

## Medienmitteilung

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New bridge design gains recognition

### **Empa's Prizewinning "Bowstring Bridge"**

**The "bowstring bridge," which visitors cross to enter the Empa Administration Building in Duebendorf, has been awarded a commendation in the "Wood Prize Switzerland 2009" competition, one of forty wooden structures to be so honored.**

As far back as the 1990's Urs Meier, a previous Director of EMPA Duebendorf, was working away on new concepts for bridges utilizing novel materials. In 1996 a spectacular footbridge over the site of the Olympic Games in Atlanta was planned, but the US authorities could not be persuaded to have confidence in the new materials propagated by Meier. His bridge designs are based on the use of wood and polymers alone, and do not utilize conventional materials such as concrete and metal. The idea of building a "bowstring" bridge, tensioned like an archer's bow using polymer tapes, crossing the River Limmat in Zurich, also found insufficient support as it was felt that driftwood floating down the river might endanger the delicate lower structure of the bridge.

#### **Patience pays off in the end**

Then in 2007 came the happy ending. As part of the renovation of the Empa Administrative Building in Duebendorf, a real bowstring bridge with a 12 m span finally became reality. The novel construction made such an impression on the "Wood Prize Switzerland" competition jury that on May 26<sup>th</sup> they awarded it the Commendation for the Zurich North Region. "At first I looked upon the building of the bridge as something of a consolation prize, but now it has actually won a real prize!" says a beaming Urs Meier.

The bridge consists of a load bearing deck of glulam (glued laminated timber) over which a glass fiber reinforced polymer (GFRP) sheet is laid. Using tapes made of carbon fiber reinforced polyamide (CFPA) the bridge is tensioned like a bow, forming an elegant arch over the ornamental pond below. The combination of wooden and polymer materials creates an optimal synergy, for not only does the wood gain in stiffness but the CFPA tensioning bands do not corrode and they also boast excellent tensile strength.

#### **To be continued....**

According to Meier there is interest in building a copy of the bridge. The design would probably allow a length of up to 100 meters. However, Empa's bowstring bridge is not merely an elegant (now prizewinning!) structure decorating the entry to the Administration Building in Duebendorf. It

also symbolizes that which the institution strives to be every day – a bridge-builder between research results and their practical implementation.

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The “bowstring bridge” in front of the Empa Administration Building in Dübendorf. All good things come in threes: bridge design novelty, eye-catcher and symbol.