

By EFTCG

NORDEN

F A C A D E

EDUCATIONAL BUILDING IN THE 21ST CENTURY

ECOLOGICAL, HEALTHY
AND ECONOMICAL IN
PREFABRICATED
WOOD CONSTRUCTION

- Timber construction of the future - building material of the 21st century 04
- Prefabrication in timber construction - highest quality, short construction times 06
 - Architecture as desired - facade design 10
- Completely from a single source - building envelopes 14
- Freie Universität Berlin - major project building shell 18
 - Elementary school and day care center Poing 24
 - School center Gloggnitz 30
 - Elementary and middle school Pfaffenhofen 36
 - Green Center Kaufbeuren 42
 - State-of-the-art ball sports hall - Sportpark Graz 48
- Energetic refurbishment - comprehensive school Niederwalgern 52
 - Daylight sports hall Frankfurt 58
 - Nursery Guastalla 62
 - SOS Embassy for Children Berlin 68
 - Stacking gym at Ulm 72
- high school Margarethe Steiff School Möhringen 76
 - Science City Zurich - Living on Campus 80
- Green College - Collège Frélicher Sissonne 84 90
- years of experience - Norden Facade Holzbau 88
- Unique in Europe - Norden Facade 90



SCHOOL BUILDINGS
ECOLOGICAL, HEALTHY AND ECONOMICAL

School buildings significantly shape the city and landscape in which they stand. They also have a great effect on the children and teachers who spend large parts of their everyday life in them. It has long been undisputed that the well-being of pupils and thus their learning behavior also depends on the surrounding space, the school and the classroom. As early as 1986, Christian Rittelmeyer, Professor of Educational Sciences in Göttingen with a focus on Educational Psychology, proved that "lack of experienced homeliness, cosiness, colourfulness and friendliness" negatively influence the learning behavior of the students.

COST EFFICIENCY, SUSTAINABILITY

At the same time, we live in a time in which we are required more than ever to use all our resources sparingly. Dwindling fossil fuels and the necessary conversion to regenerative resources also play a decisive role in renovation or new construction

like the cost-efficiency, because the majority of the school buildings are financed by state funds. The challenge therefore lies in the balancing act between the requirement to build or convert in a cost-effective and resource-saving manner and at the same time to create both architectural quality and comfort. A challenge that the only renewable building material, wood, solves with bravura - and not only for new buildings, but also for renovations.

NEW CONSTRUCTION OR RENOVATION

In Germany alone there are around 25,000 schools, many of which were built between 1950 and 1980, in which sustainability and energy criteria were hardly considered. The building fabric of many of these buildings is in good condition, so that energy-efficiency refurbishment, also taking into account architectural remodeling, is usually cheaper than a complete new build. The renovation not only increases the value of the property but also ensures a completely new quality of thermal and visual comfort.

INDOOR CLIMATE AND SOUND PROTECTION

As a natural building material with excellent structural properties, wood ensures a comfortable and relaxed atmosphere and offers excellent

Climate behavior and can be introduced into the ecological raw material cycle without leaving any residue. The soundproofing properties and fire behavior can also be controlled in both commercial and residential construction. In terms of sustainability, wood is the number one building material.

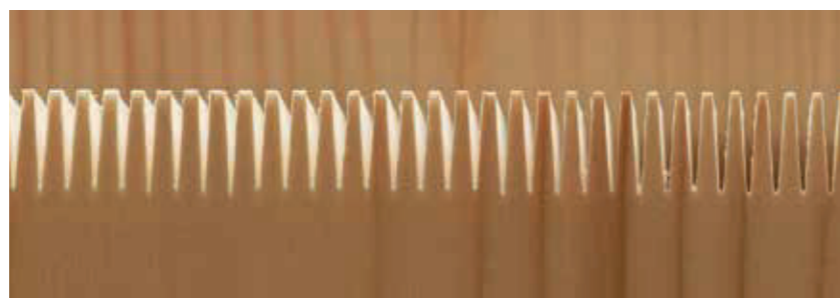
21ST CENTURY BUILDING MATERIAL

Well-known architects have chosen wood as the miracle building material of the 21st century and even speak of the beginning of the wood age. For them, building with wood means building extremely quickly, precisely and robustly - with outstanding aesthetic results under the highest ecological premises. Innovations in timber engineering from Norden Facade Holzbau and the factory prefabrication of all components under workshop conditions allow architects to build bigger, higher and faster. And they make a significant contribution to overcoming the greatest challenge of our time, climate change. Anyone who builds also bears responsibility for our future, for the future of our children. Wood, the building material of the 21st century! Sincerely,

In the Alpine region alone, one cubic meter of wood grows back every second: there would be wood for around 2,160 houses every day, and for around 788,400 average single-family homes every year.



Each tree removes an average of 6 kg of CO2 from the atmosphere per day. In Germany alone, the use of wood products the atmosphere every year relieved by more than 120 million tons of CO2. For comparison: That corresponds to more than 10% of German greenhouse gas emissions.



The quality of stay in school buildings is largely determined by the four comfort criteria of thermal, hygienic (air quality), visual and acoustic comfort. Architectural quality and energetic sustainability as central requirements in school construction.



FUTURE TIMBER CONSTRUCTION 21ST CENTURY BUILDING MATERIAL

FOREST AREA IS GROWING

Wood is becoming more and more popular as a building material. It scores with many advantages in terms of ecology, economy and well-being and is traded as the material of the future. The most important aspect that speaks for wood as a building material for high-quality building constructions is sustainability. Wood does not have to be produced with a high energy input: it regenerates itself. Currently, the forest area in the forests of Europe is increasing again, because considerably less wood is felled than grows back.

CLIMATE PROTECTION

If local wood is used and long, energy-intensive routes are avoided, this makes an enormous contribution to climate protection - especially with regard to reducing the greenhouse effect. The CO2, which is one of the greenhouse gases, is bound in the forests. And once the wood has been installed, not only does the carbon remain stored, the wood impresses with its excellent energy values. Because it insulates just as well against heat as against cold and is due to its low

Thermal conductivity and good insulation properties are particularly suitable for the construction of low-energy and passive houses. At the same time, wood has a regulating effect on the room climate and thus has a gentle effect on the immune system.

PROTECTIVE WOOD

Wood also guarantees safety in structural matters such as noise, heat and fire protection. Wood has a very high natural fire resistance: a high safety aspect when planning wooden constructions, because wood burns predictably and does not fail spontaneously.

URBAN TIMBER CONSTRUCTION

Wood has always been used for building. Today it is no longer a question of whether wood can be used in building design, but how it can be used in the best possible way. For the family company Norden Facade, wood and natural habitats have been the focus of the vision for more than 80 years. But not only with the companies of the north facade

urban timber construction is becoming increasingly important. Creating livable living spaces in an urban environment is one of the main tasks of architects and investors in times of progressive urbanization. In doing so, they are increasingly using wood in their planning.

OPTIMAL USE OF SPACE

No wonder, because in addition to the positive, healthy living properties, wood also has a number of technical advantages over conventional materials. It can be used to quickly close gaps in public and private space. Wood is also ideal for stacking, as it is considerably lighter than steel or concrete. In this way, expensive or limited space can be optimally used.



By EFTCG

NORDDEN

PREFABRICATION HIGHEST PRECISION

Production independent of the weather, reliable schedules and schedules as well as high cost transparency, prefabrication provides many advantages and is now considered the most economical solution. When realizing the student housing complex in Bochum, the degree of prefabrication of the facade elements was maximum.

The timber construction work on the new student housing complex in Bochum actually looked very simple. The prefabricated wooden panel elements for the facade of the three identical, multi-storey houses were made without any scaffolding

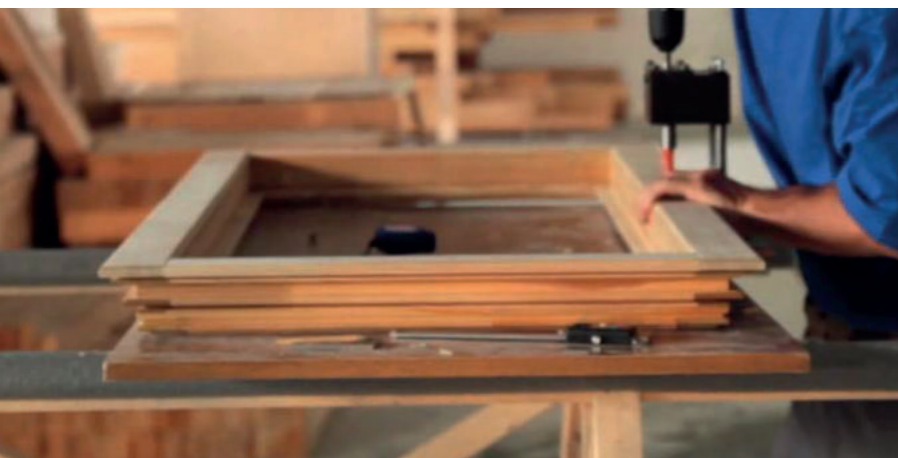
only mounted with lifting platforms. The fitters installed up to 450 m² of noise-reducing facade elements per day, giving each of the three structures a tight building envelope within three weeks. The fact that this took place in such an orderly manner and without delays is due to the high degree of prefabrication, the precise coordination with the technical experts and the very high quality of workmanship. Even before the first machine started in the production halls in Ober-Grafendorf, the plans were discussed in detail with the architects.

and also consulted with the other trades. "Communication in advance is extremely important, because the processes only work smoothly if everyone involved has the same perception and can identify any problem areas in advance. The student housing complex in Bochum, with its high requirements, is a successful prime example of timber construction, since all the requirements of the trades came together here," reports Andreas Fischer, Managing Director of Norden Facade Holzbau in Germany, from his experience.



NORDEN FACADE

The new student housing complex in Bochum presents itself as a contemporary answer to current questions about the housing shortage and rapid housing construction. The new construction of three buildings with prefabricated building facades in timber frame construction was funded by the Federal Building Ministry in Bonn with 3.3 million euros, as they meet the passive house standard. In November 2019, all residential units were handed over to 258 students.

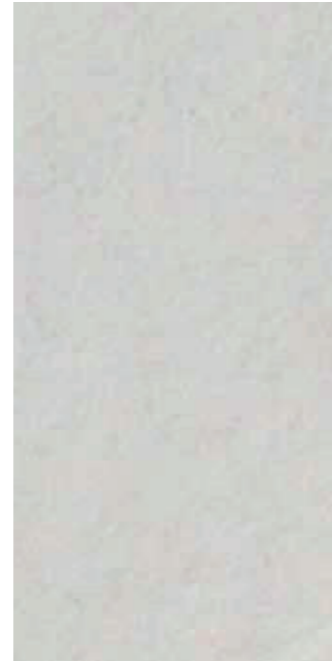


PREFABRICATION FOR SHORTER CONSTRUCTION TIMES

Today, the modular construction offers a great deal of design freedom without restrictions, as long as all detailed questions are discussed in detail in advance: Which technical building equipment must be taken into account in the facade elements? Where are the ventilation shafts in the buildings? Or: At which and how many points should the integrated sun protection be controllable? The Bochum student residence in particular shows the many advantages of factory prefabrication. The optimal production conditions in the weather-independent, dry production halls enable accurate planning, in which the logistics and transport times are already taken into account. This guarantees a high degree of adherence to deadlines with precise schedules and schedules as well as cost transparency. A special feature, however, was the degree of

prefabrication, because this project had a maximum degree of prefabrication and the complete completion of the outer facades was carried out in the Austrian Norden Facade factory in Ober-Grafendorf. The 5,500 m² facade elements were not only produced in three different surfaces - pre-greyled larch formwork, glass fiber concrete panels - but also the 444 window insert elements including glazing and the technical components were used in the factory. The cutting of the glass fiber concrete panels presented the factory with an unusual challenge, as the manufacturer does not offer any formatting of its product. It was necessary to develop and set up separate processing systems for this. The high level of prefabrication required one

appropriate transport protection, but ultimately reduced the actual execution times on site enormously. This was shortened by ten months compared to other residential buildings in conventional construction.



1



2



3



4



FAÇADE DESIGN
VARIANT TIMBER CONSTRUCTION

The facade is not just a facade, but turns a building into an object with character. Today's facades are energy-efficient, complex building elements with diverse properties and different materials. However, if you think of facades when you think of timber construction, you often end up thinking of visible, traditional wooden surfaces or board formwork, which give a building a natural look. This does not necessarily have to be the case, both in the case of external wall constructions and in the construction of wooden elements, there is far greater freedom of design than just the selection of the type of wood or glaze color. The specialists at Norden Facade Holzbau Augsburg have been proving this for many years with solutions that reflect the variety of facade designs in timber engineering - both in new buildings and in

energetic renovations. On the one hand, the creative and constructional properties of wood in combination with other materials such as glass and aluminum open up a wide range of architectural possibilities, taking into account the highest ecological and economic factors. Flooded with light, open and transparent: Whether multi-storey office and commercial buildings, hotels or public buildings - mullion and transom facades are suitable. On the other hand, the variety of materials for the cladding of the facades themselves ranges from different woods (e.g. red cedar, robinia, larch or also flamed wood) to panel materials (e.g. fiber cement) and sheet metal to ceramics and mineral plaster.

With all these options, the factory-made wall elements from Norden Facade Holzbau offer a highly flexible basic structure. The scope of services ranges from the engineering service and detailed development in the planning phase, individual and detailed workshop planning, the construction site management across trades to the turnkey building shell. And due to the available production capacities as well as certified processes and the highest quality assurance, even large-scale facade solutions with an area of more than 5,000 m2 can be realized on schedule.



FAÇADE DESIGN
VARIANT TIMBER CONSTRUCTION

1 Area: Domagkpark residential complex, Munich (DE) – new building. 7,400 m2 of floor space, 3,000 m2 of prefabricated facade elements, 400 m2 of Douglas fir formwork, rough sawn, 280 m2 of fire protection facade, aluminum substructure, mineral plaster.

2 Variable: Free University of Berlin (DE) – new building. 12,650 m2 usable area, 5,000 m2 wood-glass facade, 6,000 m2 wood element facade, made of Alaska Yellow Cedar in variable widths, pre-patinated with silver-grey glaze.

3 Ceramic: Student Village Höggerberg, Zurich (CH) – new building. 73,800 m3 of building volume, 7,770 m2 of facade elements with 750 opening elements, 2,250 m2 of glazing, 300 m3 of glulam + KVH, curtain-type, extruded ceramics.



7

4 Low-maintenance: Wetter comprehensive school (DE) – energetic renovation, passive house standard. 3,315 m2 of prefabricated elements and 2,330 m2 of wall surface with fiber cement panels and larch formwork.

5 Covered in textile: SOS Embassy for Children, Berlin (DE) – new building. 1,407 m2 of wall elements with robinia formwork and curtain-type, movable membrane façade, 800 m2 of mullion and transom façade in spruce, glazed gray with awnings.

6 Flame treated: Salzlagerhalle Donauwörth (DE) – new building. 780 m2 roof elements, 450 m2 wall elements with charred larch facade boarding, which is weather-resistant and maintenance-free.

7 Completely renewed: Treuchtlingen elementary school (DE) – energetic refurbishment. Self-supporting wooden system facade with 1,100 m2 of facade elements with board formwork made of pre-greyed silver fir and colored accents made of wood-based panels.



BUILDING ENVELOPES
 WITH INTEGRATED PLANNING TO MARKET LEADER

COMPLETELY OFF ONE HAND

The trend in building envelopes is clearly towards industrial prefabrication and ever shorter construction times. Due to the company's own sheet metal work and the specialization in roofing, soffit cladding and façade constructions with all connections and terminations, Norden Facade Holzbau has been able to carry out complete solutions in-house for years. Now the strategic goal is: Development into the leading general contractor for complete, sustainable building envelopes beyond Austria.

VERSATILE REQUIREMENTS

Because the building shell and facade are the decisive factor for the quality of a property and the requirements for facades are varied: urban planning specifications,

Corporate design and desires for individuality and materiality determine the design. In addition to static, of course, there are also physical "loads" and energy efficiency - timber construction is constantly gaining more shares than other disciplines - as well as thermal comfort for the user: sun protection and ventilation must also be considered. The aspect of comfort can be extended to include visual functions (e.g. visual reference, daylight control) and acoustic properties such as soundproofing both inside and outside. How high may the cleaning effort be, and what is required for safety reasons (e.g. damage, fire flashover, smoke and heat extraction, risk of falling, evacuation of the building)?

CENTRAL COORDINATION

The large number of aspects that need to be taken into account when planning facades speak for an integrated approach, such as that provided by Norden Facade Holzbau as general contractor: integral planning is the right step towards optimisation. In addition, there is the central coordination of the trades and quality assurance on the construction site from a single source, so that a time- and cost-efficient implementation for the client - in relation to the construction time, but also to the entire lifespan of the building - is guaranteed is. One contact for all questions about the building envelope - that's where it's all about!

**MULTIFUNCTIONAL
FACADES**

One of the biggest challenges here: facades are increasingly being planned in a multi-functional manner. More and more technology is no longer packed behind the facade, but inside it. The speed of this development is enormous. Integrating new functions and materials into the building envelope on an ongoing basis will determine the competitiveness and future viability of the executing company. They must always be state of the art or this - such as Norden Facade Holzbau - even specify in part through its own research and development. will be one

Facades with a wooden surface offer various techniques for making the surface durable and low-maintenance: modern ones, such as with pre-greying, or very traditional ones, such as targeted charring of the surface to protect it from the effects of the weather.

**FUTURE
WOOD ELEMENTS**

However, no system is as flexible as a wooden element façade when it comes to designing the façade from various other materials:

Plaster base, HPL and fiber cement panels, aluminium, cement or ceramics. The latest developments relate to phase change materials (PCM), photovoltaics, LED technology and solar thermal structural elements. Will facades one day be self-sufficient power plants, green lungs or other sustainable areas in metropolises? A lot is possible, and Norden Facade Holzbau will help shape this exciting future.





FREE UNIVERSITY OF BERLIN
MAJOR PROJECT BUILDING ENVELOPE

The new building on the Dahlem campus of the FU Berlin is a two- to four-storey reinforced concrete structure with several inner courtyards and accommodates the "small subjects" courses of the history department on almost 12,650 m² of usable space. and cultural studies. There is also a campus library with around 1 million volumes and 950 reading and work stations.

As general contractor, Norden Facade Holzbau was responsible for the manufacture and assembly of the wooden facades, including several additional trades. The scope of services included the erection of cranes and scaffolding, skylights and parapets, tinsmith work and the

Sun protection and safety management on the construction site. In addition to the large dimensions, on-site special solutions, demanding details and connection points made high demands on the project management, construction management and the fitters on site.

The wood-glass facade made of a white-coated mullion and transom construction made of glued laminated timber (spruce, mullion 50 × 100/300 mm and transom 50 × 300/450 mm) with double insulating glazing has a U-value of 1.2 W/m²K. Around 3,900 m² of the aluminum glazing system was installed, individual panes weighed up to 840 kg.

Of the 567 window sashes, around 60 are integrated into the automated night ventilation and RWA fire protection concept as motor-controlled opening elements. 560 electrically operated awnings were installed as sun protection. The solution also includes 46 entrance doors and 130 m² of F90 steel façade elements on fire flashover sections. For this and the parapets, Norden Facade Holzbau also installed around 8,000 running meters of galvanized sheet steel.





FREE UNIVERSITY OF BERLIN
 TIMBER AND FAÇADE CONSTRUCTION
 FROM ONE SOURCE

Convex and concave curves are the sweeping characteristic of the building's geometry. Due to the different construction tolerances between the concrete shell and the facade construction, some templates had to be adapted for the corner formations and the curved glazing. On this basis, the curved special components were manufactured in the factory.

12 pyramid-shaped glass skylights measuring 4.8 x 4.8 m were mounted on the flat roof. Its supporting structure consists of tubular steel cross-sections and double glazing. Built-in louvre windows ensure that the library is ventilated at night. Furthermore, 9 shed skylights were integrated. 4,000 m² exterior wall elements as timber frame construction and 2,000 m² wall

panels were prefabricated ready for assembly at the factory in Ober-Grafendorf (AT) and hooked into the supporting structure on site. Different wall thicknesses resulted from structural requirements and fire protection specifications.

SILVER GRAY CEDAR

The vertical facade boarding is made of PEFC-certified Alaska Yellow Cedar with a factory glaze of silver-grey. The profiles were installed in four different widths in a random arrangement and concealed. The wood is characterized by its particularly fine grain and small differences in hardness between early and late wood.

Due to the high dimensional stability, it is excellently suited as facade cladding.

TWO YEARS OF CONSTRUCTION

After a 2-month production lead-in, Norden Facade Holzbau began construction in March 2013, which was completed in March 2015. The basis for error-free work was the close coordination with the architectural office and the around 30 subcontractors who had to be coordinated. Internally, the quality and project management between planning, production and assembly has repeatedly proven itself.



Completion: 2015
Client: Freie Universität Berlin, technical department Architect: Florian Nagler Architects, Munich (DE) Structural planning Building physics: Leonhardt, Andrä and Partner - Consulting Engineers VBI AG, Berlin (DE) Timber and facade construction: Norden Facade Holzbau, Augsburg (DE) Wood-glass facade: 5,000 m² Timber element facade: 6,000 m² of Alaska Yellow Cedar, varnished Pictures: Marc Winkel-Blackmore, Berlin (DE)



SCHOOL AND KITA
OPENNESS AND
TRANSPARENCY



The easily accessible and fast-growing municipality of Poing (DE) is in the catchment area of Munich. The place is known, among other things, for the Bauzentrum Poing - Bavaria's largest and permanent home exhibition, in which a model house by Norden Facade Haus can also be viewed.

In the new residential area

W5 "Zauberwinkel" has more than 1,400 residents on around 20 hectares, their new home on Schneewittchenstraße, Elfenweg or Feenweg. The living space is particularly popular with families, because Poing covers almost 100% of its needs for day-care centers and kindergartens. This attractive infrastructure will remain future-proof thanks to the construction of a new elementary school, two day-care centers and a gym.

The day-care centers are divided into four parallel, two-storey buildings with floor plans of 46 x each

11 m. The individual components are accessed via an 80 m long main road. The roof terraces are used by the groups accommodated on the upper floor as play and outdoor areas. The balustrade of the roof terraces was realized with thermally decoupled prefabricated parts.

The elementary school on an area of 81 x 36 m is divided into an upper, ground and lower floor. Ceiling spans of 8.40 m were realized and the supports arranged in the facade level so that no free-standing supports impede use in the classrooms. On the ground floor you will find the specialist classrooms, administration, lunchtime supervision and the canteen. A part of the ground floor (29 x 16 m) is occupied by the air space of the gymnasium one floor below.

On the upper floor there are 12 classrooms in four wings, which are connected by a central auditorium and roof terraces.

The outer shell is characterized by a horizontally attached larch wood facade, which looks very exciting in connection with the large glass surfaces. Norden Facade Holzbau Augsburg was responsible for the factory planning and production (in the Ober-Grafendorf factory) of the mullion-transom construction, including all connections, sealing levels and metal sheeting as a frame for the glazing units.

Poing's philosophy when developing the residential areas was to create as large an open space as close to nature as possible. Therefore, special emphasis was placed on the perfect integration into the existing green area and the energy standards of the buildings. According to the Energy Saving Ordinance, a value of 30% under EnEV.



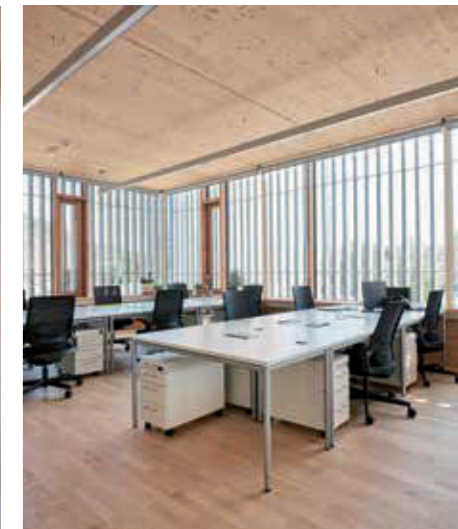
Approximately 550 m² of the 3,325 m² of the wood-glass façade was designed as fire-resistant glazing. The factory-prefabricated facade elements include a total of 220 windows and 80 external doors in aluminium, and Norden Facade also installed 54 internal doors in T30-RS and 10 louvre windows as well as two fire protection curtains.

Completion: 2017
 Client: Municipality of Poing (DE)
 Architect: architektein ingenieure architekten bda akh, Frankfurt am Main (DE)
 Project management: Stein und Partner Projektmanagement partGmbH, Munich (DE)
 Structural engineering: Kling Consult, Krumbach (DE)
 Main construction work: Zechbau, Munich (DE)
 Timber construction: Norden Facade timber construction, Augsburg (DE)
 Wood-glass facade: 3,325 m²
 Images: Felix Löchner/Sichtkreis Architekturfotografie





SCHOOL CENTRE GLOGGNITZ



Educational institutions of the 21st century are places of a new learning culture. The new, multifunctional school center in Gloggnitz is therefore both a working and learning landscape, a place to linger, a place to meet and a place where children and young people grow together, experience beauty, develop a sense of community, develop creativity and being able to live democracy. In addition, it is - beyond the school use - a cultural meeting place and place of public events.

The quality of educational buildings - from kindergartens to schools and universities to places of adult education - reflects the appreciation that a society has for the topic of education and the learners and teachers there

brings. The new construction of the school center underscores the importance of education and youth in the municipality of Gloggnitz (AT) and the pedagogical leitmotif of togetherness, exchange between students, teachers and parents, as well as mutual support and assistance the three previously separate schools (Primary school, new middle school, special education center) bundled in a shared new building. At the same time, the school center opens up to the region, invites sports clubs to use it and, in addition to adult education, offers a large number of other extracurricular events.

A cantilevered canopy welcomes schoolchildren protected from the weather

Pupils and also guides visitors to events in the striking foyer on the ground floor, the public area of the center. The light, spacious foyer, which is completely glazed on one side and has a huge air space, provides plenty of natural daylight even in the low-light season and underlines the architectural claim of an open, transparent and integrative school. Around the three large, directly adjoining sports areas and multifunctional music and drawing rooms, in addition to cloakrooms and wet rooms, the special teaching rooms and special classes are arranged in a ring for internal and external use. Grandstands on two sides of the sports areas transform the gymnasiums, gymnastics halls and the climbing wall into a stage.



SCHOOL CENTRE
GLOGGNITZ



All classrooms for the three school types are also clearly and clearly structured and are located on a common level on the first floor. The center of the upper floor – like a schoolyard – is the wooden roof terrace. Skylights provide plenty of light for the sports halls below. The open space can be entered directly from the generously glazed classrooms. The resulting open spaces can be used as a kind of open space class or as an area for joint learning across classes or schools. The areas for teachers are on the second floor. The rooms are accessed through a transparent corridor and offer like all the others

a variety of flexible uses. The structure above the ground floor is designed as a timber construction or a mixed timber construction.

The use of wood for the primary supporting structure (ceilings and outer walls) and the interior fittings significantly reduced the CO2 consumption in the manufacture of the building and will enable future uncomplicated adaptation or conversion. The building was designed as a low-energy building with a highly heat-insulating shell construction. A sequence of closed and transparent facade bands forms the base zone of the building. The degree of permeability reflects the different uses as well as their position and orientation in the building.

The facades of the rooms on the upper floor are glazed towards the courtyard and are equipped with generous sliding elements. Vertically oriented, rear-ventilated wooden slats clad the closed parts of the facade and protect the glazed elements from overheating in summer. External, moveable venetian blinds offer additional protection.

In addition to planning and statics, Norden Facade Holzbau was responsible for the production, delivery and installation of the generously proportioned wood and glass façade. Due to the dimensions, the fire-resistant glazing was regulated by means of a special permit.



Completion: 2019
Client: Municipality of Gloggnitz (AT)
Architects: Dietmar Feichtinger Architectes, Vienna (AT)
Wood-glass facade: Norden Facade Holzbau, Augsburg (DE)
Wood-glass facade: 2,500 m² in larch, profile cross-section 50-60/120-160-200 mm,
RAICO glazing system, UCW = 0.9 W/m²K
Images: Norden Facade Holzbau/Michael Liebert



ROOM WITH VIEW
PRIMARY AND MIDDLE SCHOOL
PFAFFENHOFEN



The new primary and secondary school is a milestone for the city of Pfaffenhofen. She has realized the largest project in the city's history to date and created a new school building that is second to none. The new school offers completely new possibilities for everyday school life and lessons as well as for public events. And even the rehearsal rooms with special acoustic ceiling sails for the town band found their new home on the upper floor.

While the elementary and middle school were previously divided into two separate buildings - the Theresia Gerhardinger School on Niederscheyerer Strasse and the middle school on Kapellenweg - they now have a common school building. With around 650 girls and boys in 32 classes was the new elementary and middle school from the beginning at almost full. The two-stream elementary school is attended exclusively by all-day students. There are another five all-day classes at the middle school. The teaching staff consists of 70 teachers. In the elementary and middle school in Pfaffenhofen, the division of the

classroom in own "clusters". There are no longer long corridors, but five or six classes each have a self-contained area with classrooms, a common group room or "market place" as well as a teacher's station and their own toilets. The meeting place for everyone are the two inner courtyards and courtyards.

The new building is a compact, three-storey building with a central area and two side wings with inner courtyards. Four light-flooded staircases lead to the upper floors. The entire building is barrier-free accessible. A high-quality equipment with wooden floors made of oak parquet, the wooden stairs adjoining the inner courtyards and exposed concrete with partly bush-hammered parts (these symbolize in an abstract form the linkage of a hop garden) characterize the new building as well as a very bright and friendly atmosphere. According to the motto "Daylight instead of neon tubes", the classes and common rooms are bright and open, the doors are made of glass with a light privacy screen, the windows are large

and ceiling high and provided with curtains and external shading. Elements with generous glazing are therefore used indoors both as room-dividing and - with their transparency - as connecting components and are designed with special soundproofing and fire protection requirements. A ventilation system throughout the house ensures a supply of fresh air and pleasant temperatures. There is a large photovoltaic system on the roof for regenerative power generation with an output of around 230 kWp.

In addition to the prefabrication in Ober-Grafendorf, Norden Facade Holzbau Augsburg was also responsible for planning the entire wood-glass facade, including the static calculations and transport. The components were delivered to the construction site ready for assembly and assembled by our own staff. Other services included the installation of the aluminum accent elements around the window openings and the design of the exterior facade, including insulation, as a curtain-type, rear-ventilated Cedral facade.

"The central design element in the urban design of the school was the formation of the two inner courtyards. The special feature of the slightly offset building is the break in the outer shell with the black cladding towards the inner courtyards with a white, light-flooded design with lively accents in yellow tones. The cluster rooms and the stairwells are directly adjacent to the two inner courtyards and were not inserted into the building line as is usually the case," says Thomas Baron, the lead architect at ARGE Köhler-Eichenseher. "The large, projecting facade elements with a height of up to 10.5 m without a joint from Norden Facade Holzbau provide plenty of natural daylight, as they do throughout the school".



Centrally located in the building are the elevator and the large auditorium with a capacity of over 600 people, which, with a complete set of stage equipment and the special feature of a retractable stage, also forms the new event hall for the city. Architecturally, this area is characterized by the two-storey column structure that was placed in front of the individual corridors. The wall cladding with acoustic panels and swiveling slats on the ceiling ensure optimal sound reinforcement in the hall during events and when used as a break room.



Completion: 2018
 Client: City of Pfaffenhofen a. i.e. Ilm (DE)
 Architects: Köhler architekten + consulting engineers, Gauting (DE)
 Site management: Eichenseher Ingenieure, Pfaffenhofen (DE)
 Timber construction: Norden Facade timber construction, Augsburg (DE)
 Wood-glass facade: 675 m² in spruce glued laminated timber, GL24c, 80 x 340 mm and 60 x 260 mm, RAICO glazing system
 Eternit cedral facade: 2,685 m²
 Windows: 1,270 m², 227 pieces in wood-aluminium design, 540 running meters of sun protection venetian blinds, 515 linear meters of interior window sills with maple veneer, 675 m² aluminum facade panels as wall cladding on the windows
 Pictures: Rolf Sturm



GREEN CENTER WOOD-CONCRETE COMPOSITE CEILING

In the future, the new Green Center in Kaufbeuren-Ostallgäu will bring together organisations, associations and self-help institutions in the region's agriculture and forestry under one roof. The wooden building by Norden Facade Holzbau Augsburg (DE), built according to the passive house standard, also sets accents in terms of biodiversity with a green flat roof, flowering areas and fruit trees typical of the region in the outdoor area.

The Office for Food, Agriculture and Forestry (AELF), the Agricultural School and the only state technical school for food and supply management in Bavaria were previously organized on a decentralized basis. The move to the new premises began in mid-July 2018. Together with the new buildings of the Bavarian Farmers' Association and the machine ring Ostallgäu, these now form the "Green Center" in the Innovapark in Kaufbeuren as an urban ensemble. The population, farmers and students now have a modern, efficient and central

located service and training center available, which offers concentrated competence in all agricultural and domestic issues.

The Green Center consists of a three-storey administration building and a two-storey building in which the two schools are housed. Both buildings are connected on the ground floor via an intermediate building with shared facilities. In addition to school and office rooms, the Green Center includes modernly equipped practice rooms, a canteen kitchen for catering for AELF employees and students, and two event halls that can be combined to form a large one.

Wide-span wood-concrete composite ceilings were chosen for maximum room flexibility. FT connectors had already been concreted into the prefabricated concrete parts in the factory. The concrete parts could be attached to the glued laminated timber beams on site through these sleeves

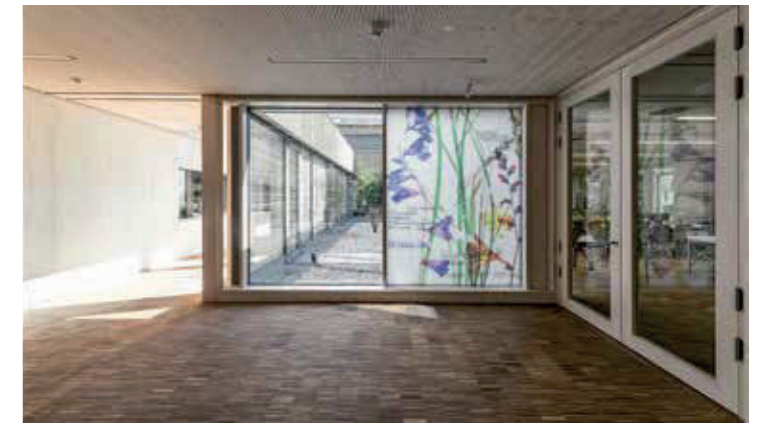
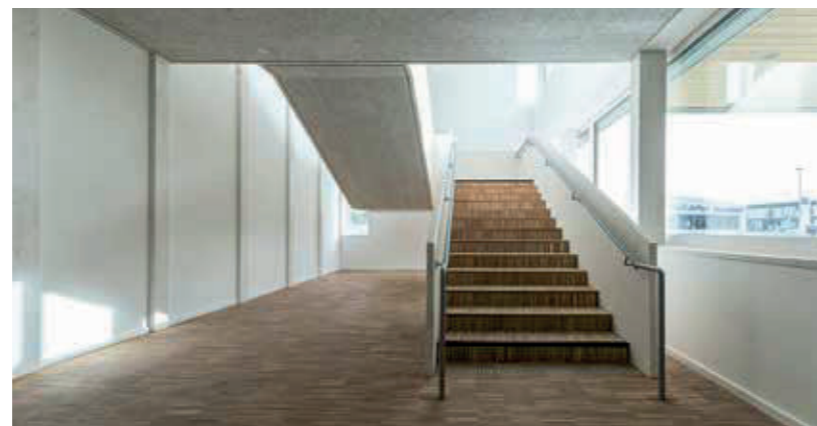
be screwed tightly. Cross-laminated timber walls inside the building provide further bracing. The top floor ceiling was adapted for the large-format element construction and forms the conclusion to the cold roof above. The building meets the fire protection requirements through different, material-specific protective measures: through combustion assessment for visible wooden components, plasterboard cladding in stairwells or coatings on steel parts.

Architecturally, the two cube-shaped structures with saddle roofs are characterized by horizontally structured band facades based on a timber frame construction and window bands. The vertical floor and cover formwork made of spruce plays with rough-sawn and planed surfaces, trapezoidal cover strips and two different colors and achieves a special aesthetic with the incidence of light on the angled surfaces. The transparent architecture



with the generous glass surfaces provides plenty of natural light. This resulted in many bright office and school rooms in which wood remained visible as a construction material and ensures a pleasant atmosphere. At the same time, the energy-efficient, rear-ventilated outer shell made of wood meets all the client's specifications for energy conservation and energy savings. By combining pellet heating, highly efficient heat recovery and

direction of a photovoltaic system, more than 40 t of CO2 emissions can be avoided annually. The building complex meets all the criteria of the passive house standard. Norden Facade Holzbau Augsburg was responsible for the factory and assembly planning, the optimization of the supporting structure for production and assembly, factory prefabrication, the transport and assembly of the structure including ancillary buildings.



The Green Center Kaufbeuren-Ostallgäu is already the 18th institution of this kind in Bavaria. With around 90 employees, AELF Kaufbeuren is responsible for around 2,600 farms, 19,000 forest owners, 77,000 hectares of agricultural land and 45,000 hectares of forest in the Ostallgäu district and the independent city of Kaufbeuren. With the two specialist centers for cattle husbandry and organic farming, it is also a national contact and advisor.



Completion: 2018

Client: Kempten State Building Authority and Ostallgäu District Office (DE) Architects: Florian Nagler Architects, Munich (DE) Structural engineering: Planungsgesellschaft Dittrich, Munich (DE) Static testing: IngPunkt engineering company for construction, Augsburg (DE) Timber construction: Norden Facade timber construction, Augsburg (EN)
Glued laminated timber: 450 m³
Cross laminated timber: 2,300 m²
Solid structural timber: 200 m³
Exterior wall construction: 1,500 m², including insulation, substructure, floor-to-ceiling formwork
Wooden windows: 1,150 m² in spruce (100 profile) as light bands in the façade Wood-concrete composite ceiling: 2,100 m², 14/32 glued laminated timber + 12 cm concrete Steel: 14 t, some with fire protection coating





ACOUSTICS WELL CONSIDERED SPORT PARK GRAZ



With the opening of the sports park in the center of Graz (AT), a major and trend-setting step was taken to secure the future of sport in the Styrian provincial capital. The sports park, which complies with the regulations of the international associations, offers a total of 3,718.5 m² of sports areas for large events such as Final 4 tournaments, qualifiers for European and World Championships, international matches and many other events.

The central element is an international and at the same time Austria's most modern ball sports hall surrounded by numerous other sports areas. The large event arena with an area of 2,728 m² and a capacity of 3,000 spectators can be quickly and cost-effectively converted into a training facility in four halls that can be played separately from one another using flexible grandstand elements. In addition, the complex houses a divisible hall of 440 m², a hall of 250 m², a

Athletics area with 226 m² as well as a seminar room, which can also be used as a press center in the event of an event. The surrounding grandstand consists of a total of ten segments. There are 650 to 700 seats in fixed rows, eight rows can be moved out as needed. Two camera balconies, one camera in the ceiling above the middle shelf and another on the gallery ensure the best TV transmission options.

Speaking of the ceiling: it is supported by 28 laminated wood beams that are between 2.55 m and 3.25 m high and 47.6 m wide. Which goes well with other concrete structures. These were pre-produced under workshop conditions at the Norden Facade timber construction site in Ober-Grafendorf. The crossbeams are equipped with acoustic elements, which are clad on both sides with Hera design panels. The smoke extraction system is also located here as a fire alarm. The floor of the arena is also made of wood. Depending on the oak wood floor

An additional floor was added for each sport: Parquet for volleyball and basketball, a synthetic surface for handball.

The hybrid construction in wood and concrete is clad on the outside by a sheet metal façade which, in conjunction with the floor-to-ceiling glazing on the ground floor, dominates the architectural appearance. The open space qualities of the forecourt, outdoor sports areas and park are connected with the interior of the building, which is completely barrier-free, via the all-round canopy.

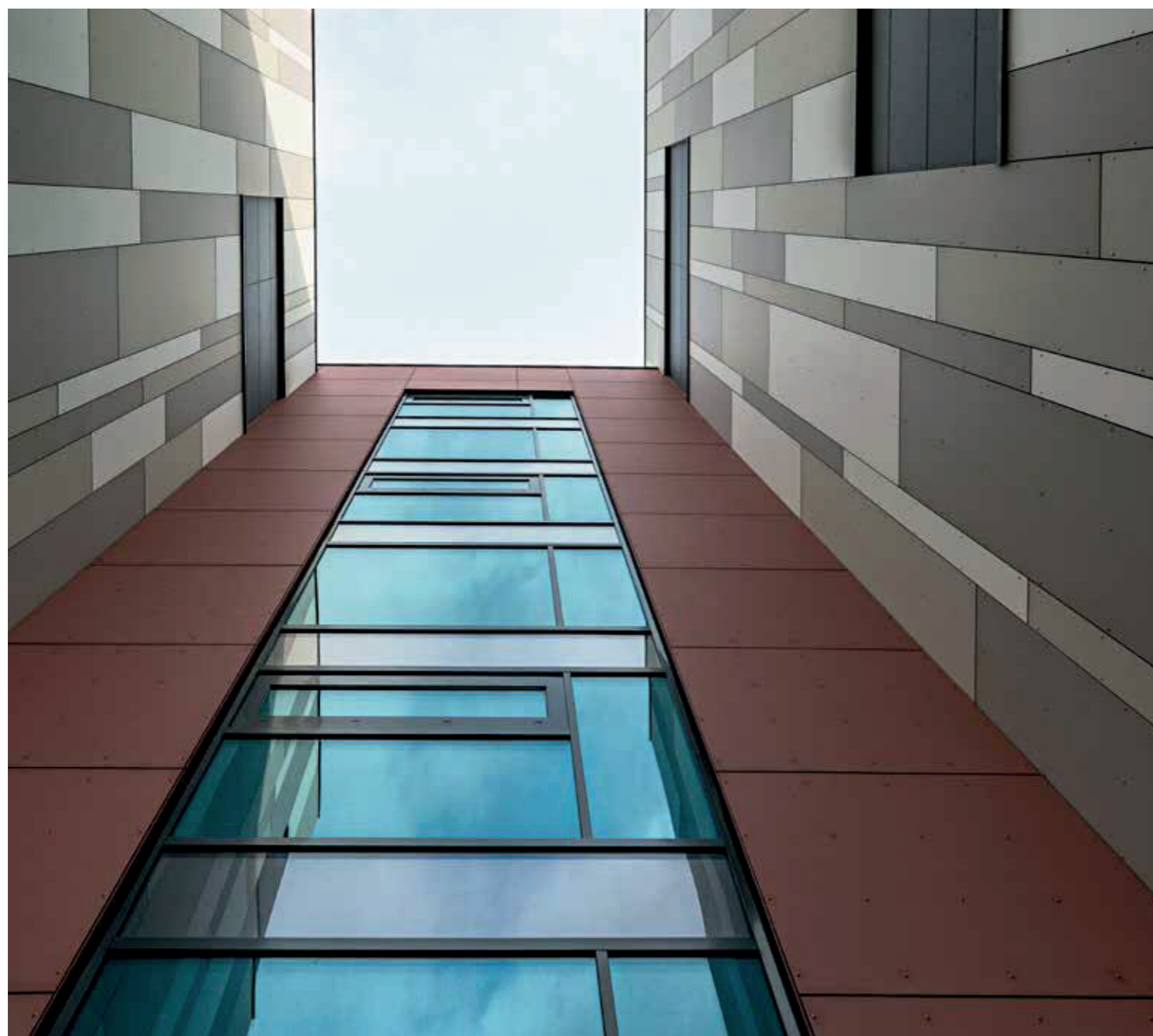
In addition to the factory prefabrication, Norden Facade Holzbau was responsible for the complete planning of the engineered wood construction as well as the transport and assembly under sometimes deep winter conditions.

The multifunctional sports center, including restaurants and underground car park, expands the range of sports for the entire city with ideal training and competition conditions for all areas of the sporting spectrum - from popular, elite, health and generational sports to school, university and disabled sports.



Completion: 2018
 Client: Sportunion Graz (AT)
 General contractor: ARGE Hüttenbrennergasse Bull Bau-Granit, Graz (AT)
 Architects: projektCC zt, Graz (AT)
 Timber construction: Norden Facade timber construction, Ober-Grafendorf (AT)
 Roof elements: 7,000 m², element sizes of max. 4.4 x 21 m Acoustic elements: 1,900 m²
 Glued laminated timber: 650 m³ in spruce, laminated beams up to 47.85 m long
 Photos: Paul Ott





COMPREHENSIVE SCHOOL
ENERGY RENOVATION

Ecological and economic principles are in the foreground when it comes to energetic renovations. Use the existing building fabric, preserve values and reduce energy consumption instead of building new. Building with wood is active climate protection and a significant contribution to climate protection goals. By 2050, annual greenhouse gas emissions are to be reduced by 80 to 95% compared to 1990. The greatest CO2 binding and associated significant savings potential occurs in the construction industry: every cubic meter of wood used stores the carbon from a ton of CO2 and also substitutes CO2 from the mostly energy-

elaborately manufactured, non-renewable building materials that would otherwise have been used. Norden Facade Holzbau has been working with by far the most sustainable building material for more than 70 years. Sustainability also means maintaining and optimizing existing buildings. Whether industrial or commercial construction, every professionally executed building

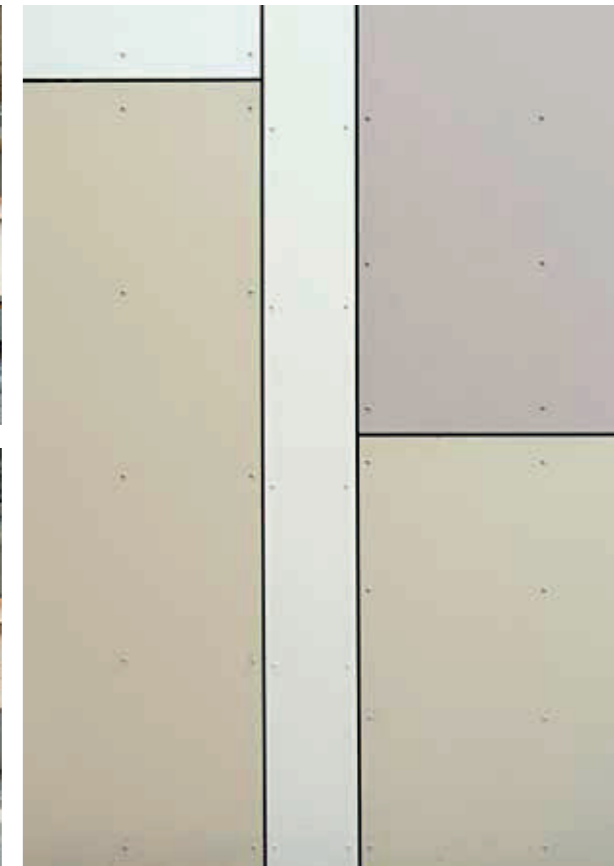
renovation pays off in the long term. In Germany, for example, around a third of the total energy requirement is used for the thermal conditioning of buildings. The need for heating is high and often met inefficiently. Energetic renovations offer significant cost savings through optimal insulation and extend the use of existing buildings. The increased living or working comfort and the associated higher acceptance of the user pays off directly for the operator or investor.

The successful energetic refurbishment of the comprehensive school in Wetter in 2015 was decisive for the award to Norden Facade Holzbau in Augsburg (DE) for the refurbishment of another school in Hesse. The order in Niederwalgern included the complete building shell for the two four-storey concrete frame buildings from the 1970s. In addition to the visual upgrade, the extension for a media library,

an increase and the renewal of the building technology, the energy consumption with components suitable for passive houses should be well below the legal requirements.

Another decisive factor in the choice of Norden Facade Holzbau was the requirement that the school should be implemented while the school was still running. Noisy and vibration-intensive work that fell on school days was only allowed to take place during breaks. This could be guaranteed with the proven, factory prefabrication of all components. The fixed glazing and windows were already integrated into the facade elements in the Ober-Grafendorf (AT) factory under workshop conditions. The advantage: the highest possible degree of prefabrication, including CNC joinery and integration of the building services under optimal climatic and technical conditions, rapid and precise assembly on the construction site and immediate weather protection.

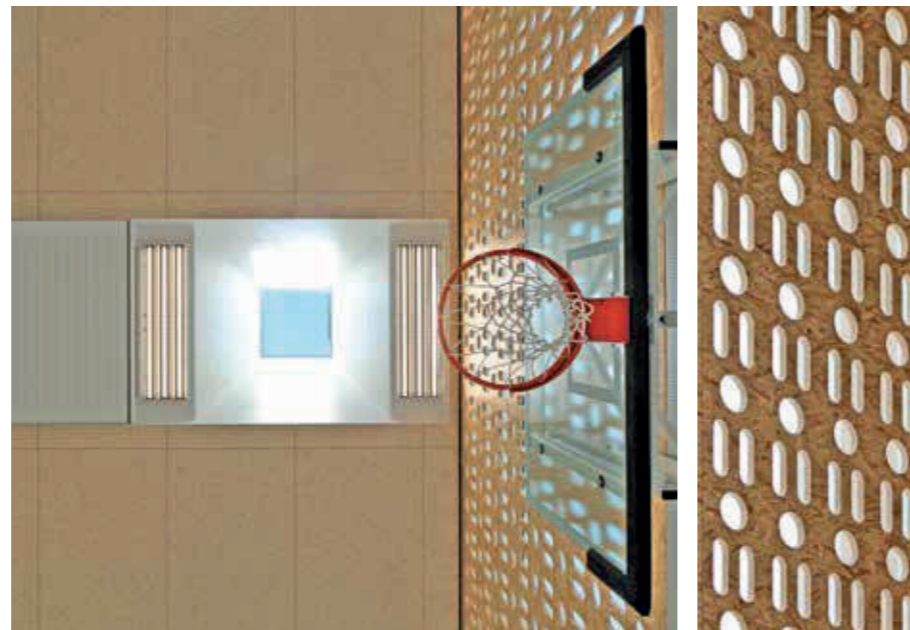
In the run-up to the building, the old facade bars made of reinforced concrete were dismantled; the aluminum windows, which were offset inwards, were only removed after the new facade elements had been installed. The new facades stand on their own foundations in front of the existing ones and were anchored to them to transfer the vertical loads. To absorb the horizontal loads, additional supports made of glued laminated timber were mounted on the existing reinforced concrete supports, allowing for tolerances of up to 7 cm. For the rear-ventilated facade, the wall element was designed as a timber frame construction with various structures. For structural reasons, for example, the hollow box girder integrated into the wall elements was planked on both sides with OSB panels.



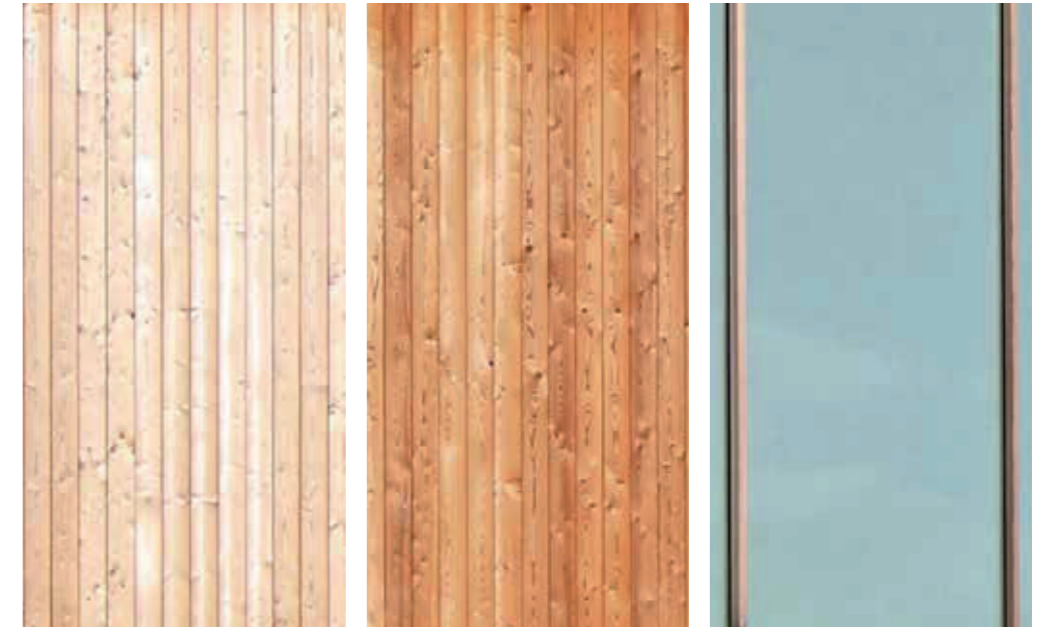
The large glass facades were designed as post and beam elements integrated. With a U_{cw} value of $0.8 \text{ W/m}^2\text{K}$, the mullion and transom facade meets the high requirements (suitable for passive houses) for thermal insulation. Electrically operated venetian blinds, which are incorporated into the facade elements, provide protection from the summer heat and darken the rooms. In coordination with the planners, Norden Facade Holzbau Augsburg developed the production and assembly concept, was responsible for production, the transport of all components with only 13 truck loads and the assembly of the entire building shell.

Completion: 2018
 Client: Marburg-Biedenkopf district School and building department, Marburg (DE)
 Architect: Thomas Dersch Architect, Biedenkopf (DE)
 Statics: HAZ Consulting Engineers for Civil Engineering, Marburg (DE)
 Timber construction: Norden Facade timber construction, Augsburg (DE)
 Gross floor area: 8,698 m²
 Wood-glass facade: 1,190 m², 2,985 running meters, colorless spruce, 60/280 mm,
 Raico Therm+ system U-values: wall elements 0.14 W/m²K, mullion-transom facade
 U_{cw}=0.8 W/m²K, insert window U_{cw}=0.85 W/m²K, glass U_g=0.5 W/m²K
 Facade elements: 3,200 m², 9.5 x 4.11 m, fire protection class W-30 B, Fermacell fire
 protection panel, Eternit Equitone Natura PRO facade panel
 Pictures: north facade timber construction,





DAYLIGHT SPORTS HALL
MODERN WOOD AND GLASS
CONSTRUCTION



Several schools and clubs are happy about the new sports park in the Preungesheim district of Frankfurt: with almost 65,000 m² of space, the city's largest sports facility opened here in 2017. The facility comprises three playing fields including all the necessary functional rooms and a spectator gallery for almost 200 guests. However, the building not only impresses with its dimensions, but also with its exposed location and the corresponding architecture. Since the terrain has a height difference of twelve meters from east to west, the outdoor playing fields are on two levels. The building stands on the jump in height between the squares. Turkali Architects designed the sports building as a daylight hall. The wide window front on the west side with a perforated screen and 36 skylight elements ensures optimal use of light. In interaction with the interior, which is almost entirely clad in wood

is, the construction creates a pleasant atmosphere that is not known from other sports halls.

The floor and the part of the walls half built into the slope are made of concrete - the rest of the hall is made entirely of wood. In addition to highly insulated walls and a wide-span roof structure, modern wood and glass constructions were created that blend harmoniously into the environment. The facade made of Siberian larch dominates the architectural concept with its vertical wooden formwork.

The roof structure with a green roof structure and soffits consists of glued laminated timber trusses with a construction height of 2.22 m and a column-free span of 32 m.

The inner walls of the ground floor were built with timber stud walls, the band facade and the windows with a post and beam construction. The large-format, prefabricated exterior wall elements are clad on the room side as impact walls with sanded, uncoated chipboard panels that are ball-impact-proof and sound-absorbing, as are the ceiling soffits.

Norden Facade Holzbau Augsburg was responsible for the construction, factory prefabrication, delivery and assembly of all components as part general contractor.



Completion: 2017

Client: City of Frankfurt am Main (DE)

Architect: Turkali Architects BDA, Frankfurt am Main (DE)

Engineering office: B+G Ingenieure Bollinger und Grohmann, Frankfurt am Main (DE) Timber construction: Norden Facade timber construction, Augsburg (DE)

External wall elements: 1,000 m²

Wood-glass facade: 160 m²

Larch formwork: 1,200 m²

Internal walls: 300 m²

Ribbed roof elements with green roof: 480 m²

Trapezoidal sheet metal on glulam beams with green roof: 1,450 m²

Glulam construction: 1,450 m³

Images: Frank Dinger



The new kindergarten in the municipality of Guastalla in the province of Reggio Emilia can accommodate up to 120 children under the age of three. The building, designed by the architects Mario Cucinella from Bologna, is characterized in particular by the unusual architecture in wood, the energy efficiency and high seismic safety: Wood, glass and high-tech are combined in this elongated, ground-level construction. Norden Facade Holzbau Brixen was awarded the contract as the construction company because the South Tyrolean timber construction specialist has decades of experience in terms of architecture, sustainability and earthquake safety and has already successfully implemented numerous designs in close cooperation with renowned architects' offices.

The project is based on a comprehensive pedagogical concept: from the room layout and the choice of building materials to the integration of indoor and outdoor space. The children's dialogue with the surrounding nature and the use of daylight play an important role. The day-care center blends harmoniously into the characteristic landscape. The richly structured stock of trees inspired the idea of a building that interacts with its surroundings: Numerous vertical wooden elements take up the motif of the rows of trees and agricultural areas and give the building a lightness.

NURSERY GUASTALLA
ENERGY EFFICIENT AND EARTHQUAKE
PROOF





NURSERY GUASTALLA
NATURAL MATERIALS

With the exception of the reinforced concrete foundations, the supporting structure consists entirely of glued laminated timber elements. In the event of an earthquake, these offer high stability and withstand the highest seismic loads. This aspect played a central role, in 2012 day care centers were severely damaged by an earthquake.

The passive configuration in connection with the use of highly energy-efficient systems, the certification in class A was achieved. The high level of thermal insulation, the optimal division of the transparent surfaces (maximum transparency on the south, west and east side, maximum opacity on the north side), modern systems for the treatment of rainwater and a photovoltaic system make it possible to largely dispense with the use of additional systems to cover the energy requirement.







With the “Message for Children” an education and meeting center of the SOS Children’s Village was established in Berlin-Moabit. The previous offers of the SOS Vocational Training and Conference Center for professional orientation and qualification of young people with special needs and new social projects for people with disabilities will be integrated into the building. From spring 2017, children, young people, parents and adults will be advised, cared for and trained here with their individual needs by around 70 experienced employees. A family café and day care as well as 28 guest rooms complete the offer.

The new Children’s Embassy should be an open house for everyone that reflects

also reflected in the architects’ design. They opted for a filigree wood and glass façade so that plenty of light can penetrate the foyer, which can be used for events.

BUILDING ENVELOPE

Norden Facade Holzbau realized both the facade and the prefabricated wall elements for the upper four of the six floors. The facade of the first two floors was made of 800 m² of mullion and transom facade made of spruce glued laminated timber, for the two upper floors 1,407 m² of prefabricated wall elements with robinia formwork were used, which is considered to be the hardest and most durable wood in Europe. The building shell was quickly closed with the 3.90 x 10.60 m prefabricated elements.

TEXTILE FACADE

The wooden building facade is encased by a visually sophisticated textile membrane facade with fixed and movable elements. On the lower floors, large awnings provide sun protection and color accents. The use of wood, textiles and glass creates exciting material contrasts and thus characterizes the result of a successful hybrid construction.

SOS EMBASSY FOR CHILDREN
FAÇADE INDIVIDUAL & TRANSPARENT







THREE SPORTS ROOMS STACKED
PREFABRICATED WOOD AND GLASS FAÇADE

INNOVATIVELY STACKED

A gym is generally imagined to be rather flat. However, this specimen, which is unique at least in Ulm, towers high. The new construction of the sports hall for 1,700 pupils of the Kepler and Humboldt Gymnasium in Ulm is characterized by three single-field gyms stacked on top of each other due to its inner-city location and the resulting restricted building area.

In addition to school use, the triple hall is also available to clubs and other municipal support services. The building meets the passive house standard.

The individual gyms measure 27 × 15 m, the ceiling height is 5.8 m, the lowest hall is located

up to half below ground level. Bright tones were chosen instead of the muted colors that are usual in the gym. The vertically structured, curtain-like facade structure made of white aluminum slats emphasizes the solitary position and strengthens the identity of the building.

Due to the twisted slats, the façade opens or closes depending on the viewing angle and enables targeted insights into the interior. A stair sculpture in the air space spanning the floors leads users to the changing rooms and upper hall areas.

PLANNING, PRODUCTION AND INSTALLATION

The scope of services provided by Norden Facade Holzbau Augsburg included the work planning, production, logistics and assembly of the wood and glass facades, including sun protection systems.

The 660 m² mullion-transom facade in element construction made of glued laminated timber with Raico glazing system was prefabricated in the Ober-Grafendorf factory and ensured rapid assembly on the construction site.



Completion: 2016
Client: City of Ulm (DE)
Project management: h4a Architekten, Munich
(DE) Architect: Ernst² Architekten, Stuttgart (DE)
Wood-glass facade construction: Norden Facade
Holzbau, Augsburg (DE) Wood-glass facade: 660
m², glued laminated spruce roof area: 6,500 m²
Photos: Conné van d'Grachten





Margarete Steiff fought for her place in life more than 100 years ago as an energetic young girl who was confined to a wheelchair against a lot of resistance. With a pincushion in the shape of a small stuffed elephant - the "elephant" - she wrote the first chapter of an unprecedented success story. 1902 was the birth year of the bear "55 PB", the world's first plush bear with movable arms and legs. In 2015 the extension of the Margarete Steiff School in Möhringen, a special school for the physically handicapped, will be completed.

The 2-storey and 58 m long building connects the existing school complex with the surrounding landscape through its material mix of natural-colored brick, wood and glass. The glass roof inserted in the middle closes around an elliptical part of the building

green roof. The two U-shaped buildings attached to the north side are connected to each other by two "tree houses" resting on supports.

SHORT WAYS INTO THE GARDEN

The new foyer forms the new focal point as a space that can be used in a variety of ways the school. In addition to the dining area, there is a central meeting area. The two floors are connected by an elevator and a ramp system suitable for wheelchair users. Almost all practice rooms on the ground floor lead directly to the school garden via external doors. The classrooms of the main level and other scientific specialist rooms are located on the upper floor.

GLASS FOR WALLS AND ROOF

The scope of services provided by Norden Facade Holzbau Augsburg included the complete façade package: planning, delivery of materials, prefabrication, transport and assembly as well as the assembly of fixed and movable sun protection systems. The 1,650 m² wood and glass façade consists of a 2,300 linear meter post and beam construction with glulam elements in spruce. The parapet bars were mostly designed as an interior window sill. Fixed horizontal slats are attached in front of the aluminum window elements, which serve as sun protection and fall protection at the same time.

**BARRIER-FREE WITH WOOD
MARGARET STEIFF SCHOOL**



The glass roof of the main part of the building, manufactured by Norden Facade Holzbau and covering an area of around 120 m², is shaded by five internal counteracting systems. The constructive challenge: to fit the glass roof with a connection on both sides to a 7° polygonal rising polyline and to produce the corresponding, double-curved glulam beams. It was based on a detailed three-dimensional planning of all components. In addition, the centrally located, elliptical multi-purpose room received a segmented glass skylight and two rows of windows with curved glazing, which allow a view of the hustle and bustle in the atrium.



Completion: 2014

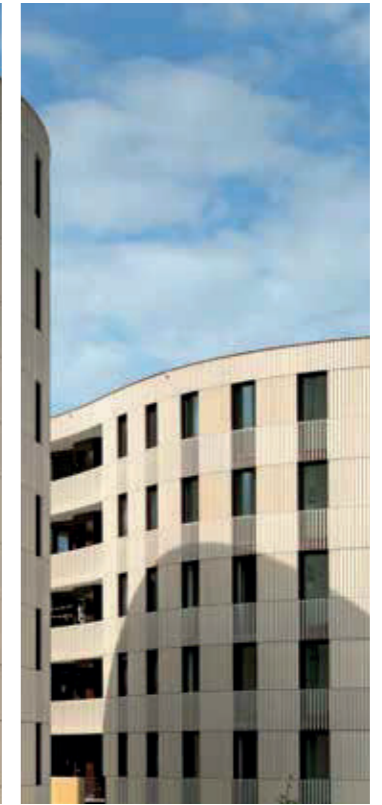
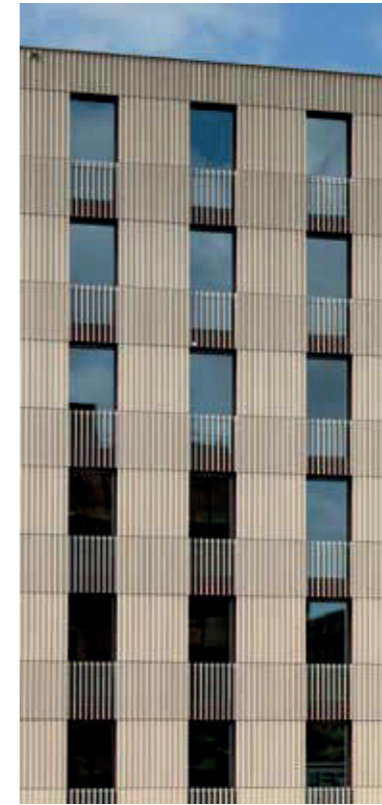
Inauguration: 2015

Client: City of Stuttgart (DE)

Architect: Maximilian Otto + Ursula Hüfftlein-Otto,
Graduate Engineers - Independent Architects BDA Stuttgart (DE)

Timber and façade construction: Norden Facade Holzbau,
Augsburg (DE) Timber and glass façade: 1,650 m², glulam spruce,
50 × 220 mm Photos: Frank Dinger, Karlsruhe (DE)





Inexpensive apartments in Zurich (CH) are rare. ETH Hönggerberg has therefore decided to create living space for students. At the beginning of September 2016, around 900 students moved into their homes in the new buildings HWW and HWO in the immediate vicinity of the lecture halls and laboratories.

LEARN, LIVE AND LIVE

The three optically intertwined HWO buildings contain 498 rooms, 12 of which are single studios and 64 units for 6 to 10 room shared apartments. A green inner courtyard and various common rooms ensure a high quality of living and create space for encounters. On the ground floor there are workplaces for students and a day-care center, while the archive is in the basement

for history and theory of architecture at the ETH. In addition, the residential properties also have retail space for shops.

PREFABRICATED WALL ELEMENTS WITH WINDOWS

Norden Facade Holzbau manufactured and installed around 7,770 m² of exterior wall elements made of wood for the reinforced concrete skeleton construction. The 410 prefabricated elements, some of which are curved in different radii, are up to 12 m long and weigh 3 t. All include factory installed floor to ceiling triple glazed windows (750 pieces). The challenge in the static dimensioning of the building shell was the high wind loads and the weight (90 kg/m²) of the curtain wall made of extruded ceramics.

ENERGY EFFICIENT AND CERTIFIED

A special feature is the certification according to MINERGIE-P-ECO® and GI GOOD INTERNAL CLIMATE®. These labels combine goals for energy-efficient construction and health protection. The focus is on avoiding harmful building materials, a good indoor climate and ecological aspects such as the reusability of the materials. The thermal energy comes from the ETH Zurich energy network and from around 230 geothermal probes with a total length of around 11 km.

SCIENCE CITY ZURICH
LIVING ON CAMPUS





Completion: 2016
 Client: Swiss Life AG, Zurich (CH)
 Total contractor: BAM Swiss AG, Basel (CH)
 Architect: Architect Tina Arndt & Daniel Fleischmann, Zurich (CH)
 Timber construction: Norden Facade timber construction, Augsburg (DE) Building volume: 73,800 m³
 Façade elements: 7,770 m² with 750 opening elements Glazing: 2,250 m²
 Glulam & KVH: 463 m³
 Pictures: Achim Birnbaum, ETH Zurich/Alessandro Della Bella



GRÜNES COLLEGE
COLLEGE FRÖELICHER IN
SISSONNE

The new building of the Collège Frœlicher in Sissonne (FR) covers an area of 5,800 m² and includes around 20 classrooms, a school library, canteen with kitchen, common areas and the administration building including technical areas. The three connected parts of the building for around 500 pupils are architecturally characterized by the striking wave shape and the green roof areas. The collège thus blends harmoniously into the surrounding landscape.

ECOLOGY AND FUNCTIONALITY

The concept combines a modern and ecological appearance with maximum functionality. Particular attention was paid to energy management with automated systems for heating, lighting and ventilation. Photovoltaic technology provides the outdoor lighting.

Against the background of economic efficiency and the integration of the building into the surrounding landscape, the building materials used were deliberately limited to two materials: concrete and wood. While the concrete structure ensures the fire resistance and bracing of the building, the wooden elements are used in a variety of ways. The facades in timber frame construction with the presented sun protection elements, made of Douglas fir, give the building a certain lightness. Depending on the area of use, different types of wood were used: solid oak for the canteen, glazed larch as a glulam construction for the teaching wing and a glulam construction made of beech as a supporting structure for the roof elements in timber frame construction.

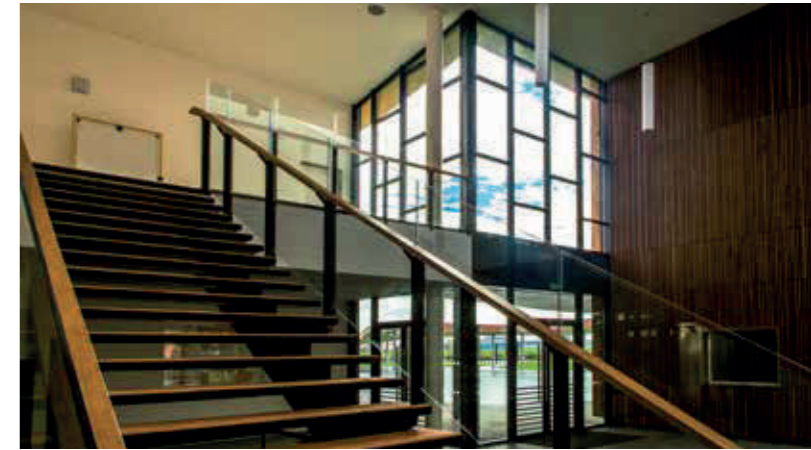
The entire roof area is green and the entire technical equipment of the building is located in the roof structure. A total of 4,450 m² of green space now covers buildings and terraces and optimizes the thermal stresses of the school.

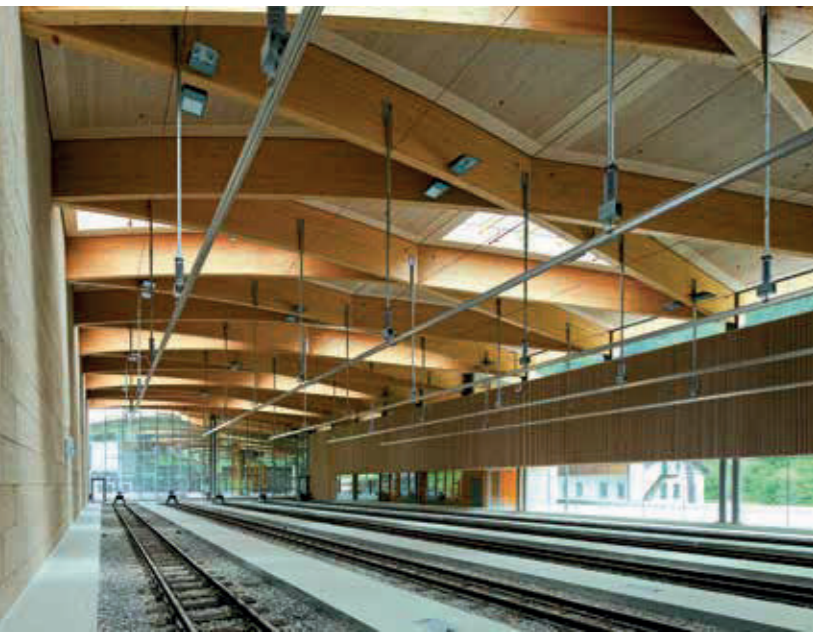
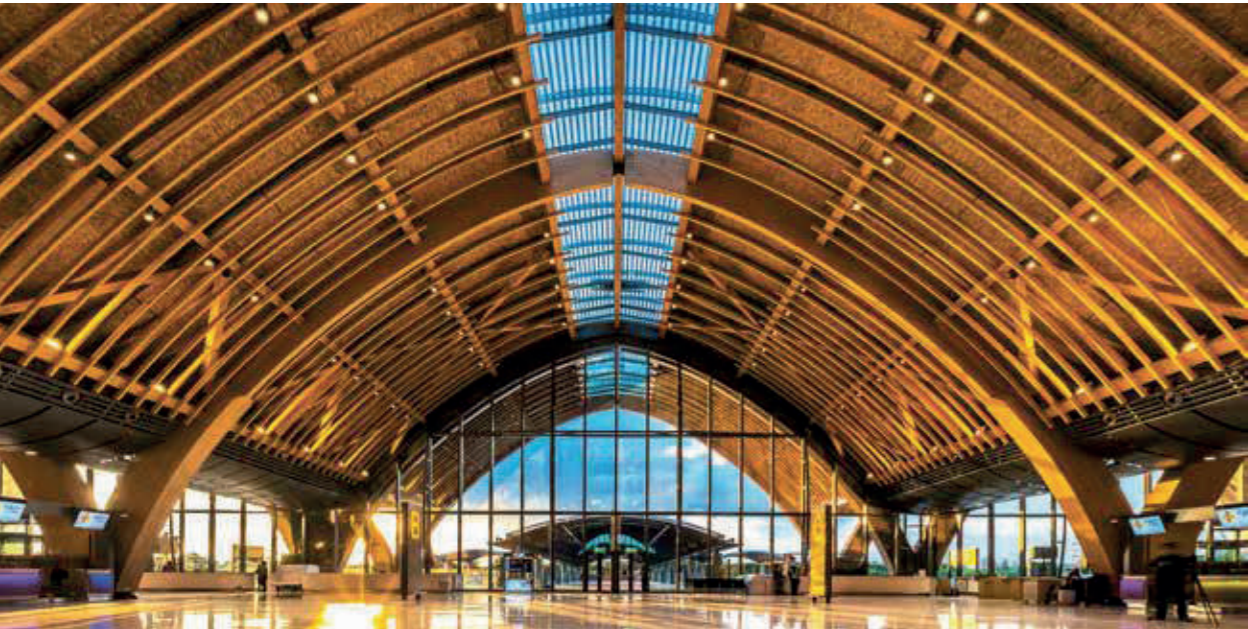
DEDICATED SOFTWARE FOR PLANNING

Due to the curved shape of the building and other special components that characterize this building, special software had to be used in the planning, as is also used in shipbuilding.



Completion: 2015
Client: Conseil Général de l'Aisne (FR) Architect: Daudré-Vignier Architectes associés Timber and facade construction: Norden Facade timber construction, Chassieu (FR) Facades and interior walls: 2,200 m2 glued laminated timber: 260 m3 Images: IMAGESinAIR Productions





North Facade TIMBER CONSTRUCTION
LARGE BUILDINGS IN TIMBER AND HYBRID
CONSTRUCTION

Individual large buildings in wood are our core competence. Whether multi-storey wooden and hybrid buildings, industrial or infrastructure buildings, sports or educational centers - they all have one thing in common: the competent handling of the building material wood, which at Norden Facade Holzbau, one of the leading timber engineering companies in Europe, has been around 90 years is lived.

Complete building shells, factory-prefabricated wood-glass facades or constructions made of glued laminated timber - the high-quality and constructive solutions are part of the core competence of the specialist for modern wooden buildings.

INTERNATIONAL
The individual large buildings are in demand and realized internationally. This is how innovative showcase projects came about, such as the Mactan Cebu International Airport with a wooden roof construction (Philippines), the world's highest wooden observation tower on the Pyramidenkogel (Austria) or a





Norden Facade

TIMBER CONSTRUCTION 90 YEARS OF EXPERIENCE

Numerous residential buildings in France, Austria and Switzerland. Most recently, a student housing complex consisting of three buildings was realized in Bochum with prefabricated building shells in timber frame construction. The production sites in Ober-Grafendorf (AT), Brixen and Calitri (IT) and Rosny-sur-Seine (FR) produce around 290,000 m² of roof and facade elements, around 85,000 m³ of special components made of glued laminated timber and 10,000 m³ per year cross laminated timber. With this proven infrastructure and the 550 employees, all customer requests are fulfilled worldwide.

AUGSBURG

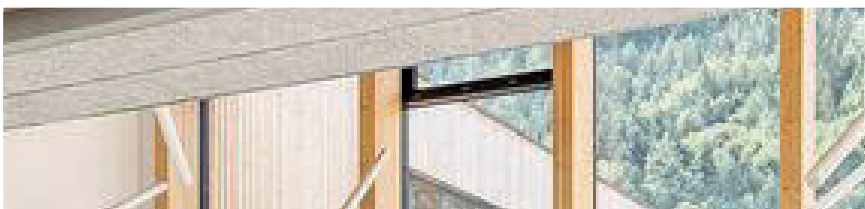
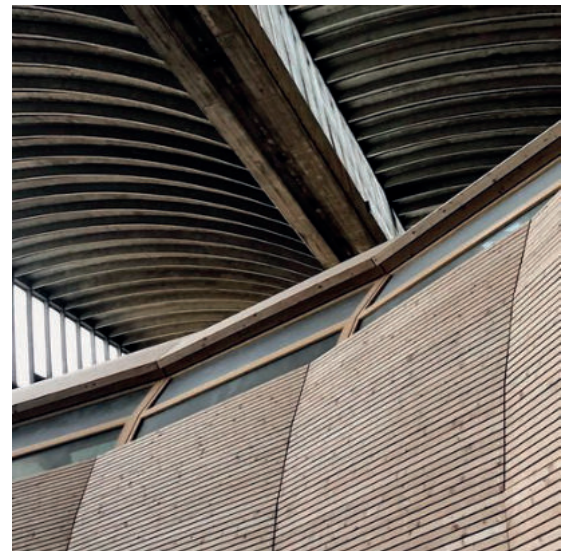
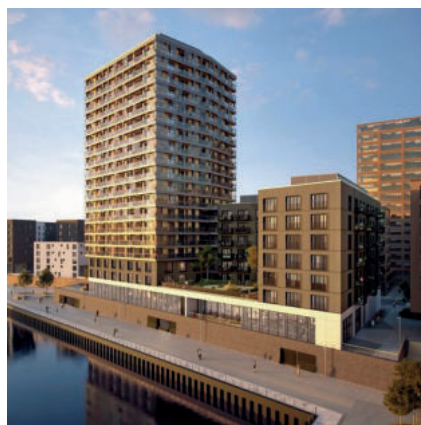
The Augsburg site of Europe's leading timber engineering company specializes in complete building envelopes, wood-glass facades,

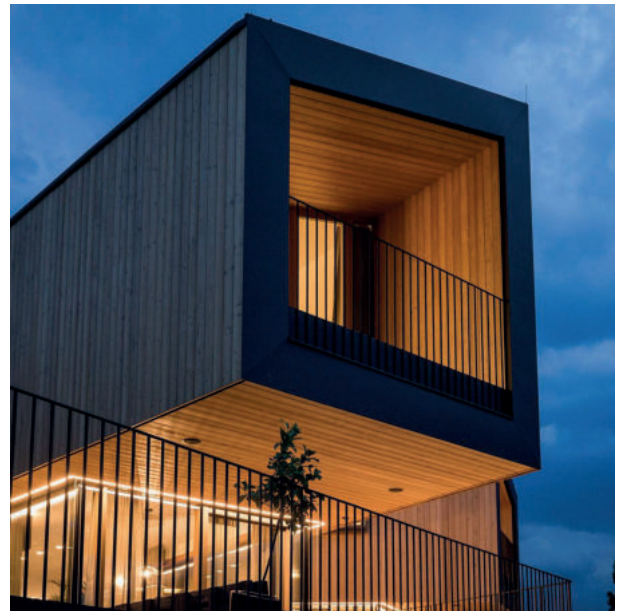
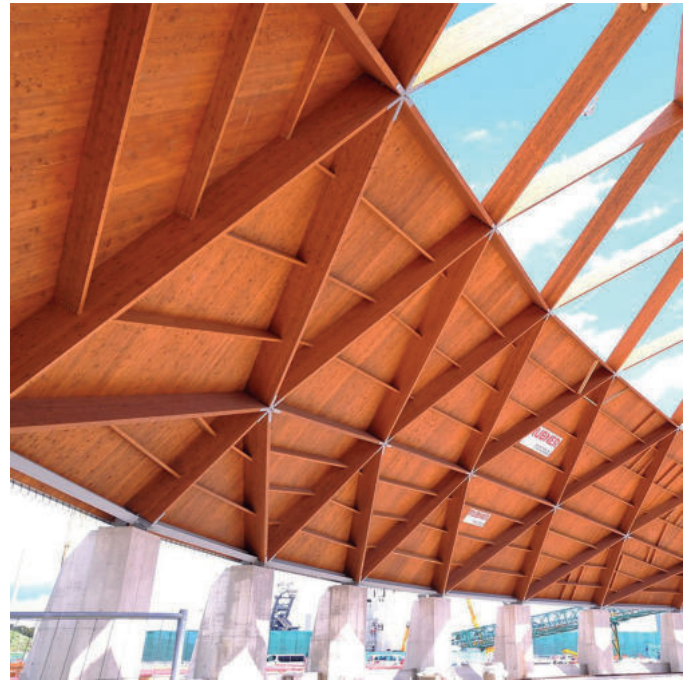
energetic refurbishments and special projects. With this qualification in all aspects of timber construction, the employees guarantee an enormous range of services right through to turnkey designs. The factory prefabrication of the wooden construction elements enables the delivery of large capacities and faster assembly, which shortens the construction times. This results in an economic benefit with adherence to costs and deadlines.

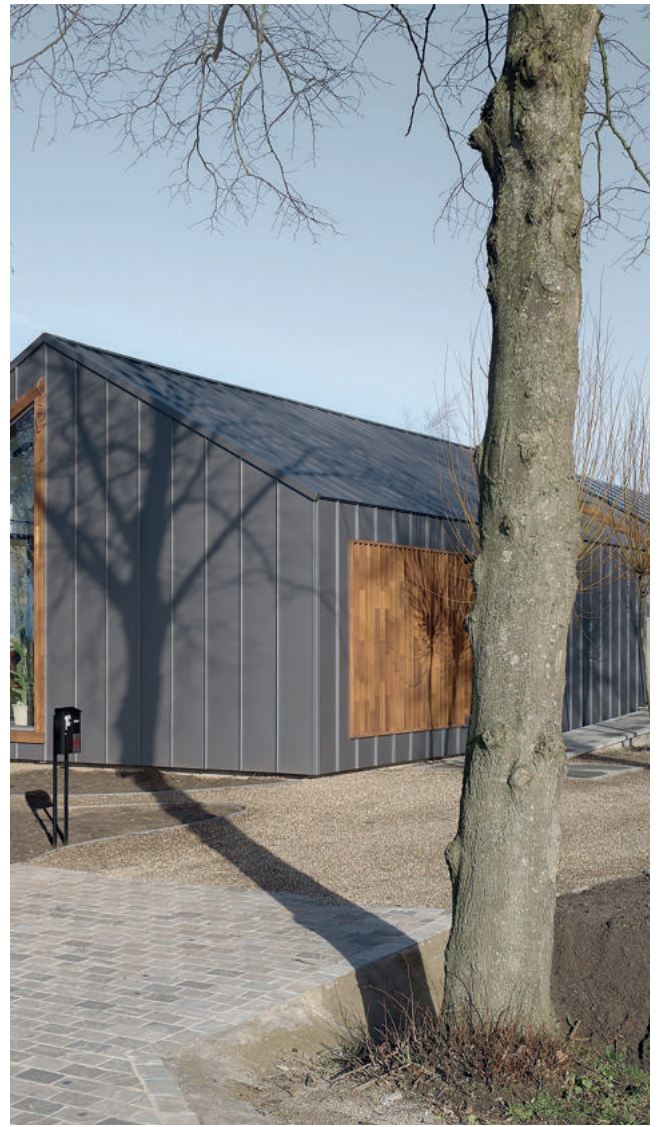
Norden Facade

Norden Facade Holzbau is part of the Norden Facade with the business areas timber industry, timber engineering, object construction, timber house construction, timber doors including timber windows. From the raw material from our own forest, through the sawmill in Styria to the finished object, all processes and

Work steps covered – a seamless vertical value chain that is unique in Europe. The fourth-generation family business employs 1,300 people in Germany, Austria, Italy and France.







By EFTCG

NODDEN
F A C A D E
NODDEN

**Adress Ferhatpaşa Mahallesi Akdal Sokak No:5,
Ataşehir / ISTANBUL/ TURKEY**

Telephone +90 216 594 50 30

Fax +90 216 594 50 30

E-Mail info@eftcg.com