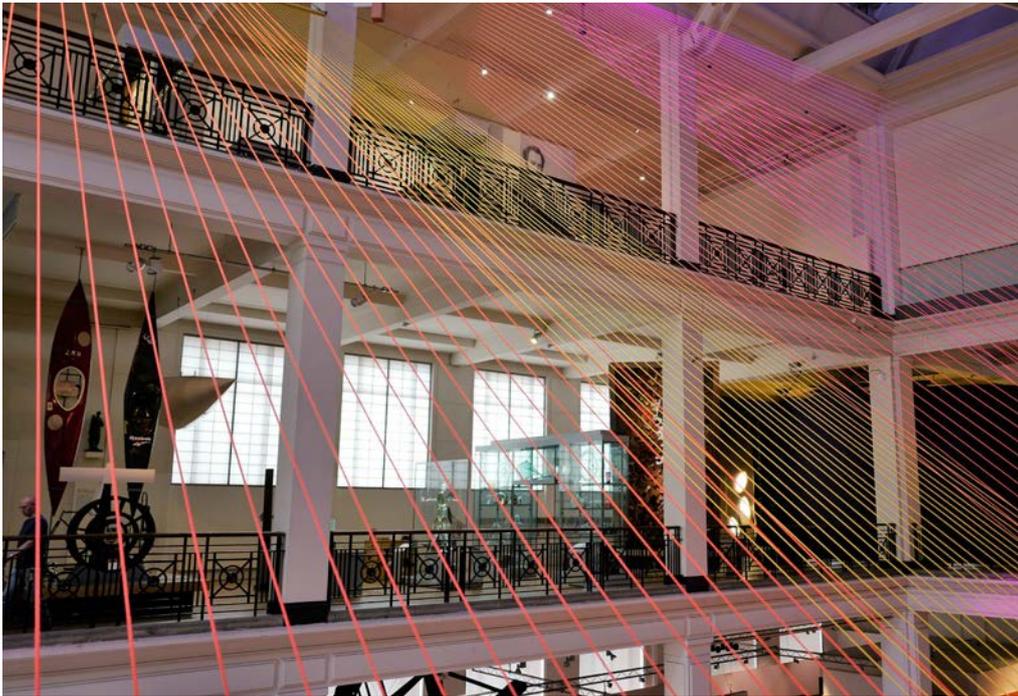




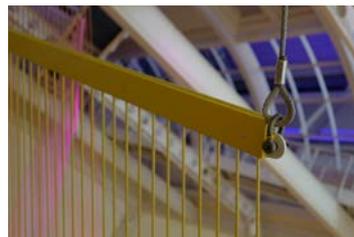
SCIENCE MUSEUM SUN RAY INSTALLATION



Robust Fixings: Each ray comprised twenty-five strands of rope and supported approximately 1.9 tonnes of tension.

Designed by Sam Jacob Studio, this large, brightly-coloured tensile sculpture was installed in the atrium of London's Science Museum. Designed to herald a major landmark exhibition about the sun, it spanned the length, breadth and height of the atrium, changing with the perspective of the viewer.

Our engineering experience, in particular with catenary systems, proved extremely useful in guiding the design, manufacture and installation processes. We worked with Sam Jacob Studio to help refine the design, ensuring it was achievable within budget.





Structural Considerations

The Science Museum is housed within an old building and the atrium void in which the sculpture was to be installed, is a large space: twelve metres wide column to column, by forty metres long. Respect for the structural integrity of the building was important, as was ensuring fixings robust enough to hold each ray and maintain the correct tension in the many strands of rope. We worked closely with a third-party consultant to ensure all loadings were compatible and test built an entire ray configuration in one of our hangars to prove the design.



The Rays

The five rays spanned the atrium, each a different colour and each comprising 25 strands of rope that fanned out from top to bottom. Each configuration was attached to the building via a series of bespoke steel fixing brackets, the largest of which weighed 361kg and held two rays. With approximately 1.9 tonnes of tension in each ray, it was important to create anchorage appropriate for the load. The brackets were chemically fixed to the structure of the building and neatly finished to blend in.



The ropes for each ray terminated in coloured brackets, spray painted to match and attached in a variety of positions: some horizontal, some vertical; some fixed via beams or pillars, some on catenaries. A UK produced cotton rope was used, the cotton responding best to the five bespoke dyes and resulting in vibrant colours true to the original design.



Installation

Our site team worked with great care around the museum's existing exhibits, installing the sculpture with minimal disruption and minimal mechanical aid. With no access for lifting plant, a chain hoist was used to lift the bracketry, the upper-most bracket being fixed 18.5m above the floor. Crew abseiled from the roof gantry to assist in hoisting and fixing the bracketry and ray assemblies into position.

The rays were beautifully lit, criss-crossing the void over a two-story height, the overall effect mimicking shafts of sunlight dispersing from a multitude of directions.

