

20 Years Euregional Prize for Architecture

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HMS Unicorn

Participant info

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Project info

The HMS Unicorn is a British warship that was built to fight in the Napoleonic Wars. Luckily, when she was finished in 1824, the Wars were already over and she could be admired in good condition till this day.

For conservatory purposes, the ship is now to be stored in a dry-dock in Dundee/ Scotland.

Our assignment included the design of a roof to cover the dry dock as well as a visitor centre and a suspension device for the ship. In addition it was important to consider the fact that the existing dock is loadable in compression only.

The waterline in the dock is important for the suspension device of the ship. It is made of so called Tens-airity-beams, air-filled cushions that are rechucked with a load cable, float and absorb surface loads; when the dock is filled with water they help positioning the ship and serve as fender. As soon as the water is pumped out of the dock, the beams lower together with the waterline. They revolve around the centre of the suspension's construction which is fixed on the dock and clamp the ship in the right position. Visitors are able to walk around underneath the ship and see all restoration work at close range.

Cutting a horizontal piece of the solid of revolution of the parabola, the roof's shape is found. The parabola shows the optimal power flow and therefore is the ideal shape, self-supporting through curves in both horizontal and vertical direction. For conservatory purposes, both ends of the building are left open. Access is possible through the floodgate on one and the visitor centre on the other side. It is part of the conception that the building's construction is a monocoque. The grating made of stringers and frames is stiffened by the aluminum skin.

