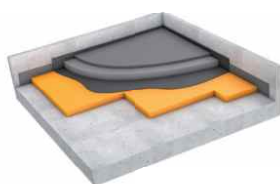


LIVING AT BAUMHAUS MAUREN

CASE STUDY

Impact sound insulation with AFM 35 and GREI as well as Sylodyn® flanking decoupling

EFFECTIVE ACOUSTICS.
CUSTOMISED SOLUTIONS.
FOR HIGH STANDARDS.



MULTI-FAMILY TIMBER BUILDING IMPRESSES WITH OUTSTANDING ACOUSTIC SOLUTION

The project

The „Baumhaus“ Residential multi-family building in Mauren, Liechtenstein that serves as an outstanding example of modern timber construction from both an architectural and acoustic perspective. The building was created by Dietmar Marxer (Marxer Metallbau AG) in close cooperation with Denkfabrik AG and Legna Holz.Werk AG. Comprising five premium 3.5-room flats with spacious balconies, the load-bearing structures of the residential storeys are made of solid CLT timber, while concrete was used for the stairwell and underground car park. This construction method offers environmental and structural advantages but places special demands on sound control.

The challenge of the project lay in finding the right sound insulation and vibration isolation for the lightweight timber ceilings and walls. To provide a level of comfort comparable to that of a solid construction, Getzner Werkstoffe decoupled the floor using a system that offers two degrees of freedom. This system combines GREI impact sound insulation, elastically bound chippings, AFM 35 and cement screed to form a high-performance unit. Targeted use was made of Sylodyn® strips to decouple flanking noise.

The system was harmonised and validated to a high degree of precision based on simulations and measurements in the lab and field.



AFM35: Low-frequency impact sound insulation for optimum vibration protection



GREI: Recycled EPDM/SBR layer to reduce impact noise



AFM35: Sustainable isolation with high acoustic effectiveness

The Getzner solution

Equipping the lightweight CLT ceilings with sound insulation and vibration isolation systems was a key challenge when planning the multi-family building. In addition to decoupling flanking noise using Sylodyn® strips, an innovative two-stage mass-spring system was put in place.

Innovations

The project is a case study in how a structure can be precisely harmonised for modern timber construction. The flanking decoupling was implemented with Sylodyn®, while the system components described above enable highly effective impact sound insulation on CLT ceilings by serving as a multi-degree of freedom system. Prior to this, configurations of this type have been almost exclusively restricted to research and development and have been rarely implemented on the market. This makes the performance achieved in the project all the more remarkable, especially in the low-frequency range. Laboratory tests and measurements under real conditions confirm its effectiveness and serve as the basis for ongoing optimisations to the overall design. The solution was installed on an area measuring around 350 m² in the CLT ceiling. Thanks to its modular construction, the system can be flexibly adapted to different ceiling structures and building types.

Application

Building acoustics play a key role in timber construction. Vibrations are easily transmitted throughout the building, and footfall and flanking noise in particular have a detrimental effect on quality of living. Disruptive noise is noticeably reduced thanks to effective impact sound insulation and an elastic bearing between the wall and floor designed to minimise flanking noise. Our durable polyurethane solutions Sylodyn® and AFM as well as patented products made from recycled rubber enable highly effective system solutions for optimum sound control.

Sustainable protection

In addition to its technical performance, the solution also offer impressive quality in environmental terms. The combination of a solid timber construction and permanently elastic materials guarantees a durable, maintenance-free and resource-efficient structure. The result is a modern living concept that combines a high level of comfort, sustainability and innovative technology.



Sylodyn® strip bearing: Decouples flanking sound and offers more privacy in interior spaces



Measurements: Laboratory and on-site tests confirm the high effectiveness of the solution

CUSTOMER ADVANTAGES

- Impact sound insulation with proven excellence
- Sustainable quality of living for decades to come
- Customised, innovative solution



HOLISTIC SOLUTIONS

The „Baumhaus“ Residential multi-family building in Mauren, Liechtenstein, sets new standards in acoustic timber construction.

Built on solid timber ceilings, the structure combines the highest requirements for impact noise and flank isolation with regulatory compliance and maximum planning security and increases the value of the building while also enhancing quality of living from a sustainability standpoint - all delivered by the system expertise of the team at Getzner Werkstoffe.

- Implementation of a two-stage mass-spring system for timber construction
- Combination of AFM35, GREI and Sylodyn® strips
- Optimised low-frequency impact sound insulation thanks to coordinated natural frequencies
- Validation based on laboratory and on-site measurements

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Project	„Baumhaus“ Mauren
Location	Mauren, Liechtenstein
Developer	Denkfabrik AG / Legna holz.werk AG
Investor	Dietmar Marxer (Marxer Metallbau AG)
Solution	Sylodyn®, AFM 35, GREI
Implementation	2024

Getzner Werkstoffe GmbH

Herrenau 5
6706 Bürs, Austria
T +43 5552 201 0
info.buers@getzner.com