THEURL
AUSTRIAN PREMIUM TIMBER®

MOISTURE PROTECTION WITH CLTPLUS? IT WORKS.

For users in the timber construction, architecture and engineering sectors

MOISTURE PROTECTION

While activities such as cooking, showering and breathing lead to moisture entering the interior, factors such as rain and snow and, in summer, high air humidity affect exterior components.

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UNCONTROLLED EXPOSURE TO MOISTURE CAN

- lead to the formation of germs and odours
- lead to an increase in thermal conductivity, which results in increased energy requirements and, as a result, increased heating costs
- be the main cause of structural damage due to the influence of water

AIRTIGHT + WINDTIGHT

Indoor climate, noise pollution, indoor air and energy balance are influenced by the vapour, air and the windtightness of the components for walls, ceilings and the roof. To prevent unwanted airflow, the inside of the room must be designed as an airtight layer and the outside of the building as a windtight layer by sealing all component joints with sealing or adhesive tape.

WHAT DOES WINDTIGHT MEAN?

Similar to the windproof outer material of winter jackets, which is intended to prevent heat from escaping to the outside, CLTPLUS also requires an insulation layer with the lowest possible vapour diffusion resistance of the wind seal on the outside. The wind seal prevents cold air flow from removing heat from the building insulation.

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01

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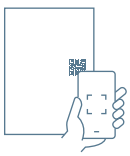

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WHAT DOES AIRTIGHT MEAN FOR CLTPLUS?

The individual laminations are glued together on the narrow side to form a single-layer panel in order to create a high level of airtightness. CLTPLUS elements from THEURL have been tested for airtightness by Holzforschung Austria. This airtightness test of CLTPLUS was carried out in accordance with ÖNORM EN 12114:2000.

The result: The test showed that both test specimens, 60 mm 3-layer and 100 mm 5-layer, can be assumed to be airtight under the specified boundary conditions. The requirements were met during the test and it can therefore be assumed that CLTPLUS is airtight at a thickness of 60 mm and more.

HUMIDITY REGULATION WITH CLTPLUS

This means that CLT can absorb, release and allow moisture to pass through in small amounts to regulate the room climate. For comparison, a vapour barrier with an SD value of 5m, as is necessary for timber frame buildings, has a similar vapour pressure resistance to a 100-mm CLT wall.

CAN JOINTS CAUSE MOISTURE PROBLEMS?

CONVECTION AND WATER VAPOUR DIFFUSION - WHAT IS THE DIFFERENCE?

Uncontrolled air and moisture transport through convection is the most common cause of moisture damage in components, as the amount of moisture is many times higher than with water vapour diffusion. The main characteristic of solid wood elements such as CLTPLUS is the vapour-permeable construction, which allows unhindered movement of water vapour through the individual components to the outside and ensures a pleasant room climate.

IS CLTPLUS FREE OF CONDENSATION?

The water vapour diffusion resistance factor μ for CLTPLUS is 20-50 according to EN ISO 10456. This means that even if the thickness of the cross-laminated timber layer acting as a vapour barrier is reduced to a third due to joints or transverse cracks, no condensation will occur in the construction.

THE FOLLOWING APPLIES TO CLTPLUS:

Water vapour diffusion resistance factor μ: 20-50, EN ISO 10456

IS CLTPLUS A MOISTURE-DYNAMIC VAPOUR BARRIER?

The lower the humidity content, the higher the diffusion resistance. In this context, wood is considered a highly effective safety buffer. During the heating period, the humidity level in interior rooms is at its lowest, the diffusion resistance is at its highest and the water vapour flow from the inside to the outside is therefore at its strongest. Solid wood panels positioned on the room side are therefore efficient and permanently effective vapour barriers even without additional component layers.

Scan the QR code or click here to learn more about the airtightness test report.