AIR INJECTED WOOD FIBER INSULATION

Installation guidelines for the best wood FIBRE air injected wood fiber insulation from best wood SCHNEIDER®

www.schneider-holz.com

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Legal notice

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Uncomplicated, fast & reliable – the team of best wood SCHNEIDER® deals with your requests.

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Resistant against settling, even with 35–38 kg/m³ – best wood FIBRE

best wood **FIBRE** – air injected wood fiber insulation for rafters

FIBRE offers the possibility to insulate even complicated rafters. A joint-free insulation can be guaranteed. Thanks to the interconnection of the wood fiber, a constant resistance against settling can be obtained at a blow-in density of 35–38 kg/m³. FIBRE can be used in industrial prefabrication as well as for renovation works.

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Technical data of best wood FIBRE

Characteristics of air injected wood fiber insulation FIBRE

Denomination	WF-EN15101-1-AF5-MU1/2	
Type approval	ABZ Z-23.11-2071	ETA 16/0954
Recommended blow-in density, open blown*	**approx. 28 [kg/m³]**	**approx. 28 [kg/m³]**
Nominal value of thermal conductivity λ_D	0.041 [W/mK]	0.041 [W/mK]
Rated value of thermal conductivity λ_B	0.043 [W/mK]	0.043 [W/mK]
Recommended blow-in density, closed cavities	**35–38 [kg/m³]**	**35–38 [kg/m³]**
Nominal value of thermal conductivity λ_D	0.038 [W/mK]	0.039 [W/mK]
Rated value of thermal conductivity λ_B	0.040 [W/mK]	0.041 [W/mK]
Reaction to fire according to DIN EN 13501-1	E	
Construction material class according to DIN 4102-1	B2	
Linear flow resistance	> 5 [kPa·s/m²]	
Full declaration	Wood fibers, fire retardants ammonium sulphate (natureplus-compliant)	
Water vapor diffusion resistance μ	1-2	
Specific heat capacity	2100 [J/(kgK)]	
Waste code according to AVV	030105, 170201	

PEFC PEFC/04-4-0041

* An installation thickness that has been reduced by 20% must be used when calculating the thermal resistance of components with open blowing.

Delivery options

Item no.	Packaging	PU	Weight/pallet	UP
8003FIBRE	Packed bales	21 bales at 15 kg	315 kg	kg
8003FIBRE-I	Loose bales, industry packaging on pallets	21 bales at 14 kg	294 kg	kg

Bale size	800 x 420 x 320 mm
Pallet size	0,80 x 1,20 x 2,50 m (Euro pallet)
Packaging	Stretch cover

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Keyhole saw LH
for air injected wood fiber insulation in board materials

Drilling diameter 108/121 mm, taper shank: Ø 13 mm, cutting depth: approx. 58 mm
Powerful keyhole saw for the professional production of injection openings in board materials. Drill bit made from high-quality steel with carbide cutting edges. The drill core cannot be used to close off the injection opening.
Suitable materials: OSB and DWD boards, all wood-based panels, soft wood fiber materials, plasterboard and cement-bound fiber boards.

Item no.		PU	UP
6115LH108AN6	Diameter 108 mm	1	pc
6115LH121AN6	Diameter 121 mm	1	pc

best wood **keyhole saw (ED)**
for air injected wood fiber insulation

Drilling diameter: 106.5 mm, recommended speed: 400-600 rpm
Taper shank: Ø 13 mm, for board thicknesses of 60 and 80 mm.
The drill core is used for closing after the injection opening.
The tool can also be easily re-sharpened.
Only suitable for drilling in best wood wood fiber insulation boards.

Item no.		PU	UP
6115LS106,5		1	pc

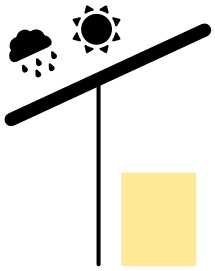
best wood **cork plug**

Diameter: 106/120 mm, thickness: 25 mm, design: conical
Tapered sealing cork for simple and time-saving closure of injection openings in hard panelling materials such as OSB boards or fiber-reinforced plasterboard. Not suitable for closing off injection openings in best wood SCHNEIDER® ETICS. When the tapered cork plugs are inserted into an OSB board that is at least 15 mm thick, the closure can be regarded as airtight.

Item no.		PU	UP
6117KSVK106	Diameter 106 mm	50/box	pc
6117KSVK120	Diameter 120 mm	50/box	pc

Transportation and storage of best wood FIBRE

For technical reasons and reasons relating to building regulations, as well as warranty considerations, it is important to ensure that only best wood system components or approved materials are used.



The system components should be checked in an incoming goods inspection on delivery arrival and delivery notes and packing specifications should be kept in a safe place for future reference.

Please ensure that there is sufficient weatherproof storage space at the place of delivery. The material must be stored in a dry place and be protected against UV rays.

FIBRE products are delivered on pallets. A fork-lift truck or crane with suitable lifting tools must be available on site at the time of delivery to unload the materials pallet by pallet. The materials should be transported further in the same way.

The FIBRE pallets must not be stacked on top of each other.

General information and instructions for the installation of best wood FIBRE

best wood FIBRE is installed using specially equipped injection machines. FIBRE is pumped in hoses under air pressure, fills the cavities of the various components and is compacted as per the instructions in this processing guideline. FIBRE may only be processed by trained and certified experts. This ensures that the air injected wood fiber insulation will be durable and long-lasting.

The structural heat, moisture, noise and also fire safety requirements must be taken into consideration beforehand.

The air injected wood fiber insulation is not a substitute for a draught-proofing or windproofing layer. This kind of sealing must be created using appropriate draught-proofing, windproofing sheeting or board materials.

It must be clarified beforehand who is responsible for the production and closure of the injection openings so that the procedure on the construction site runs smoothly. This prevents certain areas of the structure from not being insulated.

The cavities of the components to be filled must be closed on all sides. The maximum joint width of the cavity closures is 10mm. These joints are closed automatically when blowing out takes place.

Injection cavities must be free of nails and screws, since these may damage the injection hose. The injection procedure may also be affected.

Installation elements and feedthroughs (e.g. for solar cables, etc.), for which temperatures > 80° have to be expected, must not be installed without further fire protection measures into the best wood insulation material. If the material comes into contact with chimneys, the respective fire safety regulations must be observed and approval must be obtained from the responsible district chimney sweep.

All affected persons must wear a fine dust mask with a dust filter (at least P2) during the processing of FIBRE.

Material that has fallen to the floor must not be injected, since soiling and foreign bodies such as nails, stones etc. may damage the injection machine.

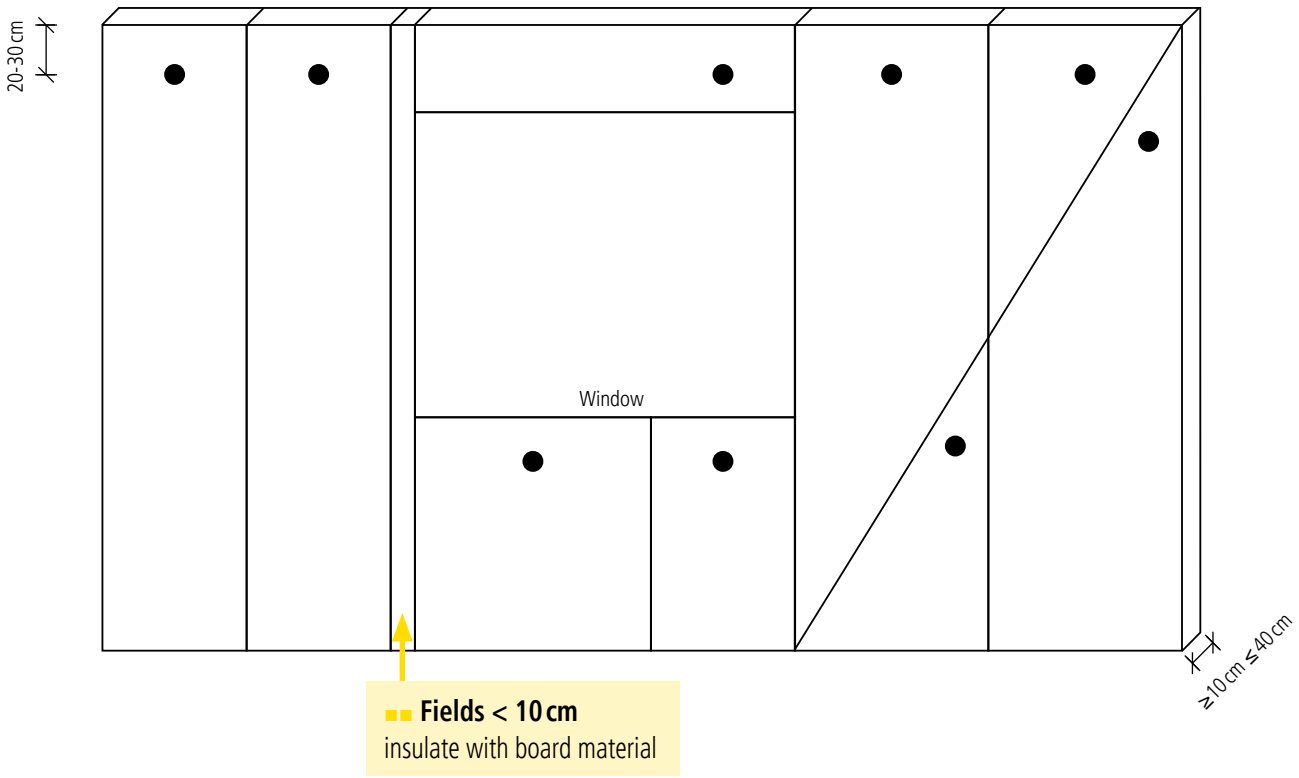
The construction site must be clean-swept when the work is complete.

Construction site preparation

Good construction site preparation is a basic prerequisite for smooth, safe and successful order processing. This includes:

- Accurate scheduling will make the procedure run as smoothly as possible.
- The processor must be aware of the boundaries of the cavities.
- The processor must have access to detailed drawings, planning documents and detailed solutions and partitioning information.
- Clarification of interfaces:
  - Who is responsible for the production and closure of the injection openings?
  - Who is responsible for manufacturing the draught-proof or windproof layer?
- Plaster baseboards must still be unplastered when injection takes place. A serrated mortar layer or pre-plastered WALL 140/180 may be applied.
- Draught-proof cavities must be filled using ventilating nozzles or lances.
- The maximum batten spacing of substructures may not exceed 41.6 cm.
- The minimum thickness of the components which are to be flocculated with FIBRE is 10 cm, and the maximum thickness is 40 cm.
- Power supply:
  - The VDE directives must be adhered to.
  - Depending on the type of machine, the 400 Volt high-voltage machines must be protected using one to two 16 Ampere, Euro CEE plugs, 5-pin with a neutral conductor (C16 protected).
- The settings of the respective machine manufacturer must be used during injection. It is advisable to check and document the machine settings and the required blow-in densities using a test box or a selected test field before each new application.
- A construction site report must be produced after completing the injection work [pg. 22].

Injection opening positions



The injection openings are made with keyhole saws ø 106.5 mm (for rotary nozzles and lances) and ø 120 mm (for hose injection).

Production and closure of injection openings in the OSB panel

Make opening with keyhole saw LH

Remove drill core

Inject air injected wood fiber insulation

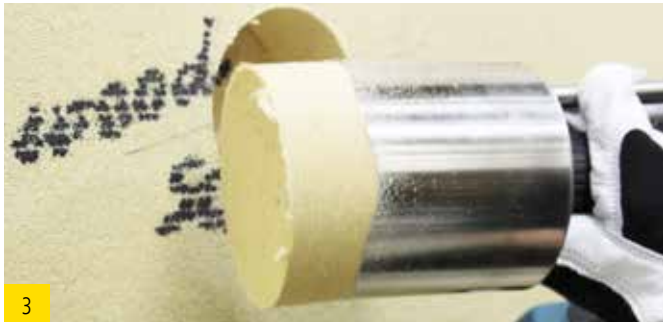
Close opening with adhesive patch

Close off with cork plug in the event of fire safety requirements

Production and closure of injection openings in untreated wood fiber insulation boards

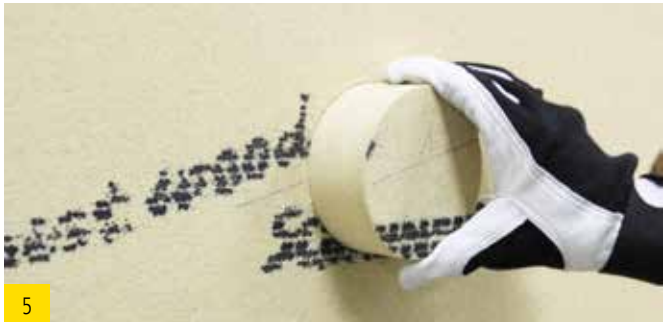
Mark and number the injection opening

Make opening with keyhole saw (ED)



Remove drill hole plug

Inject air injected wood fiber insulation



Insert drill hole plug ...

... and push in flush with surface

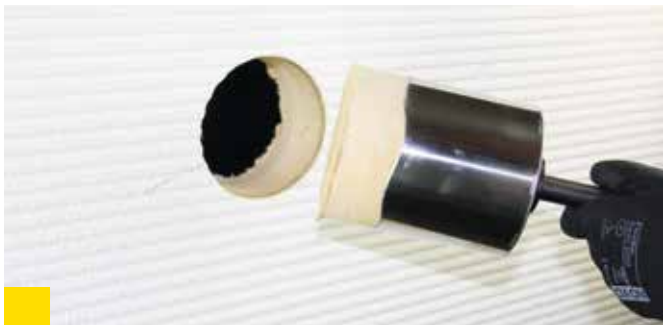
Production and closure of injection openings in pre-plastered wood fiber insulation boards

Mark and number the injection opening

Pre-drill plaster layer with keyhole saw LH

Pre-drilled plaster layer

Make opening with keyhole saw (ED)



Remove drill hole plug

Inject air injected wood fiber insulation

Insert drill hole plug ...

... and push in flush with surface

Blow-in densities

best wood FIBRE compaction table

best wood FIBRE minimum bulk density [kg/m³]

Component insulation thickness	10 – 40 cm
Open blowing into ceiling	28
Ceilings/floors	35
Roof 0°-90°	38
Walls	38
Vorgefertigte Wände	41

Maximale Größe der Einblasfelder in Wänden:
Höhe ≤ 350 cm | Breite ≤ 85 cm | Mindestdicke: ≥ 10 cm | Maximaldicke: ≤ 40 cm

Bei größeren Einblasfelder muss die Verarbeitung individuell mit der Anwendungstechnik von best wood SCHNEIDER® abgestimmt werden. Bei Gefachen die von diesen Maßen abweichen muss die Verarbeitung individuell mit der Anwendungstechnik von best wood SCHNEIDER abgestimmt werden.

Resistance against settling is provided with the specified minimum quantities and even distribution of the best wood FIBRE in the rafters.

In the event of **industrial prefabrication** and subsequent transport of the components to the construction site, **8% must be added** to the minimum quantities. Monitoring and checking of the blown-in rafters on the construction site is a prerequisite for fulfilling high quality requirements.

Checking the blow-in density

Checking the correct blow-in density with **test element 0.1m³** from X-FLOC

The following versions can be checked:

- Compacted injection with hose (Fig. 1)
- Compacted injection with ventilated rotary nozzle (Fig. 2) and
- Open blow-out (Fig. 3)

The settling check takes place using thickness measurement, density checking and weighing. This procedure must now be carried out because of different pressure situations due to the height differences on each floor.

1 Weigh empty test element

2 Compacted injection with hose

3 Compacted injection with ventilated rotary nozzle

Open blowing with hose

Re-weigh filled test element

Open test element and assess filling result

Checking the correct blow-in density with **density testing set NW100** from X-FLOC

The NW100 density testing set makes it possible to check the installation bulk density of installed, loose FIBRE air injected wood fiber insulation.

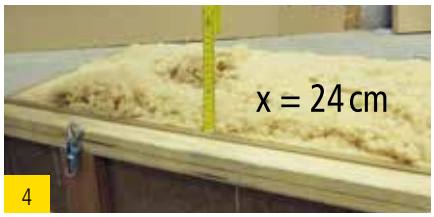
The density testing set can be used in different locations on any elements such as walls, sloping roofs, ceilings and floors. The blow-in density can be reliably checked in this way. The quality of the air injected wood fiber insulation becomes measurable in this way.

Remove cap

Weigh empty test pipe

Carefully screw the test pipe into the insulating material using a little pressure

Bore through to the bottom



Determine the insulation thickness

Re-weigh filled test pipe

Read off the bulk density

Injection procedure

Closed injection

During compacted injection (hose blowing, blow-needle method, injection nozzles and rotary nozzles) the insulating material is introduced into fully boarded cavities through an injection opening. In the first instance, the cavity generally fills from bottom to top with loose insulating material. As the degree of filling increases, the insulating material is compacted by the overpressure in the cavity which occurs during the injection procedure. Towards the end of the injection procedure, the space around the injection opening is filled.

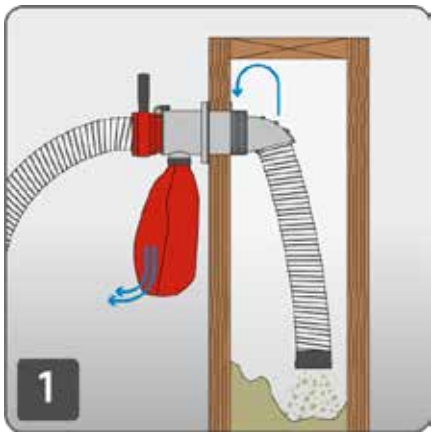
Even distribution and the installation bulk density are vital for the insulation characteristics and the resistance against settling.

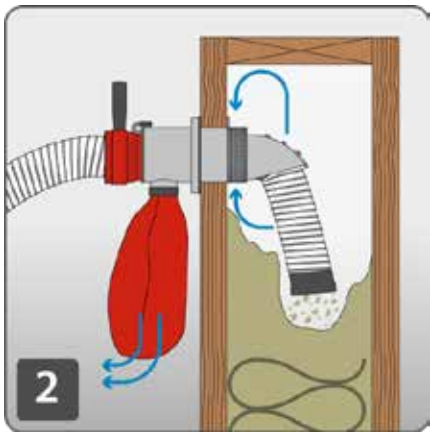
Compacted injection with ventilation

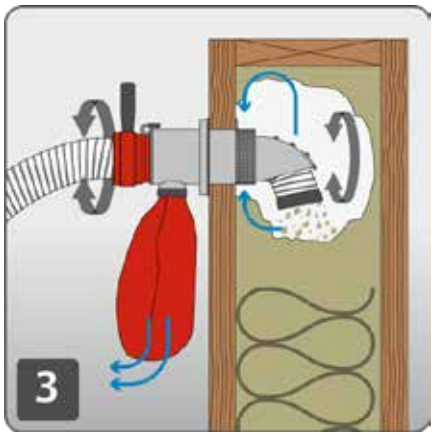
When extremely airtight structures are being injected into, it is advisable to use ventilated rotary nozzles or ventilated injection lances. With this procedure, the air that transports, distributes and compacts the insulating material is led out of the component in a controlled way. The ventilation is integrated in the rotary nozzle/injection lance in such a way that the injection opening is used for the inflow of insulating material and the removal of the excess air at the same time. The ventilation takes the strain off the planking of the structures.

Passive ventilation
With this version, the excess air is filtered through a dust bag and led away. The dust bag can be attached to an outlet connection of the rotary nozzle. The procedure is started automatically by the overpressure which occurs in the component during the injection procedure.

Active ventilation
With this version, the excess air is actively led away at the output nozzles of the rotary nozzle by a suction device.







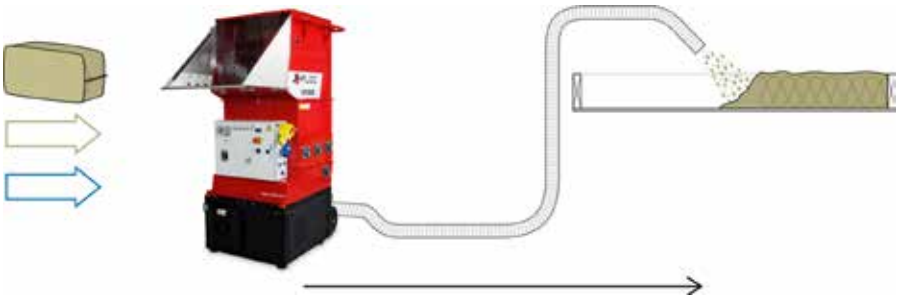
Open blowing

With the open blowing method, the insulating material is blown onto a surface that is open at the top. The top floor ceiling of a building is often insulated in this way. In the simplest case, application can be carried out using a hose or a rigid pipe.

The surface to be blown onto must be cleaned before the work starts, and the openings between the masonry and the rafters must be sealed with adhesive tape, boards or foil strips.

If the material comes into contact with chimneys, the respective fire safety regulations must be observed and approval must be obtained from the responsible district chimney sweep.

INFORMATION
An installation thickness that has been reduced by 20% must be used when calculating the thermal resistance of components with open blowing.



Minimum mechanical engineering requirements

The following basically applies:

- Minimum air pressure 360 mbar.
- Air volume flow greater than 600 m^3/h

The mechanical engineering requirements must be clarified with the respective machine manufacturer.
The settings of the respective machine manufacturer must be used during injection.

Rafter tables and possible injection procedures for best wood FIBRE

best wood FIBRE compaction table

One-sided wood fiber planking			
Maximum rafter width [mm]	Minimum bulk density of wood fiber board [kg/m³]	Minimum board thickness [mm]	Type of injection
625	110	60	Injection with hose, nozzle or lance possible. If air-tight sheeting has been applied to the wood fiber board, inject with ventilation
625	140	40	
833	140	60	
625	180	35	
833	220	22	
625	180	20	Generally only inject with ventilation

One-sided wood fiber planking, pre-plastered or with serrated mortar layer			
Maximum rafter width [mm]	Minimum bulk density of wood fiber board [kg/m³]	Minimum board thickness [mm]	Type of injection
833	140	60	Generally only inject with ventilation
833	180	60	

Two-sided OSB planking		
Maximum rafter width [mm]	Minimum board thickness [mm]	Type of injection
625	15	Generally only inject with ventilation
833	22	
1250	25	

Two-sided plasterboard or Fermacell planking		
Maximum rafter width [mm]	Minimum board thickness [mm]	Type of injection
625	12.5	Generally only inject with ventilation
833	2*12.5	

Maximum size of injection fields in walls:
Height ≤ 350 cm
Width ≤ 85 cm
Min. thickness: ≥ 10 cm
Max. thickness: ≤ 40 cm

With bigger injection fields the processing must be coordinated individually with the best wood SCHNEIDER® applications engineering department.

best wood FIBRE air injected wood fiber insulation construction site report

Building project		Company carrying out the work	
Building name		Company	
Street/No.:		Street/No.:	
ZIP code/Town:		ZIP code/Town:	
Phone:		Phone:	
Fax:		Fax:	

The company carrying out the work hereby confirms that the FIBRE air injected wood fiber insulation has been properly installed.
The air injected wood fiber insulation was installed on _____.
The following blow-in densities were achieved in the components:

Component (roof, ceiling, wall)	Component thickness [m]	Net insulating area [m^2]	Injected quantity [kg]	Injected bulk density [kg/m^3]	Target bulk density [kg/m^3]

The processing took place in accordance with building inspection approval Z-23.11-2071 and the air injected wood fiber insulation installation guideline of best wood SCHNEIDER.

Location/Date

Signature and stamp of company carrying out the work

Location/Date

Signature of builder or client

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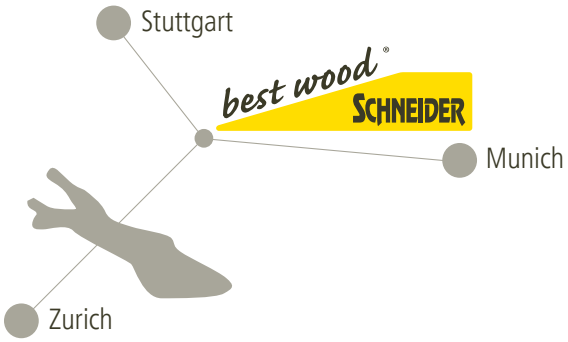
Fast & flexible – our location is your advantage!



Our products convince since they are made from best, PEFC-certified wood. Timber from local spruce is directly processed at the production site of Eberhardzell in southern Germany at our family-run business with more than 350 employees. Leftover wood from our sawmill and the GLULAM production is either used in our biomass heating plant or the wood chips are further processed in our production for wood fiber insulation. Therefore, best wood SCHNEIDER stands for ecological building materials and an energy-efficient production!

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