Press release

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Fastening timber terrace roofs

Outdoor living room tips

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A covered terrace allows you to make the most of your garden by providing a shaded area in high temperatures or shelter to spend time outdoors even in bad weather. Stefan Huber, master carpenter and Technical Trainer at fischer, has built his own terrace roof out of wood.

A terrace is the ideal link between the indoors and outdoors. If the outdoor area is covered by a roof it can be used all year round in any weather. Stefan Huber built his own terrace roof out of wood, making his dream of an outdoor living room come true.

The surface, depth and height of the structure will affect the potential permit process. Stefan Huber's roof is smaller than 30 square metres. According to the building code of the German state of Baden-Württemberg this does not require a permit. But planning regulations may differ depending on the federal state and community, which is why it is best to ask the relevant building authority whether your plans require approval and to submit a planning application where necessary. To begin with, a foundation is laid that evenly distributes the structure's load into the construction base. Local wind and weather conditions should be taken into account in order to determine the loads and correct dimensions of the foundation. "If the house is located in the Black Forest, for instance, then you will have a snow load of approximately 260 kilogrammes per square metre, which is higher than by the North Sea, for example",

Stefan Huber explains. “But the North Sea is exposed to higher wind loads than the Black Forest. These kinds of factors will affect the supporting structure.”

In terms of materials, Stefan Huber opted for glue-laminated wood, strength class GL24h. This wood features a conformity mark of Germany’s federal states and creates fewer cracks in the wood than in solid wood or KVH solid structural timber. Its multi-layered composition and weather-resistant adhesive that connects the board layers with one another ensures that it is more even and dimensionally accurate than equivalent components made of solid wood.

There are opaque and transparent roofing variants. Laminated safety glass (LSG), for instance, allows daylight and solar heat to shine through to the areas located behind the roof. If the glass shatters then the shards remain stuck to the adhesive foil contained between the panes of glass.

Installers can solve the main/secondary beam connection with full thread screws. In the above-mentioned terrace roof, this is the connection between the rafters and the eaves purlin. If the rafter connects to the front side of the eaves purlin as a secondary beam, full thread screws are inserted at a 45-degree angle. This provides a pressure-resistant connection that guarantees tensile strength under load effect. The load-bearing terrace roof timber posts can be connected to the metal foot of the post with fischer’s approved steel sheet connection screw and can be inserted close to the edge without causing the wood to split. There is no need for predrilling in this case. Another connection point lies between the rafters and wall purlin, in which case flat head screws are a conventional solution. Compared to nails, they give the rafter more contact pressure,

offering higher load-bearing capacity under wind suction stress.

One of the most important connections in Stefan Huber's home is the main wall purlin, which is attached to the frame work through the timber frame construction and exterior wall insulation. Stefan Huber recommends you "use a flat head screw to align the wall purlin and then use a full thread screw", before adding "you can find the recommended spacing in the European Technical Approval (ETA)". Mark the distance for each fastening point and then insert the full thread screw diagonally from below at an angle of 45 degrees. Now when the wall purlin is subjected to a load, the tensile load is applied to the full thread screw".

Customers can contact the fischer Application Engineering experts in case of any questions on fastening a terrace roof. They can be reached through the free hotline, by mail or through the chat function in the fischer Professional app. In general, it is recommended that builders get support from a specialist when installing a terrace roof and have the static calculation carried out by a structural engineer.

Image captions:

Image 1
As soon as the first rays of sun break through the clouds, the living area expands into the outdoors. A covered terrace is the icing on the cake for the outdoor season.
Image: fischer

Image 2
One of the most important connections in Stefan Huber's home is the wall purlin, which is attached to the frame work through the timber frame construction and exterior wall insulation. The expert used a flat head screw to align the wall purlin before using full thread screws.
Image: fischer

Image 3
Glue-laminated wood is a safe choice for terrace roofs made of wood. The uniform adhesion of the individual lamellae minimises the shrinkage and swelling behaviour, ensuring the component is dimensionally accurate.
Image: Shutterstock / morenosoppelsa

The fischer Group of Companies

The fischer Group of Companies, headquartered in Waldachtal in Germany's northern Black Forest, generated sales of 988 million euro in 2021 with a worldwide staff of 5,400 employees. The family-owned company operates 50 subsidiaries in 38 countries and exports to more than 120 countries. It includes the five divisions: fischer fixing systems, fischer Automotive, fischertechnik, fischer Consulting and fischer Electronic Solutions.

fischer fixing systems is the technological market leader in key areas of fixing technology. fischer offers products that deliver technical perfection to a wide range of customers, from do-it-yourselfers to tradespeople to key account partners.

fischer Automotive manufactures high-quality parts for vehicle interiors. The company is highly competent in the plastics processing segment and is an important partner for the automotive industry. Its range of products includes air vents, cup holders, trays and multi-function components.

With its construction kits, fischertechnik is active in both the toymaking and the educational sector. fischertechnik is one of the last remaining toy makers to exclusively develop and produce in Germany.

fischer Consulting evolved from the competence developed in the company itself, which includes the fischer ProcessSystem with its central aim of permanent improvement for the ultimate benefit of the customer. fischer Consulting advises small and medium-sized businesses, government agencies and major companies on their path towards lean and efficient processes.

fischer Electronic Solutions develops and manufactures electronic solutions including product and system developments based on the latest technology as well as custom production orders processed in the company's own production facilities. As an experienced provider of development and production services for custom systems such as multi-touch solutions made of glass and the corresponding controller units, fischer Electronic Solutions forms the perfect link between the customer and the final product.

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