

Award

Friends' School Lisburn, Northern Ireland

PROJECT TEAM

Architect:
Studio idir Architects

Structural Engineer:
Eamson

Client:
Friends' School Lisburn

Main Contractor:
Fabrite



The Corten Pavilion at Friends' School Lisburn in Northern Ireland is a sculptural steel-framed outdoor performance and learning space, designed to mark the school's 250th anniversary in 2024. Nestled among mature trees and red-brick buildings, the pavilion is both a functional shelter and a striking piece of public art. Its undulating canopy, formed from weathering Corten steel and supported by iroko-clad steel posts, reflects the grammar school's Quaker heritage and values, drawing inspiration from the deconstructed eight-pointed star.

The project emerged in the post-COVID landscape, responding to the need for outdoor learning environments. The design draws from Quaker symbolism and values,

and was informed by workshops held with art, music and technology pupils at the school. They were also invited to design a perforation for the canopy backdrop, with the winning design featured. The result is a structure that is inclusive, intuitive, and deeply connected to its community. It also meets the client's brief: for the structure to be both functional and an artwork in its own right.

Architecturally, the pavilion's complex geometry defied conventional two-dimensional drawings. The eight-pointed Quaker star was deconstructed into its constituent parts and then tessellated back together to form the distinctive roof profile. The design team relied on physical (using paper and card) and digital modelling to resolve the

form and ensure effective rainwater drainage without compromising the clean lines. The canopy's crisp 10mm edges guide water along its valleys, in a zigzag formation towards the fringe of the structure, where it discreetly falls into drains within surrounding planting, preserving the aesthetic while nourishing the plants.

Structurally, the pavilion posed unique challenges, no less its shape, which is why steel was chosen for its lightweight but durable properties. Corten steel promotes the formation of a stable, reddish-brown patina, akin to rust, which protects the underlying steel from further corrosion, creating a warm inviting colour for students to congregate under. The canopy was designed with a sacrificial thickness, ensuring structural integrity is maintained, even after 50 years of natural weathering.

The non-linear geometry required precise load path analysis and finite element modelling to scrutinise the canopy's structural behaviour under various load conditions, ensuring structural integrity while minimising material usage to create a lightweight and aesthetically pleasing form.

Fabrication and assembly were challenging due to the properties of Corten steel, so it demanded innovation and precision. A full-scale assembly was constructed in the workshop to resolve the obtuse angles and intersecting planes. The intricate layout of the bases demanded the use of an electronic surveying station to establish their locations on the workshop floor. From this, a temporary structure was built to support the roof panels, so that the support legs could be formed, with the various intersecting angles and connections. Once complete, the pavilion was disassembled for transport and reassembled on site with minimal disruption.

Delivering the final pavilion was equally challenging to ensure it was set out exactly as the trial erection. A prefabricated ring beam, created in the workshop environment, was cast into the concrete slab to ensure accurate foundation setting. The intricate nature of the roof structure proved difficult to lower into place by crane. The centre of gravity was entirely 'off-centre' causing significant challenge to the slinging of the panels into position. The iroko timber cladding for the six angular steel posts was

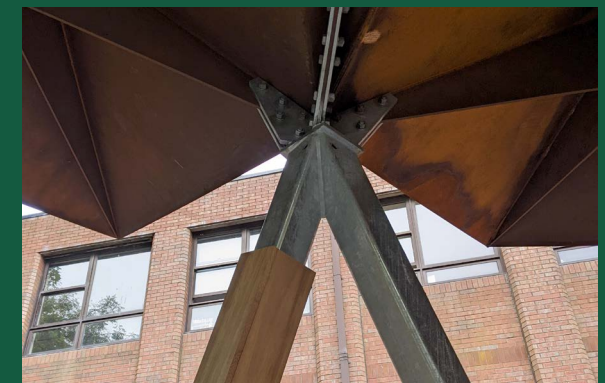
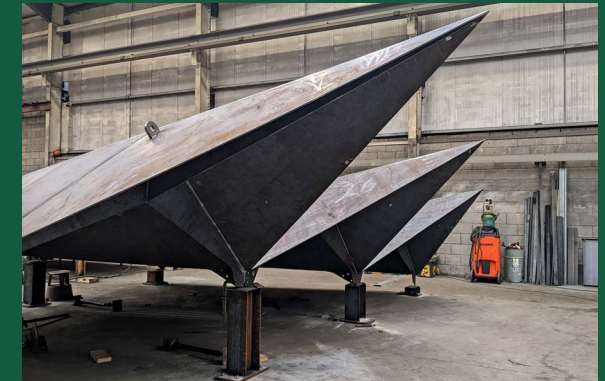
then applied, so that from afar it looks like the canopy is floating. Despite these challenges, the pavilion was delivered on time and within budget, thanks to the dedication and collaboration of all parties.

Environmentally, the pavilion exemplifies low-impact design. Corten steel requires no treatment or maintenance and is fully recyclable. The timber cladding is easily replaceable, and the structure's open-air design results in negligible operational energy use. Embodied carbon was calculated at 567kg CO₂/m², and the annual operational emissions are just 0.1kg CO₂/m². The pavilion's placement avoids disturbance to tree root zones, and its form blends seamlessly with the natural surroundings.

Social sustainability was central to the project. The pavilion offers a flexible, weather-resistant space for outdoor learning, performance, and reflection. It has become a focal point for school life, used spontaneously by pupils aged 4 to 18 and celebrated during the school's anniversary events. The inclusive design encourages interaction with nature and supports wellbeing.

The project's success is rooted in deep collaboration. Architects, engineers, fabricators, and contractors worked in lockstep to preserve the purity of the original concept. The client's trust and engagement were instrumental, and the involvement of pupils added a layer of meaning and ownership. The result is a structure that is both technically accomplished and emotionally enriching.

The Corten Pavilion at Friends' School Lisburn is a testament to what can be achieved with vision, teamwork, and a commitment to excellence. It is a beautiful, durable, and inspiring space that enriches its community and stands as a lasting legacy for generations to come.



“ Judges' comment

Imaginatively conceived, with full involvement of the school and its leadership, and thoughtfully delivered, this deceptively simple canopy exemplifies the remarkable potential of weathering steel no matter the scale. The clearly legible folded plate structure creates an elegant form which maximises the pedagogical value of the project and provides a new focal point on the campus.