

Case Study

The Library, Murray Edwards College, Cambridge



Project: The Library, Murray Edwards College, Cambridge

WestWood joined forces with Millane Contract Services Ltd to install a warm roof system on a complex Grade II* listed barrel-vaulted roof while also delivering works to the surrounding flat apron roof.



Project Overview

Roofing Contractor: Millane Contract Services Ltd.

Project Size: 400 sq. m

WestWood Products: Weplus SA VB PL, 140mm pre-spliced tissue faced rigid insulation, Wecryl 230 thix, Wecryl 420, Wecryl 810

The Rosemary Murray Library sits at the heart of the Grade II* listed Murray Edwards College, Cambridge. Urgent roof repairs were needed to preserve the historic building, which features a barrel-vaulted roof held by four pillars and made up of eight precast concrete sections.

Located in a conservation area, the roof required a full strip after surveys revealed water ingress. The new warm roof had to emulate the existing architecture, with no mechanical fixings permitted on the precast barrel or vertical sides.

To meet these demands, WestWood organised bespoke contractor training and designed a sample board to secure conservation approval before any work began on site.



"Refurbishing an historic barrel-vaulted roof presents complex design and installation challenges, demanding skilled workmanship and advanced liquid-applied membranes."

Millane Contract Services Ltd

Scope Of Works

In partnership with property and construction consultants Watts, WestWood played a central role in the design process, ensuring the warm roof met the needs of both the conservation officer and the client.

A bespoke sample board displaying the proposed waterproofing and stippled finish was created and submitted for approval before design began.

After evaluating multiple warm roof options against practicality, longevity, fire performance, and the client's carbon-neutral ambitions, a pre-spliced 140mm tissue-faced PIR board was selected with a rapid curing two-part adhesive. WestWood and insulation partner Oatking Solutions then attended site to test different splice configurations against the barrel's curvature before the boards were fabricated off site. A main design consideration was that mechanical fixings could not be used within the concrete structure.

Scope Of Works



WestWood's Wecryl 230 thix was selected for the waterproofing. The PMMA-based cold-applied resin can be installed on vertical surfaces and cures within approximately 25-30 minutes.

During the initial strip, hidden cross-ventilation beneath the parapet upstands was discovered, requiring a new support detail to retain the insulation at the vertical sides of the barrel.

Pre-waterproofed aluminum angles were installed above the air gap and along gable ends, secured with Wecryl 810 putty as mechanical fixings were not permitted. Templates and timber profiles maintained the original roof geometry and prevented thermal gaps at junctions. Where the curvature changed, Wecryl 810 putty was applied with bespoke profiled floats to create smooth transitions.

Following the installation of the vapour control layer, insulation, and carrier membrane, Wecryl 230 thix was applied in multiple coats above standard coverage rates. High points were sanded down and low areas filled with Wecryl 810 putty to achieve a uniform surface. The final textured finish, which replicated the original stippled render, was achieved using Wecryl 420, a textured surfer. This was applied in two directions, with each section completed in one continuous operation.

Achieving a flawless waterproofing layer required approximately 150 hours of sanding and finishing before the final textured coat was applied.

Key Constraints



The prohibition of mechanical fixings presented a significant challenge in adhering the warm roof system to the curved surfaces.

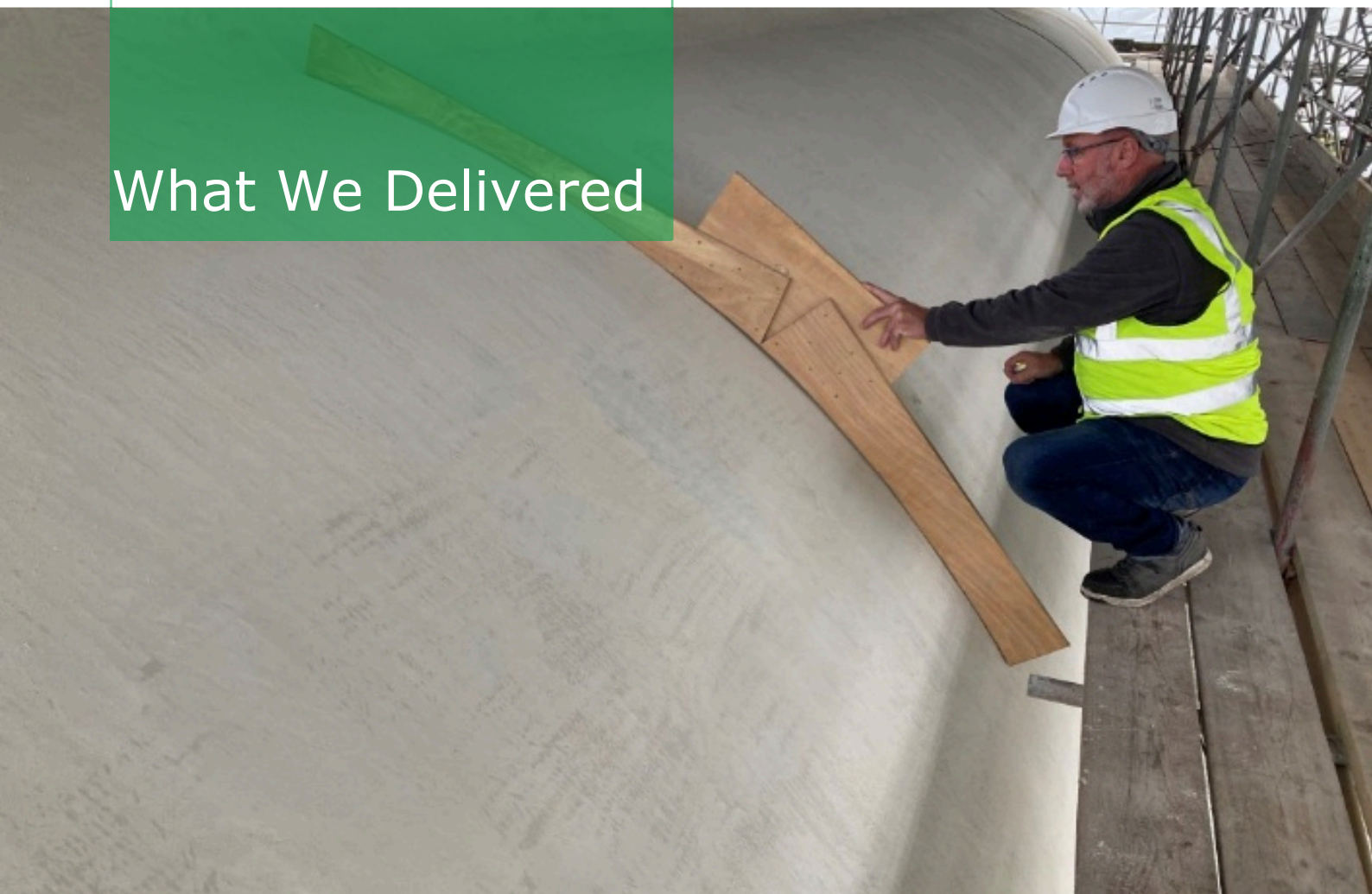
To address this, WestWood organised a bespoke contractor training session using a timber mock-up replicating the concrete barrel's curvature. This enabled operatives to practice application techniques, refine methods for achieving a smooth finish, understand how membrane laps would create high points, and accurately estimate resin requirements.

A rapid-curing adhesive was essential given the curved substrate and the insulation was weighted down while the adhesive set. The training session included adhering the pre-spliced sample boards to the timber rig to gauge curing times and anticipate likely challenges.

"Refurbishing an historic barrel-vaulted roof presents complex design and installation challenges, demanding skilled workmanship and advanced liquid-applied membranes. Working closely with WestWood, we overcame the technical constraints to deliver a long-lasting roofing system that preserves the building's original appearance."

Millane Contract Services Ltd.

What We Delivered



The combination of Wecryl 230 thix and Wecryl 420 created a homogenous, monolithic waterproofing membrane, maintaining the roof's original appearance and meeting heritage requirements. The fast cure times kept the programme on track, with works completed during the summer holidays.

The project was recognised with two industry awards, being named 'Liquid Roofing Project of the Year under 1,000 sq. m' at the Liquid Roofing and Waterproofing Association (LRWA) Awards, and winning the Cold Applied Liquid Roofing category at the National Federation of Roofing Contractors (NFRC) Awards.

Conservation Requirements

New finished height and roof curvature identical to the original.

Technically Challenging

Warm roof system adhered to barrel roof with no mechanical fixings

Bespoke Training

Application techniques perfected on timber mock up

Aesthetic Accuracy

Replication of original stippled render