



Business Sector: Heritage
Organisation: National Museum Cardiff
Location: Wales

01: Our Client

Amgueddfa Cymru - National Museum Wales was established by Royal Charter in 1907. National Museum Cardiff, one of the museum's eight sites, houses and displays the national Art and Natural Sciences collections. In partnership with the Science Museum Group, the museum hosted the exhibition of the Soyuz space capsule. This compact capsule carried Tim Peake and his two crewmates, Yuri Malenchenko and Tim Kopra, on the Principia mission to the International Space Station in 2015, returning them on 18 June 2016.

The museum welcomes half a million visitors through its doors each year and cares for, studies and encourages access to its collections for the benefit of the community.

02: The Challenge:

To move the world famous and prestigious Soyuz TMA-19M spacecraft into the National Museum Cardiff as part of its National tour. The biggest obstacle to this project was the fact that the Soyuz, was too large to be brought in through the main entrance so our project manager had to devise a novel approach of moving the 1.7 tonne shuttle into the building in order for it to be put on display on time for its exhibition.

03: Our Solution:

We provided a dedicated contract manager who reviewed the

museum site in order to determine how the cumbersome and heavy capsule could be given access into the building.

Case Study

When measured, the goods-in entrance was only 1,600mm wide while the Soyuz was much larger at 2,200mm wide. This excluded this route, forcing us to find a different entry point. On closer inspection of the site and the building's plans we noticed that the window above the revolving door (of the main entrance) could come out. This modern addition to the building was exempt from its listed status, which solved the problem of how to bring the shuttle in. After we removed the window we were left with a gap measuring 2400mm, giving the Soyuz just over 200mm of space to clear. As we would be using heavy machinery to lift it onto



the platform and help it through the window, this left us with very little manoeuvring room as well as the need to be extremely precise in both our calculations and movements.

Our teams met with exhibition managers from the National Museum Cardiff as well as the Science Museum Group to discuss our method and the measurement challenges. We explained how the lift would work with the given access space and we showed that we could bring the shuttle into the building despite the space limitations, so the exhibition could go ahead. Once we had sign off from both museums we got to work.

Due to the building's layout and the capsule's size, we would not be able to use a crane to move it through the window and into the lobby. This meant that our only other recourse would be to devise a way of raising it in order to get it through the window opening. We therefore met with a scaffolding company and submitted drawings of the type of structure we would require to complete this project, successfully.

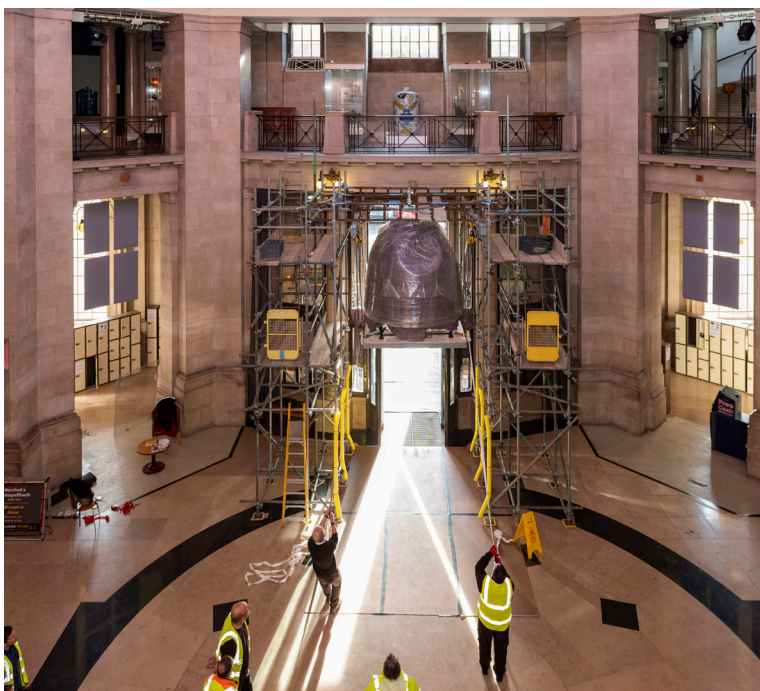
Our project manager then commissioned a steel fabricator to construct a platform, again designed to our specifications, on which the Soyuz could be lifted up.

The custom built scaffolding and platform had to operate in perfect unison in order to move the Soyuz through the available space. To that end we secured two H beams to the scaffolding, on which we mounted four chain blocks on beam trollies, which we manually operated to lift the platform supporting the Soyuz up and over the five metres through the small opening and into the building.



04: The Outcome:

On the day of the move, our highly detailed planning paid off and we successfully raised the Soyuz up and over the revolving door and through the window. The operation was delicate and complicated and our team of four collaborated expertly to manoeuvre the Soyuz into its final position. Once the Soyuz was through the window it was lowered down onto a wheeled trolley and rolled into the gallery area, where it was exhibited as part of its national tour.



“ It was great to work with the team from Harrow Green on the installation of Tim Peake's space capsule. Working across many partners and stakeholders, the team helped us at every step of the way, providing us with the advice and support we needed to plan and then to implement the complex manoeuvre of getting the capsule safely into the museum ”

Ffion Fielding
Exhibitions and Programmes Coordinator