
Press Release

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Passive House experts master climatic requirements of South Korea

Certificate for a new educational centre for young people in Goesan



The educational centre is the largest Passive House in South Korea. Picture: Pulmuone

Innsbruck/Goesan. The certificate for the largest passive house project in South Korea thus far was presented this month. The building standard could not have been better chosen – the project in Goesan is an educational centre, focused on ecological education and living. The new building complex located amongst forests and mountains provides 30 guest rooms as well as conference, seminar and gymnastics rooms for around 70 people. Despite the greatly varying climatic conditions prevailing in Goesan throughout the year, the criteria set out by the Passive House Institute were met thanks to an extremely intelligent design.

In Goesan the winters are cold and dry while the summer period is warm and very humid. "For this project, an important task therefore was finding appropriate exterior building components", says Laszlo Lepp, member of the scientific staff at the Passive House Institute in Innsbruck. "For this reason we analysed numerous assemblies in advance by means of simulations for humidity conditions". The result is impressive, both in terms of technology and aesthetics.

Designed by the German architects Rena and Gernot Vallentin, the building not only achieves exceptionally high levels of energy efficiency, but also stands as a shining example of architectural expression. The sculptured curved building complex incorporates the surroundings into the design concept and blends into the hilly landscape in a natural manner, thus reflecting the client's philosophy.

The "Lohas Academy" was built for Pulmuone Health & Living, a South Korean food manufacturer focused on sustainable agriculture and healthy nutrition. Offering youth training courses is part of the company's philosophy. "Pulmuone's holistic, sustainable approach perfectly matches the Passive House Standard", states Lepp. Combining architectural quality with energy efficiency in such an extraordinary way, the building constitutes a beacon project in South Korea and beyond.

The building envelope consists of reinforced concrete walls with cellulose insulation and a ventilated timber façade with a U-value of 0.14 W/m²K. The accessible roof is insulated with rigid polyurethane foam and has been planted with greenery. The German engineering firm Lackenbauer was responsible for the mechanical systems. Besides two water pumps for heating, DHW and cooling, the building is also equipped with buffer storage tanks (2x6000 litres) and a solar heating system (153 m²). The ventilation system with dehumidification has a heat recovery efficiency of 87%.

The South Korean architect Yoon-Boum Cho acted as an important interface between the European designers and the local partners. The construction work for the project with a treated floor area of 2.452 square metres was carried out by the company Halla Engineering & Construction which was also responsible for the construction of the first Passive House in South Korea in 2010. The construction planning was carried out by the local partner Hudigm, while HamniGlobal was responsible for the construction management.



Accessible roof with excellent view of the surrounding mountains. *Picture: Pulmuone*



Inside view of the new educational centre offering space for around 70 people. *Picture: Pulmuone*

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