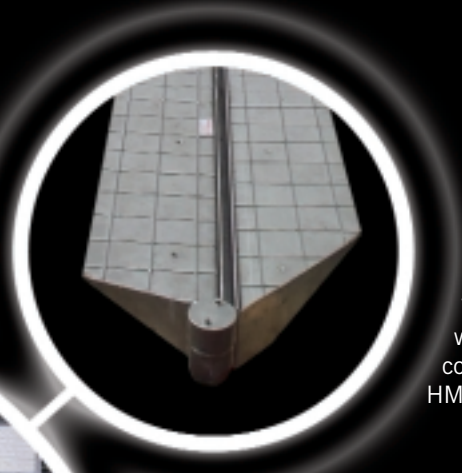


Case Study

Her Majesty's Treasury



The Challenge:

To create a visually stunning water feature within the central courtyard of the refurbished HM Treasury building in London.

The Approach:

By using drainage technology 'in reverse', the correct flow and critical aesthetic specifications could be achieved.

The Product:

Two stainless steel delivery chambers, nine meters long with baffled outlets that each deliver a consistent, shallow-depth sheet of water.



Her Majesty's Treasury

Two new water features within the refurbished central courtyard at Her Majesty's Treasury in London have employed drainage technology to achieve their unique visual flow characteristics. Designed and manufactured by drainage and fluid flow specialist, ACO Technologies, the features use modified stainless steel drainage channels in reverse to deliver a constant depth sheet of water along a combined total outlet length of 18m.

Designed by Foster and Partners with landscape design by Gustafson Porter, the central courtyard refurbishment creates a 'bridge over pond' finished appearance through the installation two separate pools either side of a solid horizontal walkway. Each opposing pond is fed by a 9m horizontal sheet of water that emerges at the courtyard perimeter and runs across 6m of shallow gradient slate to the collection pond at the central 'bridge'.

Working in partnership with M&E contractor, ISC, ACO Technologies developed a delivery system capable of producing a constant 4mm outlet depth along the entire length of each outlet. This was required to produce a permanently wetted surface that would highlight and enhance the visual qualities of the slate surface beneath.

"The greatest challenge with the delivery system was to flatten the high points that would occur at the fluid entry points below the main horizontal outlet," says Roger Brigham, design manager at ACO Technologies. *"With restrictions on both the number of entry points and the size of any holding chamber under the outlet, the system has to accurately control the flow patterns within the delivery chamber to ensure an even outlet profile."*

In order for the courtyard to be used as a function venue, the system also had to have the ability to run dry and safely accommodate pedestrian traffic across the flow path. *"Pedestrian use close to the outlets meant that we had to reduce the size of the feed slot to 20mm to prevent heel intrusion,"* comments Roger Brigham. *"This directly affects the feed characteristics, making the mechanisms used to control the outlet profile even more critical."*

ACO's solution introduces a series of adjustable baffles within two rectangular chambers 300mm wide, 150mm deep and 9m long. Manufactured from stainless steel – each as one self-contained unit - at its fabrication facilities in the UK, each chamber has inlets at 1.3m centres and allows baffle set-up via a series of externally accessed vertical adjusters along its length.

The leading edges of both channels were manufactured with an extended, high key mesh platform that gave a high strength bond to the surrounding slate and which minimised the visual impact of the finished outlet. Both channels were delivered to site as single units with the complete system tested and installed within one day.

"Our ability to accurately model the flow patterns within each chamber proved vital in producing a design that could quickly move to the manufacturing stage," concludes Roger Brigham. *"As Europe's largest producer of bespoke stainless steel drainage and fluid management products we have been able to exploit the latest fabrication techniques to successfully work within the tight tolerances demanded by this installation."*

In Brief:

- 'Bridge over pond' water feature that can be easily drained to provide a flexible entertainment space.
- Designed by Foster & Partners with landscape design by Gustafson Porter.
- Delivery system produces a constant 4mm deep sheet of water that highlights the aesthetic qualities of the wetted surfaces.
- Complete system delivered and installed within one day to extremely tight tolerances.

