



# Serpentine Gallery Pavilion 2014



“A futuristic design that looks like it has come from the Stone Age” Julia Peyton-Jones

Image © 2014 Iwan Baan.

## Smiljan Radic's Pavilion

The annual Serpentine Gallery pavilion is an established highlight of both the London art scene and the global architectural calendar. The commission provides a unique showcase for contemporary architectural practice as well as a venue for a series of events throughout the summer months.



Each pavilion is constructed on the lawn outside the Serpentine Gallery in London's Kensington Gardens and is open all summer before being dismantled and relocated in the autumn.

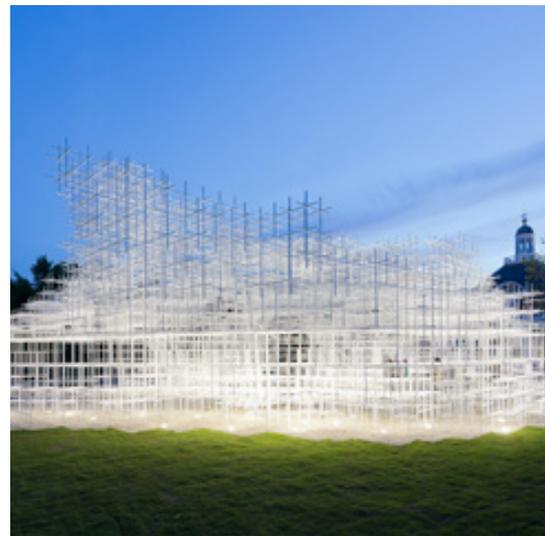
Embracing both the ancient and the contemporary, Smiljan Radic's 2014 pavilion came with a deliberate sense of strangeness. The Chilean architect's structure was described by Serpentine Co-Director, Julia-Peyton Jones as “A futuristic design that looks like it has come from the Stone Age”, a theme that was reflected in the materials chosen for its construction: huge stone plinths, steel and delicate translucent GRP panels. We worked with Radic from his appointment as pavilion designer late in 2013, helping to devise prototype panels and the complex steel frame necessary to realise his extraordinary and beautiful design.

**In-house Diversity**

This was the sixth Serpentine Gallery pavilion that we've manufactured and installed. Each commission has drawn on very different manufacturing techniques as well as a hugely varied palette of materials. Continued investment in our workshops over the last decade has enabled us to undertake the in-house manufacture of all aspects for each of these incredibly diverse structures - from the composite panels of the 2009 SAANA pavilion to the intricate steelwork of Sou Fujimoto's 2013 structure via the subterranean cork-lined pavilion by Herzog Du Mueron and Ai Weiwei. With each commission subject to such tight timelines, a thorough yet adaptable approach helps ensure that the artistic intent remains uncompromised and that the deadline is met.



2014 Smljan Radic



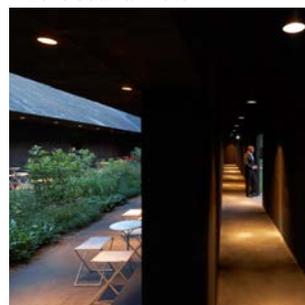
2013 Sou Fujimoto



2009 SAANA



2010 Jean Nouvel



2011 Peter Zumthor



2012 Herzog & de Meuron and Ai Weiwei

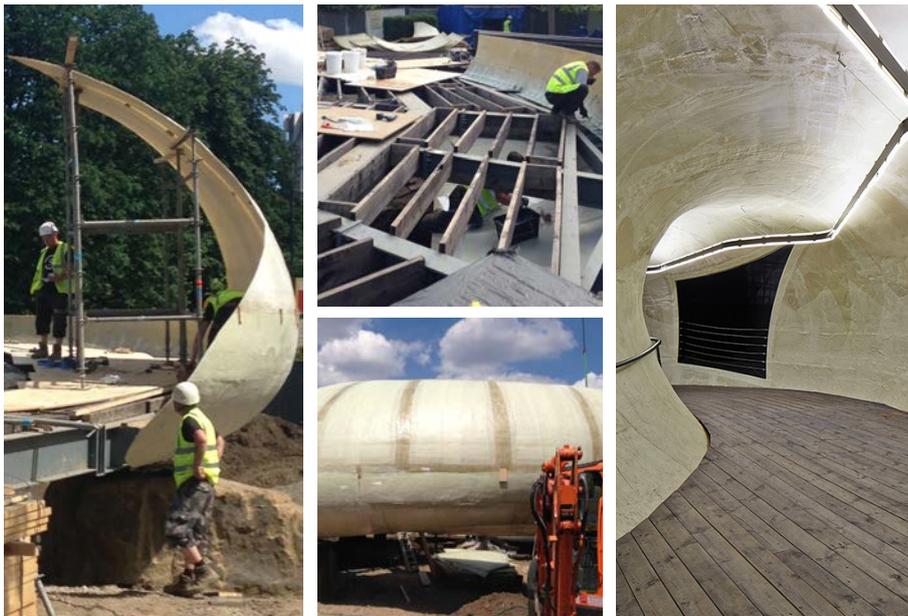


### Complex Simplicity

Helping to create simplicity can be a disproportionately complex process. Smiljan Radic's pavilion consisted of various manufactured component parts: the steel frame, GRP panels and sections of handrail. Each individual component, however, was a one-off with no two sections of frame, no two panels or even lengths of handrail being the same. This was not a problem for our workshops to deal with - creative manufacture is what we do and we are no strangers to realising complex one-off designs. Our site has plenty of space to accommodate the necessary storage and test builds. The Serpentine site in London, however, presents a very restricted working footprint where organisation and carefully sequenced deliveries become a particular priority. The experience of our crew at dealing with the strict designated delivery slots, as well as the extremely limited storage around the perimeter of the pavilion's footprint, has proven extremely valuable.

### The Installation Process

The 61 tonnes of Yorkshire stone on which the structure rested originated from a quarry near Bradford and comprised six differently sized roughly hewn stones, the largest weighing in at 15 tonnes. We carried out the ground works and landscaping, including excavating a large hollow to create space underneath the pavilion and then positioned steel fixing plates on top of the concrete foundations. Using a 90 tonne crane, the core-drilled stones were positioned over steel legs and pinned at the base.



On site: An experienced and responsive team are key

### Strength in Fragility

With a hand-made papier-mâché appearance, the torus structure of delicate GRP rested lightly on the huge stone plinths. From the outside, the shell-like pavilion looked opaque but once inside, the crude-looking panels appeared semi-transparent, allowing the visitor to feel in touch with the landscape of the park beyond.

We manufactured the 65 individual panels which varied not only in geometry, but also in thickness, ranging from 12mm to 22mm depending on the variations in load distribution throughout the structure.



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It was so quick – the producers were so fast and so intelligent. They made a lot of things on site. And made good decisions on site. It is not a very precise construction process, but you have to take care with how much [imprecision] you have. When you have something so precise you know where you have to go – but in this case you have to look and actually see whether it is OK [once built]. It is more difficult to work in this way.”

Smiljan Radic in Architects' Journal

### Manufacturing the Panels and Frame

The panels were created by constructing a vast plug formed from hundreds of huge polystyrene blocks. These were CNC'd using one of our 5 axis machines to replicate the exact 3D geometry of the torus structure, providing an accurate mould around which the GRP panels were then laid up. Once on site, the panels were bonded together and also to the steel frame at the base. The 18 tonne steel base frame formed the floor and also provided a structure onto which the panels could be attached. Manufactured in around 30 sections, some of which weighed 3 or 4 tonnes each, the frame was a complex grid of awkward angles which had to be unloaded and manoeuvred into position by crane, a process that took 10 days.



### A Sense of Mystery

Although the GRP shell was self-supporting, two pillars were installed as a precaution against the possibility of the roof lifting in the wind. A wooden floor was created from timbers laid in different directions, while a three-quarter tonne steel binnacle was bolted and bonded to the GRP creating a balconied window onto the park. We also manufactured and installed a 5m long steel bar for the café area and a steel frame for the LED strip lighting. As daylight faded, the lighting worked with the semi-transparent GRP 'skin' to give out a gentle glow, adding to the sense that this pavilion had come from another world entirely.



Contrsts: Huge stone plinths and translucent GRP Panels

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