SHERPA news

MAGAZINE
11/2021

SHERPA

Headquarter Scott Sports
SHERPA connectors provide stability in Switzerland

THE NEXT WINTER IS SURE TO COME
SHERPA column base with power reserves

ALWAYS GEOMETRICALLY CORRECT
SHERPA Software-Partners introduce themselves

QUIET WOOD CONSTRUCTION
Adrian Blödt talks to us

SHERPA ON SOCIAL MEDIA

A like connects

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EDITORIAL

Well-equipped for every season

Following a very beautiful summer, we are pleased to bring you the latest issue of our SHERPA News to set you up well for an exciting autumn. We are very pleased that we have so far been able to overcome all the hurdles caused by global raw material shortages and supply bottlenecks very well. Our warehouses are well stocked for the coming months and we should be able to meet your order deadlines. I am convinced that the positive market development will continue and that our timber construction companies will be able to further expand their share of the building construction volume.

Apart from the new approval details, you will also find information about the durability of our Power Base column base. Within the SHERPA team, we pursue - in addition to high performance of the connectors - a very high level of safety in order to ensure the durability of our structures. These approaches may strike some as very conservative when compared to our competitors, but they have proved their worth in the interest of the building owners and also for the protection of our craftsmen. The tolerance of a construction increases with your reserves. With us, you stay on the safe side.

I wish you a very successful end of season and thank you for the trust you have placed in us.

Vinzenz Harrer
Managing Director of
SHERPA Connection Systems GmbH

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SCOTT


Image: Faruk Pinjo

SUCCESS STORY

Scott Sports striking & timeless

Innovative bike and sporting goods manufacturer Scott Sports trusts in SHERPA connectors of the M to XL series and the corresponding SHERPA special screws for the construction of its futuristic headquarters in Switzerland.

Following a three-year construction period, some 350 employees were allowed to park their bicycles in the dedicated garage, hang their jackets in their personal lockers and move into their new offices in Givisiez (Switzerland). Scott Sports operates the world-renowned Syncros, Bergamont, Bold Cycles, Avanti, Malvern Star, Dolomite, Powderhorn, Bach, Lizard and Outdoor Research brands from here under a new and innovative roof.

Slim and light

Said roof should reflect the company itself: Just like a Scott bike frame, the new headquarters should be slim and light as well. In reference to the company's first innovation – ski poles made of aluminium – the striking facade was thus made of this very material. On 25,000 m^2 and seven floors, this open office landscape presents itself with modern conference rooms - a building that focuses on sustainability and exchange. From the very beginning. True to the architectural maxim "Hard shell, soft core", the architecture relies on metal on the outside and wood on the inside.

Sun-controlled facade

The outer shell of the building wraps protectively around the entire facade. The triangular aluminium elements, which automatically open and close depending on the sun or light conditions, are driven by over 800 small motors and allow daylight to flow pleasantly filtered into the interior. The dynamic sun protection on the upper floors as well as the high-tech plinth facade pique curiosity about the sports activities inside.

Central atrium

But the amazement continues even when you enter the imposing building. It reveals a building-high, bright atrium with a roof made of glass and cladding made of wood. The enormous vertical wooden slats that completely blanket the walls, in unity with the light colour of the floors in natural tones, create a unique and calm feeling of space. In addition to natural light, the impression of brightness from all sides is further intensified by the height of the room, which also relies on lighting between the wooden slats.

Image: Simon Ricklin

‹ The Scott Sports Group invested a total of 53.7 million euros into the project. Four years passed between the first idea and moving in.

Image: Faruk Pinjo

^ The entire (wo)manpower bundled in one location - previously the company was housed in five old buildings.

Image: Itten Brechbühl

Mix of materials

From the generous entrance area, one reaches the cafeteria and restaurant as well as the showroom, which extends over 4,000 m^2 and from where one can also catch a glimpse of the test area of newly developed bikes. The impressive staircase leads directly past a curved wall into the auditorium. This clean architecture combined with timeless materials like warm wood, cool concrete, glass and metal underscores the character of the building – and that of the company – both outside and in.

Nature indoors and outdoors

Sustainable energy supply and resource-saving heating using geothermal energy, solar technology and district heating underline the sustainable character of the overall concept. Because the building made of wood, concrete, glass and metal is the first in Europe to work with a system for simultaneous control of heating, ventilation and acoustics. And for those who still don't find that green enough, there' s an outdoor area around the building where you can go for a spin on your bike.

"AS HEAD OF PLANNING, I AM PROUD THAT WE WERE PERSISTENT ON MANY DETAILS AND, TOGETHER WITH THE PLANNERS AND CONTRACTORS, FOUND SUSTAINABLE AND GOOD SOLUTIONS TO REALISE THE ARCHITECTURAL IDEA."

SUSANNE KELLER,
ITTEN+BRECHBÜHL AG

SHERPA NEWS

ALWAYS UP TO DATE

26. INTERNATIONALES HOLZBAU-FORUM IHF (INTERNATIONAL TIMBER CONSTRUCTION FORUM)

December 1-3, 2021 | Congress Innsbruck
True to the maxim "From the field - For the field", the International Timber Construction Forum (IHF 2021) offers timber constructors, planners, engineers and architects an opportunity to report on their experiences, work and goals with timber structures and timber constructions. The forum will at the same time give project planners, those responsible for building and approval authorities, the timber constructor and craftsman, the practitioner and the trainer the opportunity to gather comprehensive information and exchange ideas. SHERPA will be represented this year as a bronze sponsor and is looking forward to your visit!

NEW FROM 2022

ETA

Currently, the ETA-12/0067 of the SHERPA system connectors is being revised by the Austrian Institute for Building Technology (OIB). This means that all planners and contractors will have access to numerous new advantages and possibilities in the area of fire protection and application with hardwood, probably as early as the beginning of 2022.

Fire proofs up to 120 minutes
Specifically, results of the tests on fire resistance classes R90 and R120 are included in the ETA. Thus, it will soon be possible for users to provide fire proofs for 30 and 60 as well as for 90 and 120 minutes. The proven SHERPA Fire Stop 2.5 can be used in the area of the connection joint for all solutions. A new feature is an innovative fire protection coating that allows the minimum cross-section of the timber components to be reduced. This allows for even more economical constructions. The coating system can also be used to subsequently improve wooden constructions that have already been built. The coating can be applied by brush, roller or spraying and is characterised by a transparent appearance.

Concrete residual capacity values
The conclusive test results also allow us to provide more detailed information on the residual capacity for different timber cross-sections. Two different residual load capacity values are available for the design, depending on the initial cross-section. For applications involving hardwood, an even more specific measurement can be made. As with different softwood materials, the characteristic load capacity values are determined on the basis of a raw density correction formula.

^ SHERPA system connectors after the fire test of 120 minutes.

^ Test setup at the Lignum Test Center of Graz University of Technology with hardwood.

INTERVIEW

Quiet timber construction

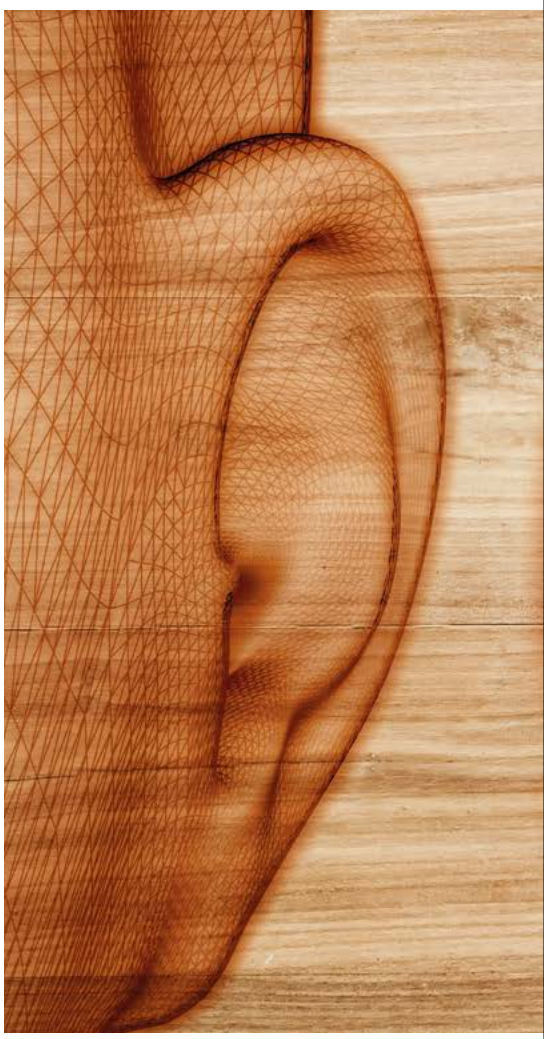
The graduate industrial engineer became involved in sound insulation in timber construction at an early stage and today holds several lectureships at German universities. We speak with Adrian Blödt about current challenges, standards and the future.

“FASTENERS WITHOUT APPROPRIATE TESTS ARE GENERALLY NOT ASSESSABLE FOR THEIR ACOUSTIC PERFORMANCE.”

DIPL.-WIRT.-ING. (FH)
ADRIAN BLÖDT M.BP.(UNIV)
IB FOR BUILDING PHYSICS AND
BLÖDT HOLZKOMPLETTBAU GMBH

What measures are already being used in the field to reduce sound in multi-storey timber buildings?
The multi-storey construction method in timber construction is generally to be differentiated according to its type of construction. Wooden panel or beam layer construction methods, mass timber construction methods as well as combinations are used - increasingly also with mineral solid construction methods. Therefore, different measures are in place. In the field of wooden panel construction, optimised sarking systems that specifically reduce low-frequency impact sound transmission have recently been used. In contrast, the targeted use of elastic intermediate layers in mass timber construction is also being promoted. In the process, very special framework conditions and reciprocal influence parameters of sound insulation and fire protection as well as stability have to be considered. This also leads to a cross-disciplinary optimisation process.

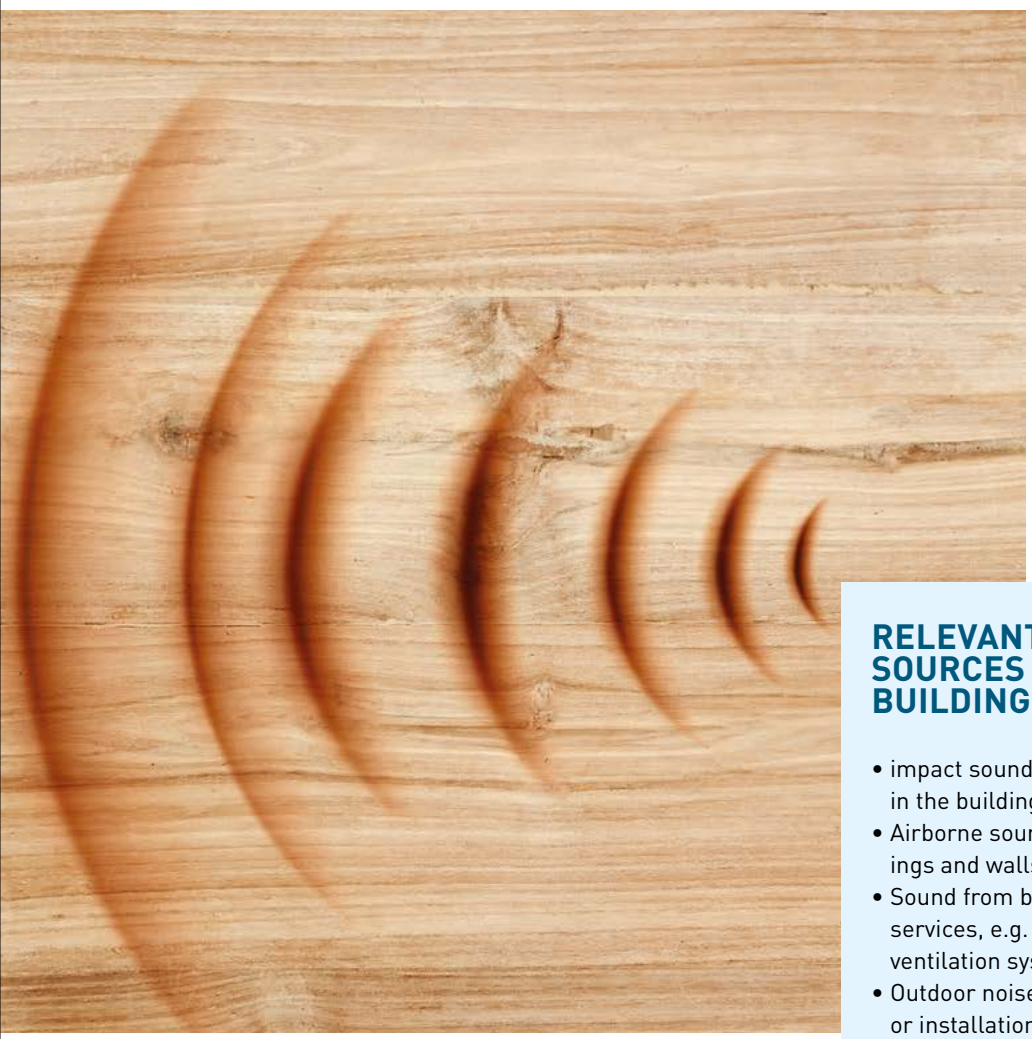
What are the different types of excitation in sound in buildings (see info box) that need special attention in a multi-storey wooden building?
First and foremost, great importance is attached to impact sound. But other types of excitation and sources can also be of great importance – above all, protection against external noise. Depending on the location of the building, this



can have a considerable influence on the acoustic performance of a structure.

What needs to be considered at the planning stage?
A key aspect in the acoustic design of buildings is the available construction height for the ceilings. Here, as a rule, greater ceiling panel heights are to be provided than in mineral solid construction. Depending on the type of timber construction, either fill or construction heights for suspended ceilings must be planned.

What role do standardised connectors play in the sound insulation of timber structures?
They have the great advantage that a large amount of data is gathered from both a static and acoustic point



“FIRST AND FOREMOST, GREAT IMPORTANCE IS ATTACHED TO IMPACT SOUND.”

ADRIAN BLÖDT,
IB FOR BUILDING PHYSICS AND
BLÖDT HOLZKOMPLETTBAU GMBH

RELEVANT SOUND SOURCES IN BUILDING ACOUSTICS

- impact sound, e.g. via the ceilings in the building
- Airborne sound, e.g. via the ceilings and walls in buildings
- Sound from building services, e.g. ducts and ventilation systems
- Outdoor noise, e.g. from traffic or installations

of view. This allows acoustic planning to be carried out in a targeted manner based on laboratory data. This leads to a comparatively high quality of the forecast. Connecting materials without corresponding tests are generally not acoustically assessable.

Are there any specific standards that must be complied with when constructing timber buildings, with due regard to sound insulation?
Both the requirements for sound insulation and the calculation rules are determined individually depending on the country. The DIN EN ISO 12354:2017 series of standards is certainly worth mentioning for forecasting in Europe. Furthermore, there are numerous recommendations for improved sound insulation in addition to the statutory minimum standards. The regulations concerning the prognosis differ considerably depending on the construction method. There is also no single calculation method for the different timber construction methods.

Are there significant differences between timber and concrete buildings in terms of sound insulation?
Yes, the differences in terms of calculation and assessment are sometimes huge. While the laws of mass timber construction can be partially applied to the solid construction method, this is not the case for the timber panel construction method. This is why a solid construction plan cannot simply be converted to timber. The timber construction methods regularly require laboratory values for the individual components. For solid construction, relationships based on formulas can be used for most of the standard cases, which makes the prediction somewhat easier.

Which developments and trends do you see the timber construction industry in the DACH region facing in the next few years?
There is still no conclusive research on many acoustic correlations in timber construction methods, and often there is a lack of input data for assessing acoustic performance. Especially the cost-effective combination of solid construction methods with timber construction methods is still in its infancy in terms of acoustics. Forecasting methods geared to timber construction and its hybrids still need to be further developed and anchored in standards.

POWER BASE

The next winter is sure to come

When snow or wind act, stable column bases are required. For weather-related influences, safety results from the factors of material and construction. With Power Base, SHERPA does not leave anything to chance and relies on ongoing testing.

Performance results from load capacity, processing comfort and corrosion resistance. Users are well advised to trust column bases that have safety margins. Especially when forces from wind or asymmetric snow loads act on a supporting structure. The safety of column bases is a result of the factors of material and construction. Here SHERPA makes no compromises with the Power Base.

The Power Base column bases impress with a high level of installation convenience thanks to a separable top and base plate, eliminating the need for any pre-drilling or milling. Stencils or similar aids are also not required. When it comes to corrosion protection, SHERPA column bases use a high-quality zinc-nickel alloy.

Through continuous optimisation of the manufacturing processes, SHERPA is constantly increasing the manufacturing quality and especially the load capacity with centric pressure loads. Ongoing further development and additional tests have led to higher load capacity values, which therefore serve as safety reserves for the user. Upon completion of all testing, the results will be promptly incorporated into ETA15/0540.

“A PRACTICAL COLUMN BASE PROVIDES THE POSSIBILITY OF HEIGHT ADJUSTMENT IDEALLY WITHOUT NEGATIVE INFLUENCE ON THE HORIZONTAL SHEAR FORCE LOAD CAPACITY.”

DI DR. MARKUS WALLNER-NOVAK,
WALLNER MILD HOLZBAUSOFTWARE

In 2013, SHERPA made the decision to develop a new generation of column bases What goals were defined?
All common requirements from practice are to be fulfilled. These include high load capacity with safety reserves through the use of materials, divisibility of the upper and lower structure for easier handling, zinc-nickel coating for reliable corrosion protection and defined load capacity values for all common types of stress.

What role did the idea of innovation play in the development of the Power Base?
Together with Graz University of Technology, SHERPA's research partner, draft designs were evaluated and then optimised. The core pieces that emerged were the head plate with the spatial screw connection and the two types of closure between the upper and lower frame.

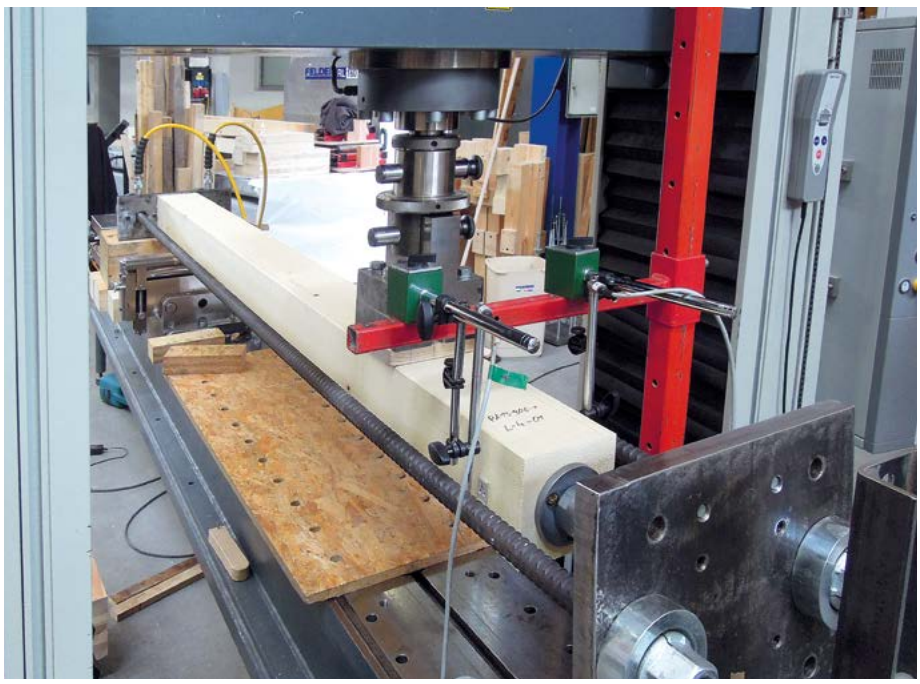
Which tests ensure the fitness for practice of the column bases?
In order to ensure that the SHERPA-column bases can withstand the loads that occur in practice, corresponding tests on the testing machine were necessary. These tests were carried out at the Lignum Test Centre on the premises of the Graz University of Technology. The following configurations were investigated: centric loading in compression without timber cross-section, transverse loading without and with pre-stressing, and centric tension loading.

"A PERFECT COLUMN BASE REACHES - IN AXIAL DIRECTION - THE BUCKLING LOAD CAPACITY OF THE CONNECTABLE COLUMN CROSS-SECTIONS AND AT THE SAME TIME ALLOWS A HIGH SHEAR FORCE TRANSMISSION."

DIPL.-ING. CONRAD BRINKMEIER, TRAGWERKSPARTNER ZT GMBH

^ Centric tension load: This test was able to demonstrate the performance of the spatial bolting in the case of lifting forces due to wind suction loads, for example.

^ Centric load on compression without wood cross-section: This test was an all-steel configuration, where the maximum pressure bearing capacity of the Power Base was determined.



< Transverse load with preload: This configuration corresponds to a realistic combined load and its effects.

SOFTWARE

Digital tools

No matter whether updated geometry data or state-of-the-art programmes such as SEMA, HSB-CAD or Cadwork - SHERPA Connection Systems GmbH and its software partners always strive to make digital work as uncomplicated and efficient as possible.

SHERPA is always up to date to make working with digital tools easier. Starting in autumn, all products will have the latest geometry data on the website. They are available for download. In addition to 2D drawings in PDF and DWG format, 3D files in DWG and IFC formats are now also available. In times of digital transformation, especially the IFC format is in demand in the architecture, engineering and construction industry. Specifically, it concerns "Building Information Modelling" (BIM). It enables companies to work more efficiently and achieve better results, including for the built environment.

Matthias Weidinger from the company Drohnen & Bauplanungsservice Weidinger in Türkheim, Germany, confirms this from practical experience: "As a work planner in timber construction, it is important to already enter the connecting materials in the CAD software during the planning stage.

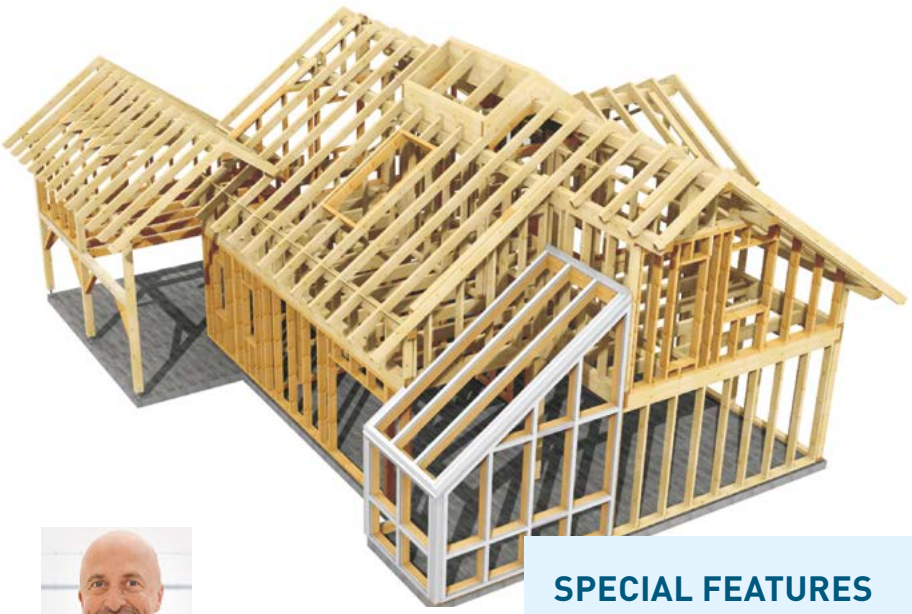
This ensures that all milling is done correctly on the machine and that the connectors fit one hundred per cent on the construction site". Two factors are decisive here. On the one hand, a reduced representation of the connecting means is sufficient because it keeps the drawing slim and editable. On the other hand, it saves valuable time because all the required materials (connectors, screws ...) are transferred to the material list.

"SHERPA IS IN CONSTANT EXCHANGE WITH CAD PROVIDERS TO UPDATE DATA. FOR US USERS, THIS MAKES PLANNING EASIER."

MATTHIAS WEIDINGER,
DROHNEN & BAUPLANUNGSSERVICE WEIDINGER

SEMA-SOFTWARE WITH SHERPA

Combining flexibility, automation and efficiency with standardised details? The SEMA software makes this possible! This applies to individual materials, dimensions and cross-sections as well as to integrated steel connectors and classic timber connections. The advantages for the user lie in the special preparation of the connectors in the SEMA datastore before they are made available. This is where SHERPA comes in! In addition to geometry and texture, SEMA, in close coordination with SHERPA, stored all production-specific installation specifications and machining on main and secondary beams for the respective connector. This allows the connectors to be positioned largely automatically and independently of the timber cross-section used. Necessary machining operations in the wood are generated fully automatically and ready for the machine. Manufacturer-specific installation instructions are linked at the master date and can be retrieved at any time.



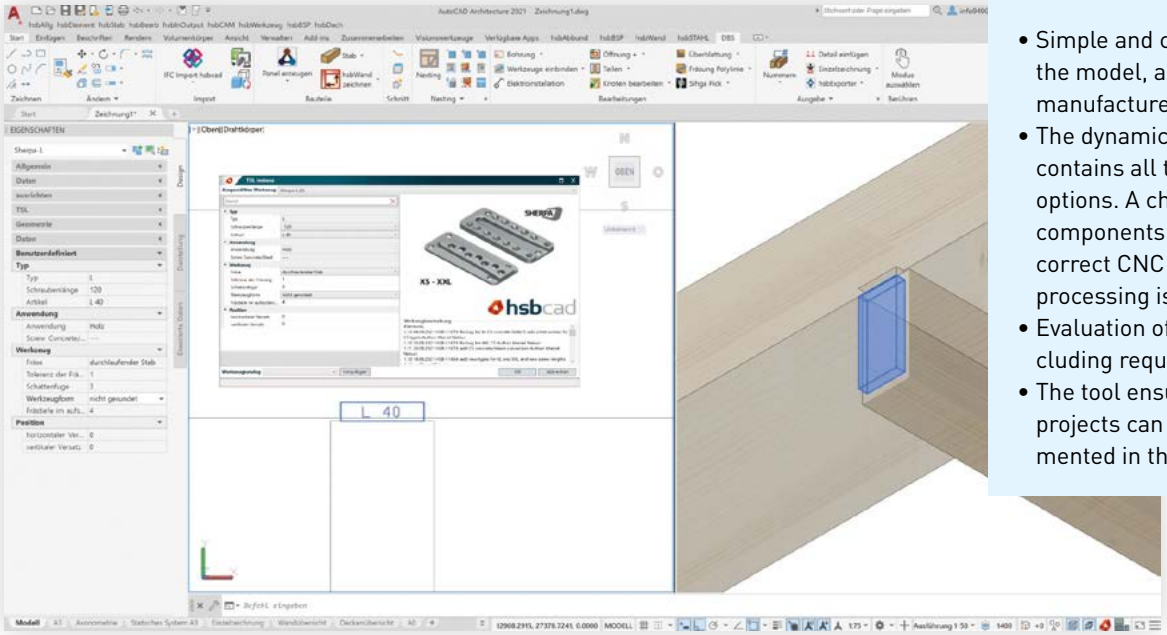
“THE SEMA SOFTWARE ALLOWS FLEXIBILITY, AUTOMATION AND EFFICIENCY TO BE COMBINED WITH STANDARDISED DETAILS.”

MARKUS LINK,
SEMA

SPECIAL FEATURES

- Sophisticated master data technology
- Own SEMA datastore with special processing of the connecting means
- Manufacturer-specific installation instructions linked at master date
- All specific item numbers stored for the order
- Project-specific order list at the touch of a button

< In coordination with SHERPA, all production-specific installation instructions and processing on main and secondary bearers are stored with the respective connector.



SPECIAL FEATURES

- Simple and correct placement in the model, according to the manufacturer's specifications.
- The dynamic tool contains all types and installation options. A change is applied to the components immediately. Always correct CNC processing is guaranteed!
- Evaluation of all connectors, including required fasteners
- The tool ensures that BIM-based projects can be successfully implemented in the future.

hsbcad
CAD/CAM für den Holzbau

HSBCAD

hsbcad – construct without limits! What sounds simple is in fact uncomplicated to implement in practice. The software is based on an intelligent 3D building model from "AutoCAD Architecture" or "Autodesk Revit". It combines all planning phases of timber and ready-built house construction in a clear and consistent concept and provides data flow without loss of information throughout the entire planning process.

Standardised connection techniques
Standardised connection techniques play an essential role. The CAD tools that have been developed with the connection technology manufacturers such as SHERPA improve the user-friendliness of the software and support the user in the production of high-quality timber construction projects. Moreover, standardised tools help to avoid errors in the construction process.

Customised system
hsbmake also enables a digital and thus paperless production process.

Orders are automatically controlled by a customised system, ensuring that each workplace receives the right information at the right time in the right format. Using hsbshare, all information about their 3D models are made available to all those involved in the project on a central platform via the cloud.

By the way: hsbdesign 24 for "AutoCAD Architecture" and "Revit 2022" is available now!

‹ hsbcad: The CAD tools that have been developed with the connection technology manufacturers such as SHERPA improve the user-friendliness of the software.

"ONCE ADDED, THE DYNAMIC TOOL CONTAINS ALL TYPES AND INSTALLATION OPTIONS. A CHANGE IN THESE PROPERTIES AFFECTS SUBSEQUENT COMPONENTS IMMEDIATELY AND ALWAYS DELIVERS CORRECT CNC PROCESSES."

DAVID WEIZSÄCKER,
HSBCAD GMBH

“IN ADDITION TO THE SOFTWARE, WE OFFER A VERY HIGH QUALITY OF SUPPORT. A CUSTOMER SHOULD NOT HAVE TO WAIT MORE THAN A FEW MINUTES FOR THEIR QUERY TO BE PROCESSED AND WORKED THROUGH.”

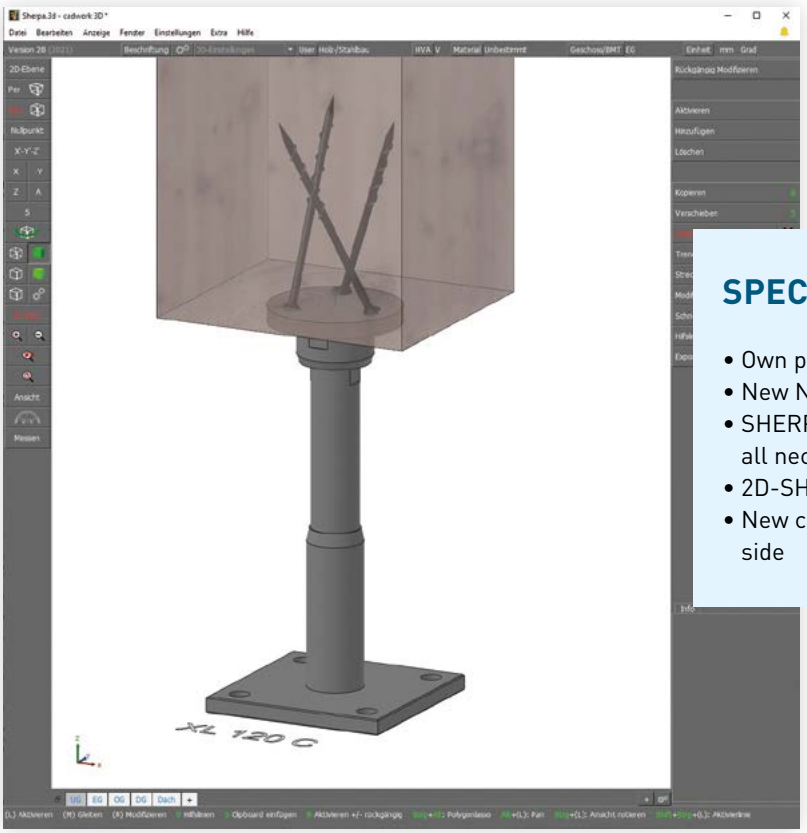
HANSPETER PLETSCHER,
CADWORK

CADWORK

An increasing number of customers want to standardise element construction and therefore resort to standardised connection techniques. What are the advantages of the SHERPA connection system in combination with “Cadwork”? In a nutshell: The SHERPA fittings are stored in Cadwork format with all necessary elements for machining, whether holes or cut-outs, and can be quickly inserted from the catalogue installed as standard.

SHERPA perfectly integrated
With version 28, which has been on the market since spring, it is also possible to adjust panels ideally with the company's own panel optimiser “OptiPanel”.

The same applies to non-rectangular components and panels with large openings in which smaller components are nested. The new Nesting Manager also makes various panel and bar optimisations easier to handle. “Cadwork” works seamlessly with SHERPA: The SHERPA catalogues were expanded to include all the necessary BIM information and a 2D SHERPA catalogue has also been made available.
“Cadwork” also took further steps in the field of carpentry. The CAM page lists new partners who work with the uniform BTL machine format. A second significant renewal relates to the carcase planner with direct connection to BLUM E-Services.



The SHERPA connection system in combination with “Cadwork” has a lot of advantages to offer. ›

SPECIAL FEATURES

- Own plate optimiser
- New Nesting-Manager
- SHERPA catalogues expanded with all necessary BIM information
- 2D-SHERPA catalogue provided
- New carpenter partners on CAM side

Welcome to the **World of SHERPA**

The leading technology in standardised timber connector systems

SHERPA®

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