



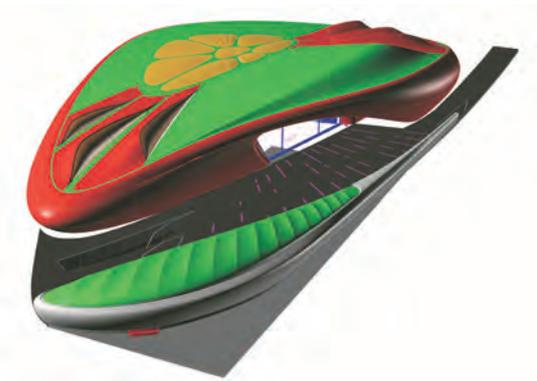
Chanel – Exhibition Pavilion





THE BRIEF

Stage One were approached by Edwin Shirley Projects and ARUP to provide an alternative proposal for the manufacture and supply of a series of 400 complex curved façade panels. The panels were to be manufactured from Fibre Reinforced Polymer (FRP), a composite required for the external façade panelling of Mobile Art, the Chanel Contemporary Art Container designed by Zaha Hadid Architects.



This unique touring pavilion houses a multi-sensory art exhibition displaying installations from 20 international contemporary artists. After its inauguration in Hong Kong, Mobile Art will visit major cities including Tokyo and New York, providing, as described in Wallpaper magazine, a significant intersection between art, architecture and fashion. The structure itself is complex, an organic and sculptural form consisting of a series of continuous arch shaped elements with a naturally lit, central 65m² courtyard. This central area adds another dimension to the visitors experience of the space and will also be used to host evening events in each of the city locations.

Zaha Hadid is renowned for her experimentation with cutting-edge technologies in her quest to develop the architecturally dynamic and fluid spaces in structures such as Mobile Art. The demands of this project similarly required us to experiment and to develop a very different approach to FRP manufacturing, harnessing our own cutting-edge expertise and technology.



OUR SOLUTION

We were initially commissioned to develop an entirely new production process and to manufacture several test panels. Through this process, we were able to significantly reduce the manufacturing timescale and also reduced costs by up to 50% in comparison with traditional FRP manufacturing methods.

The design and manufacture of the structure was complex on many levels and posed some unique problems requiring unique solutions. Every single one of the 400 panels for the building exterior is different - not just in size but also in 3D geometry. Any given segment of the external structure could show, for example, very tight convex panels flowing through to highly complex concave panels, with the panel seams also forming a strong feature of the exterior façade. Accompanying these exterior panels are internal arches that flow into the visitor reception area and run throughout the rest of the interior fit out, creating an internal landscape that redefines the quality of each exhibition space.



With a project of this scale and complexity, our thorough approach to processes and systems came into its own. The FRP panels were engineered to withstand extreme wind loads, using computer modelling and finite element analysis to optimise the laminate construction. These laminates were toughened with a mixture of glass reinforcements including stitched biaxial cloths and unidirectional fibres with various core materials. These were used in combination with fire retardant resins. In order to facilitate the panel production, we installed an extensive dedicated 1,500m² workshop and 3,000m² test build facilities.

All of our facilities operate within controlled conditions and under our ISO 9002 production system. For example, all moulds were manufactured to issued drawings and checked for size and accuracy. Every mould also had a unique identity, allowing us to constantly track the production progress using our construction tracking software. Records were kept of all material batches and a swatch sample of each laminate lay-up was also kept for reference. With a project of such a complex nature and with such a tight timescale, our attention to detail was not only essential but also testament to the efficiency of our existing systems and procedures.



TEST BUILD AND INSTALLATION

We facilitated the test build for E.S.Projects at our Tockwith site. This involved the erection of the main stage and all the steel work; the test application of 50% of the FRP panels to the steelwork, the test application of the exterior roof skins and also of interior liner panels. After the 8 week test build period, the whole lot was then dismantled, packed and shipped to Hong Kong using a combination of sea and air freight, arriving on site for the 4 week installation.

Due to the tight schedule, the installation involved a 24hr working day. The Stage One crew of 25 worked alongside the various other teams working on this complex project and once the structure was weather tight and secure, the installation of the internal liner and secondary scenography could begin. We were also able to facilitate some of the artists' installations by providing items such as a raised level structure with conical projection surfaces for Japanese animation artist Tabaimo, a mirrored room for Korean interactive artist, Lee Bul and a stand-alone unit to house a projection effect for Argentine installation artist, Leandro Erlich.



The whole structure took 4 weeks to erect and after its 6 week residency in Hong Kong, will take 3 weeks to dismantle before being relocated in turn to each of the prestigious metropolitan destinations.





STAGE ONE DEDICATED WORKSHOP FACILITIES

- 1,500m² workshop
- 3,000m² test build facility
- 3 axis CNC machine
- 5 axis CNC machine
- 2 spray bake curing ovens
- 3 paint mixing and application systems
- polyester resin spray equipment with metering
- mould preparing area
- laminating area

PANEL STATISTICS

- 400 unique panels
- Area: over 1000 square meters.
- Finish: High Gloss Pearlescent White
- Time Frame: 8 months
- Composite engineering consultancy by Optima Project

