



6 August 2011 by Stephen Powney

Glulam specialist Hess Timber says its Limitless concept simplifies the delivery of large glulam structures

Summary

- Hess's Limitless system is a solution for delivering long-span glulam.
- It comprises short finger-jointed sections which are connected on site.
- Hess developed and patented the glue technology.
- Limitless was used in the Sclera pavilion in London in 2008.

Long-spanning glulam beams are surely one of the most impressive sights you can see in a building.

They work aesthetically, structurally and environmentally and are being used at an increasing rate in the UK.

German glulam producer and engineering firm Hess Timber (formerly Hess Wohnwerk), whose projects include the Renzo Piano-designed roof cupola of the Cologne department store Peek & Cloppenburg, has invested substantially in its operations recently and is looking to expand its international operations with the help of several new innovations.

Long-span glulam

Hess, which can trace its history back 130 years, claims its Hess Limitless innovation could revolutionise modern timber construction, making long-span glulam structures easier to deliver and with reduced overall costs.

Hess's search for an alternative solution to long continuous glulam beams was sparked some years ago when it used a helicopter to transport a large continuous beam and the forces at work caused severe difficulties for the pilot as well as being expensive. The alternative method is using steel connectors but it said steel plates result in a strength loss and an intrusion in the aesthetics.

The company's solution is Limitless, which involves the beams being made in several short sections. It received General Technical Approval in 2010.

The end of each section has fingerjoints which are connected on site, with a glulam wedge glued underneath the intersection for support and to deal with beam tension. Special chain clamps are used to pull the different elements together. The glue technology was developed and patented by Hess.

Hess says its solution means the most demanding timber construction projects can now be implemented at any location around the globe using conventional transport methods such as trucks and overseas containers. Sections of up to 13.5m can be transported in this way.

This, it added, resulted in considerable cost advantages for the entire building project.

Target applications include roofs and industrial buildings with very long span widths, particularly in the commercial area, including trade fair buildings, production and warehouse buildings and public sector projects (eg sports buildings, stadiums and swimming pools). Another important application area includes special design structures with unique beam and support geometries.

UK projects

UK construction projects using Limitless include a building for a steel and glulam construction firm. In Europe projects include a leisure centre in Luxembourg and a swimming pool in Tenerife.

Limitless beams and structures feature strength values of GL35c and GL38c (defined in the general technical approval (Z-9.1-775) as higher than the current requirements for standard glued laminated timber).

“Because of the enormous opportunities for modern and demanding timber construction resulting from the Limitless innovation, Hess will continue to expand its international activities,” said a Hess spokesperson.

“In addition to current projects, mainly in western and southern Europe, the company is also working on developing projects and co-operation opportunities all over Europe and in other regions such as Turkey, the Gulf region and northern Africa.”

It believes the ability for cost-effective shipping to the US could open a large new market.

Investments

Hess has made recent investments of up to €2.5m in production technology including a new finger-jointing line, while recently completed projects include ‘Toscanaworld’ in Bad Orb (a free-formed roof timber shell structure with an area of 2,200m²).

In addition to standard timber construction services, such as roofs and industrial building structures, Hess is promoting itself as a full turnkey operation providing planning, engineering, glulam production, CNC beam production and its own carpentry services under one roof.

Another product being launched by Hess is the Hess Hybrid – glulam beams clad with other types of wood, in particularly aesthetically attractive hardwoods and exotic woods or especially durable wood species, allowing for durable applications both externally and internally.



The Limitless jointing system is barely visible on glulam beams



Gluing the wedge member



Limitless beams and wedges on site before connection



A UK project using Hess Limitless beams

