

Serpentine Gallery Pavilion 2010



The 10th Serpentine Gallery summer Pavilion was designed by French architect, Jean Nouvel. This was the second year running that we were invited to build the pavilion, which is located on the Gallery lawn in Kensington Gardens for the duration of its three-month tenure. A bold, geometric structure, the 2010 pavilion consisted of a versatile system of interior and exterior spaces experimenting with the idea of play. The primary role of the building was as a public space but it also served as a café and venue, providing flexible auditoria.





THE STEEL STRUCTURE

The 2010 pavilion required completely different manufacturing capabilities from the 2009 design, this time drawing primarily on our steel fabrication experience and skills. We worked closely with Arup, the overall consulting engineers and as lead building contractor, we were responsible for all metalwork and supporting structures, fabricating the 45 tonnes of steelwork in our workshops in North Yorkshire.

We verified the structural design and connection details, along with producing detailed steel construction drawings and welding specifications. All welding was tested to BS EN 1290 and adhered to NSSS guidelines.



THE FREE-STANDING SCREEN

The main entry to the structure was via the most striking and dominant feature, taking visitors behind the base of a free-standing wall or screen, which appeared to defy gravity, leaning inwards at an angle of 30°. This dramatic feature consisted of nine 12.5m long screen support ribs erected two metres apart and cantilevered off a subterranean steel U beam base. The ribs were fabricated steel columns, craned into position then bolted to the sub-frame and the screw piles. Each rib was 100mm wide and tapered: 500mm deep at ground level, narrowing to a depth of 80mm at the top, with all nine rib tops accurately lined up to a tolerance of ± 10 mm.

Achieving an accurate line-up of the ribs was necessary in order to achieve the accurate installation of the huge, rather unwieldy polycarbonate panels. These panels were 25mm thick and measured 12m by 2m, requiring careful manoeuvring and positioning by crane, in as windless conditions as possible. Keeping the British climate in mind, this became a 'rapid response' undertaking, with the opportunity being taken as and when conditions allowed.

The red panels were applied to both sides of the ribs to form the striking red screen. After fixing the panels into position, we fitted covering strips along each seam and capping to the tops.



THE CENTRAL CANOPY AREA

The largest area of the pavilion consisted of a tiered canopy constructed using four large goal post steel support structures. The central main beam was 6.3 tonnes, measured 1.3m deep and spanned 18m, with three secondary beams each spanning 17m. All beams were positioned using a 60 tonne mobile crane, before being fitted with red telescopic awnings. These were the world's largest awnings and were fitted along the length of each beam, being deployed individually or in a variety of permutations, to form a flexible canopy.

We also provided the guttering system, ensuring that the chain design functioned correctly. We helped devise a solution for the capping detail which consisted of metal brackets bolted to the cross beams with timber flashing covered by a red awning material.

Within this central area, we provided the 6m long, 2.5m wide red bar which was constructed from timber, acrylic and polycarbonate and accommodated nine fridges, along with other appliances.

We also constructed the Fixed Canopy, which covered a sunken chess area running almost the full length of the main structure. This 18 metre long red painted steel structure supported a fixed red fabric canopy providing cover for a long, narrow sunken area, with the rubber-chip floor moulded along the full length to form bench seating. Ten fixed red chess tables were custom made from acrylic with red and green acrylic forming the chequered chessboard pattern.

THE CUBE

The Cube structure consisted of a 7.2m high 6.5m steel framed 'cube', with a variety of finishes and materials to the different elevations. We installed a glass roof and glass panels on two sides and a motor-driven red fabric roller blind on the west elevation. A red 6m wide 4.5m silk flag was hung behind the roller blind and moved freely with the breeze when the roller blind was retracted.

The east elevation accommodated two revolving glass doors at the base, while a double clad wall was fitted to the south. This consisted of mirror polished aluminium to the interior and red painted panels to the exterior. All steelwork was painted red, contrasting with the green rubber-chip flooring.





THE FLOOR

We provided a bespoke solution for the floor, consisting of bonded rubber chips over a fibre grate substrate. This unique self-draining surface was a product developed by us specifically for this application. The 556 square metres of flooring was provided in both the specified red and green.



ON SITE

Working alongside the other contractors and within the confines of the site required an organised and systematic approach. On top of this, The Royal Parks Agency has very strict conditions that require absolute adherence.

We worked within the very tight confines of the pavilion's footprint, with just a marginal allowance around the perimeter, meaning that the storage of any materials had to be accommodated within this working area. Deliveries to site had to be controlled, keeping within the dictates of each specific vehicle permit. The 18m long beam for the central canopied area was delivered by a 20m extendable flat bed trailer, requiring skilful manoeuvring.

A total of ten crew were on site for a period of six weeks adopting a flexible approach to shifts as dictated by deliveries, weather and a variety of other logistical factors.