

LCT 7074 Canopy, The D-Day Story, Portsmouth

PROJECT TEAM

Architect: **Pritchard Architecture**

Structural engineer: **Mann Williams**

Steelwork contractor: **Hillcrest Structural Ltd**

Main contractor: **Ascia Construction Ltd**

Clients: **The National Museum of the Royal Navy,
Portsmouth City Council**



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This remarkable project showcases the conservation of the sole surviving Landing Craft Tank (LCT) from the D-Day landings on 6th June 1944. In her new home adjacent the D-Day Story Museum, the 59m-long and 10m-wide historical vessel, along with her protective sculptural cantilevered steel canopy, are now an integral part of the Southsea seafront and a new cultural landmark in Portsmouth.

The protective canopy structure shelters the vessel and its visitors from inclement weather, whilst providing clear access along the entire length of one side for LCT 7074 to be manoeuvred into her final resting place for the public to view. The aesthetics of the canopy required an elegance and simplicity that is empathetic to its sensitive surroundings, while still having a presence that physically relates to the robustness and mass of the ship itself.

A locally-listed historic wall to the rear of the canopy provides weathering protection to the lower part of the tapered steel columns and the hull of the LCT. The canopy has been designed to follow the longitudinal shape of the LCT, which results in each set of front and rear arms being set at varying levels and differing rotations to each other.

The canopy frame primary elements comprise a series of fabricated front and rear tapered cantilever arms. To the front and rear elevations, curved perimeter CHS members fit between the arms and a full roof bracing system provides stability to the frame.

The canopy is supported on one side by 12 bespoke tapered fabricated mast columns, each 12m-tall and weighing 7.5t, formed from 25mm-thick plates, which line through with the piers of the historic wall behind.

The tapered fabricated front rafter arms cantilever up to 13m with a robust preloaded bolted splice positioned 1.6m from the column face. These 300mm-wide plate girders are 1.0m-deep at the column face and taper down to 200mm-deep at the ends. To ensure there were no unsightly breaks in the perimeter edge CHS members where the rafter arms intersect, concealed bolted connections were adopted.

A high tensile fabric covering provided a low carbon option for the canopy and the underside of the primary roof steelwork was detailed with small, profiled angle cleats to support the fabric sail membrane.

The steelwork was fabricated in a quality-controlled workshop environment and the design team worked collaboratively throughout the project using 3D modelling software to coordinate the various architectural, structural and M&E aspects.

Judges' comment

A floating canopy supported by raking steel pylons reminiscent of beach defences of the past announces this new museum. The judges were impressed by the balance of the design which creates a positive sense of place for visitors and whose form is referential and empathetic with the unique landing craft it covers.