future" student strikes, which triggered far-reaching worldwide campaigns.

How do you see the future of architecture in the education sector, particularly in view of the changes in society?

If children are taught in wooden school buildings and this becomes established as a visual habit, the necessary social change could be accelerated. Because today, the majority of the Swiss population still think of chalets in the mountains when they think of timber construction and not of high-performance projects in the cityscape. The proportion of timber construction in urban areas is still around ten per cent, although meeting climate policy targets would already require a higher market share today. Timber construction urgently

needs a change of image so that building owners, decision-makers in municipalities and cantons as well as society as a whole have the ambition to build with timber and see timber as the building material of the future.

Thank you very much, Marion Sauter, for your fascinating comments on the architecture of educational buildings.

One group – one goal

Timbatec is part of the Timbagroup, a group of companies with a common goal: to increase the market share of timber construction in the construction industry. Each company makes its own contribution.



Decarbonisation of the building sector through CO₂ certificates

For the first time, building owners, planners and timber constructors can monetise their climate performance "building in wood". Timber Finance has successfully initiated the pilot phase for the certification of timber buildings; a world first. Around 20 innovative timber construction projects are taking part in the pilot phase in order to create additional value for

their projects through the storage certificates. Further timber construction projects are constantly being added that are interested in additional financing for their climate performance "to build in wood" and thus want to compensate for the slightly higher costs of timber construction. The CO₂ certificates can be traded on the CO₂markets or offset against your own CO₂ balance.

The methodology developed by Timber Finance also provides for compensation for sustainable and climate-friendly forest management that has not yet been financed. Because without forests, there is no timber construction.



In the Chrüzacher school complex in Bassersdorf, 380 m³ of wood was used, which has a CO₂ storage capacity of around 270 tonnes of CO₂ and a substitution capacity of around 140 tonnes of CO₂ by replacing CO₂-intensive building materials such as steel and concrete. CO₂ storage certificates are suitable for large educational and residential buildings. Interested building owners are invited to participate with their planned construction projects.



More information can be found at: https://bit.ly/4bxwj1G

Timbase

15

Timbase, as a total contractor, offers high-quality timber basements and attaches particular importance to long-term quality assurance. We are delighted that our technology has been confirmed as part of the research project with Bern University of Applied Sciences. Building physics simulations confirmed the durability based on the limit curves of WTA 6-8-2016 and the standards according

to DIN 4108 (2014) and DIN 68800 (2022). Read the full technical article on our website and find out more about our durable timber basements.



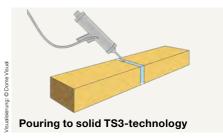


TS3 has reached a significant milestone: the general building approval (abZ) and the general type approval (aBG) for Germany have been granted. The TS3 connection with joint casting enables the construction of beam-free timber skeleton structures with slender, point-supported slabs and column spacings of up to 8×8 metres, which were previously only possible in reinforced concrete. The

approval for the German market opens up new markets and areas of application for TS3. The future prospects are bright: By the end of 2025, a total of around 50'000 m² of TS3 panels will have been installed.



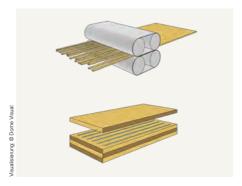
www.ts3.biz/en/



Scrimber CSC

More efficient products are needed for the construction market to meet the high demand for timber construction products. Scrimber is the solution.





Award - 1st place Bern Upcycling Challenge

The "Bern Upcycling Challenge" took place as part of the 2nd Bern User Forum Circular Economy 2024, organised by the Smart City Association Bern and BFH Wirtschaft. On 19 March 2024, the five finalists had the opportunity to present their ideas for circular business models during a three-minute pitch. Scrimber CSC AG impressed with its new construction product Scrimber. The jury was particularly impressed by the great potential to store several million tonnes of CO₂ in the future and awarded the idea first prize.





vww.scrimber.com/en/

Top performance with committed employees

Timbatec is a leading timber construction engineering company in Switzerland and Austria. We plan outstanding timber construction projects at the cutting edge of developments. This is only possible with committed and well-trained employees in the various teams.

100 hours of personal training per year for all our employees

With this measure, we as a team always stay up to date and promote the development of our employees' skills. In addition to professional skills, our quarterly team days promote the exchange of experiences and communication training to improve structures and social skills. We foster dialogue and team spirit from coffee breaks to ski weekends. Our employees appreciate this. That's why Timbatec is growing continuously.

We are passionate about building with wood and respect natural and human needs. We respect the individuality of this ingenious material just as much as the people in our everyday lives. Would you also like to become part of the Timbatec family? - We look forward to hearing from you.



https://www.timbatec.com/ en/karriere/offene-stellen/

Development prospects at Timbatec

There are various ways and opportunities to pursue a career at Timbatec. In addition to management careers, there are also specialist and project careers to promote the potential of our employees in a targeted manner.

Timbatec's company organisation and the individual role descriptions ensure that the company functions smoothly.

In many companies, only those with leadership qualities and the unbridled will to work their way to the top make a career. With us, other types of careers are also envisaged and are consciously encouraged.





https://www.timbatec.com/en/

Timbatec Timber and Technology

Switzerland:

Office Thun Timbatec Holzbauingenieure Niesenstrasse 1

3600 Thun +41 58 255 15 10 thun@timbatec.ch

Office Zürich

Timbatec Holzbauingenieure Ausstellungsstrasse 36 8005 Zürich +41 58 255 15 20 zuerich@timbatec.ch

Timbatec Holzbauingenieure Falkenplatz 1 3012 Bern +41 58 255 15 30 bern@timbatec.ch

Timbatec Holzbauingenieure Alpenguai 28A 6005 Luzern +41 58 255 15 50 luzern@timbatec.ch

Timbatec Holzbauingenieure Avenue de la Gare 49 2800 Delémont +41 58 255 15 40 delemont@timbatec.ch

Austria:

Office Wien

Timbatec Holzbauingenieure 7T GmbH Im Werd 6/31a, 1020 Wien +43 720 2733 00 wien@timbatec.ch

Editor: Lorenz Obrist Design: Barbara Bissig Editing and translation: Bettina Franke, John Robert Hojnacki