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Fraunhofer WKI provides advice on bonding

World's tallest wooden tower for wind turbines

For the company Modvion AB in Gothenburg, researchers from the Fraunhofer WKI supervised the bonding of the first wooden tower for commercial wind turbines on the construction site and advised the company regarding complex bonding procedures. On March 4, 2024, the so-called "Wind of Change Tower" of the energy provider Varberg Energi AB was inaugurated.

The tower, which features a Vestas V90-2.0MW turbine, reaches a total height of 150 meters and is the tallest wooden wind turbine tower in the world. It consists of prefabricated modules that are glued together on site. Compared to wind turbines made of concrete or steel, the wooden construction enables CO_2 savings of up to 90 percent.

The wooden tower offers advantages in lightweight construction because wood has a higher specific strength than steel, which enables lighter constructions and lower transport costs. In contrast to tall steel towers, wooden towers do not require any reinforcements. In addition, the numerous screws and bolts that have to be regularly maintained in steel towers are no longer needed.

The Swedish company Modvion AB has developed a patented solution. It manufactures prefabricated modules that are transported by truck and assembled on site. These modules consist of glued laminated veneer lumber panels (LVL). For the implementation of Modvion AB's concept, the gluing of the modules on the construction site is indispensable and requires a high degree of know-how, preparation and self-monitoring. Employees of the Fraunhofer WKI have supported Modvion AB in adhesive-related issues. Furthermore, we have inspected the bonds on the construction site.

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