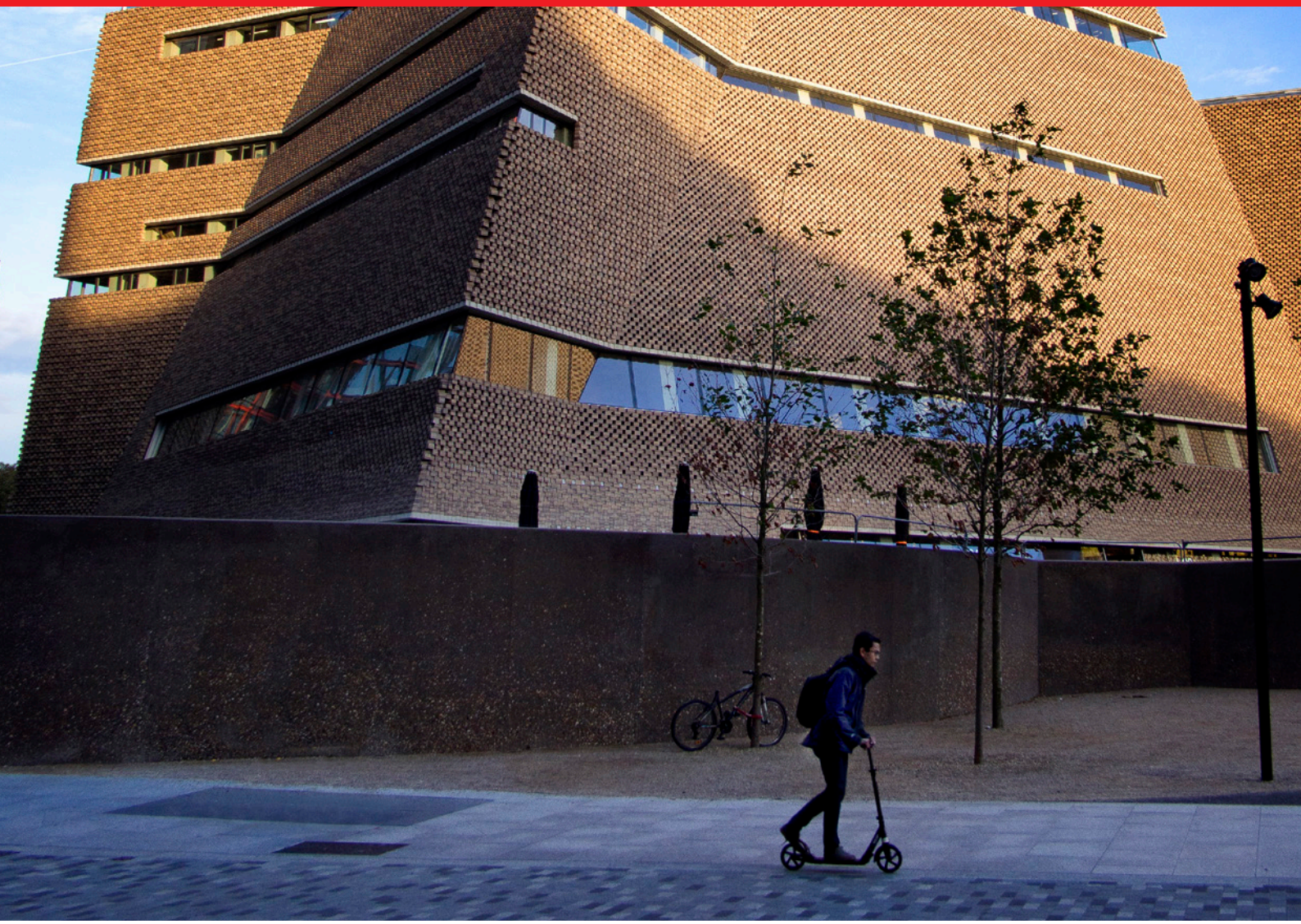
ACO Water Management

ACO brings it's art to the Tate Modern

Managing water for the UK's most challenging geometrical structure



Iconic additions to the London skyline have become a regular occurrence in recent years. However, blending the eye-catching with the elegant is a fine line that can easily be exceeded. If the building in question happens to be the world's most-visited modern art museum, then there is no room for error.

Thankfully, after eight years' in the making, the long-awaited extension to the Tate Modern on London's South Bank opened its doors to critical acclaim in 2016. As a symbol of the UK's bold and proud modern art pedigree, the extension to the Tate Modern is just as worth visiting as the works it houses. However, the level of innovation and ingenuity extends well beyond the gallery's new façade.

First opened as a gallery in 2000, following the redevelopment of the Bankside Power station, the ten-storey extension to the Tate Modern will play host to the world's first gallery spaces dedicated to live art and film installations, and provide sixty percent more space to accommodate the gallery's rapidly growing collections.

Yet, given the UK's natural inclination towards wet weather, efficient water management is an absolutely crucial element to any civil engineering project. The extension to the Tate Modern was no exception, as the building's truly unique design posed a number of water management challenges.

"The Tate extension is quite unlike most other civil engineering projects we've worked on. Whilst its striking design certainly turns heads, it brings with it some serious stumbling blocks that needed to be overcome," said Nick Burchett, Regional Sales Engineer at ACO Technologies.

Project:
Tate Modern extension.

Objective:
Collect run-off from the multi angled building façade to minimise both the risk of flooding and the impact to the existing downstream sewer system.

Solution:
Bespoke MultiDrain Brickslot designed and manufactured to match the 7 geometrical angles of the building.

"First and foremost, the building's unique geometrical design means that the external walls intersect the ground at seven different angles. With a normal building, this angle would be 90˚, which represents a straightforward solution as the water can run down the wall and into the channel below. However, with the Tate extension, a standard Brickslot drainage channel system could not be used."

Ramboll, the civil engineers appointed to undertake the construction of the extension, understood this issue at the outset, and approached ACO to find a way around the problem.

Martin Burden, Design Director at Ramboll, commented: *"The ground breaking Tate Modern extension pushes the boundaries of modern design and engineering. From its one-of-a-kind geometric structure to its striking brick façade, every facet of this building has been planned and engineered with staggering accuracy.*

"A drainage and flood management strategy was designed to minimise both the risk of flooding and the impact to the existing downstream sewer system. Run-off from the building façade is collected via channel drainage and discharged into the below ground drainage network. Considering the unique angled face of the façade, the design of a linear channel surrounding the new building was especially challenging."

"We've had a close working relationship with Ramboll spanning a number of years and several major projects where a bespoke design was needed," continued Nick Burchett.

"When they asked us the question about designing a completely unique drainage system for the perimeter of the Tate's extension, we knew it would be possible due to the strength of our R&D team when it comes to creating bespoke solutions."

James Canney, Product Development Manager at ACO Technologies, oversaw the bespoke design process for the extension's proposed solution.

"In total seven sections needed to be developed, which translated to 17 bespoke products. Each one needed to be custom-engineered to match the varying angles of the building and provide discrete drainage from both the walls of the building and the surrounding surface, along with custom units for access and maintenance.

"Two of the seven drainage sections in particular posed significant challenges in the development, as the façade of the building face continued the slope underground, forcing the channel drainage away from the façade of the building.

"The original specification called for a vertical version of our MultiDrain Brickslot product, that would sit away from the façade of the building in these areas. To accommodate this, our team designed a hanger system to allow structural concrete to be filled and levelled between the channel and the wall in such a way that when the Brickslot tops were added, the system was fully supported and allowed the drainage section to follow the contours of the building. This was absolutely crucial to ensuring the aesthetic from the rest of the project was carried through these sections of drainage."

Once the bespoke designs were approved, a total of 187m of custom-engineered MultiDrain Brickslot was manufactured by ACO at its facility in Shefford, Bedfordshire, and delivered to site before being installed by the contractors.

A further 550m of standard MultiDrain Brickslot was also supplied to the site with a view to being used throughout the Tate's surrounding landscaped pedestrian area. In areas where the Brickslot grating could not be used due to depth limitations, 20m of ACO's specialist V300 MultiLine was also installed.

"The ultimate goal was to deliver a solution which would swiftly remove any surface water from the building's perimeter during periods of rainfall. Importantly, the installation needed to be discreet to fit into the general refined aesthetic of the project," concluded Nick Burchett. *"Given the challenging and varied geometry of the Tate extension, we were extremely pleased to be able to create a fully bespoke water management system for one of the UK's truly iconic buildings."*

For more information on ACO Technology's bespoke design capabilities for water management system, please visit www.aco.co.uk.

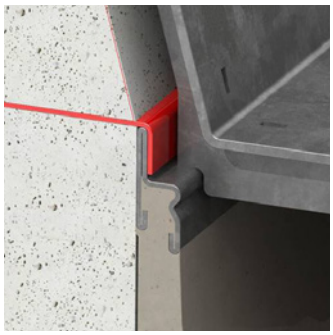


Photo above: One of the seven angled MultiDrain Brickslot designed

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