

Carr Junior School - Solar PV



Garland System
Solar PV

Sector
Education

Client
South Bank Multi Academy Trust

Site
Carr Junior School



As part of its wider strategic estates and asset management planning, the South Bank Multi Academy Trust wanted to install a **Solar PV** system at Carr Junior School to reduce electricity bills and protect the site from future energy cost increases.

In the early discovery stages of the project, the Trust instructed Garland UK Technical Manager Rob Wall to conduct a roof condition survey and solar yield analysis at Carr Junior School. The detailed reports help to understand the solar project's suitability and potential yield capabilities at the site and determine if a solar PV installation makes a suitable long-term investment.

Challenge

The detailed roof condition survey revealed various issues with the existing build-up, including signs of cut-edge corrosion that had severely diminished the composite steel roof panels. In some cases, the protective coating was non-existent in large sections, exposing bare steel to the elements. In addition, multiple seal washers had corroded, and the fascia and gutters needed repair.

Following the survey findings, Rob Wall advised the Trust that the existing roof was unsuitable for solar PV installation in its current state. The roof would likely fail well before the expected lifespan of newly installed solar panels, meaning that for any future roof repairs to take place, the solar PV system would have to be completely removed and reinstalled again. This would result in significant repair and installation costs for the Trust and considerable downtime for the school's electricity generation.



Existing condition of the roof

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A roof refurbishment and solar system installation were recommended to ensure the Trust's investment in decreasing future energy costs and long-term roof asset management plans were met effectively.

By simultaneously completing a roof refurbishment and solar PV installation, the Trust would benefit from Garland's industry-leading Single-Point Guarantee. The unique guarantee provides complete liability coverage for the design, system, and installation quality of the roof and solar systems, whereby if any issue occurs, both investments are 100% protected. Importantly, the guarantee would include all the fixing points for the **Solarise PV** modules into the new roof system, ensuring complete investment protection, knowing that the solar and roof were covered solely by Garland for the future.

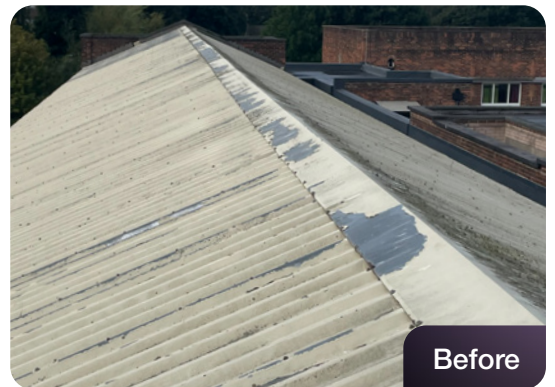
Solution

An initial **Solar Yield Analysis** revealed that by installing 70 PV modules using the Solarise system, Carr Junior School would realise a 28.7 kWp system, generating 26,287 kWh a year and providing £5,840 in first-year energy savings.

The optimum solution for the roof refurbishment was an overlay, utilising the hardy yet lightweight R-MER CLAD system. The steel-profiled metal sheet cladding was designed to retrofit over the existing roof, mitigating the need to remove and replace the roof structure and sending any unnecessary waste to landfill.

Before works commenced, a structural engineer reviewed the site and confirmed the project's viability. Rob Wall assisted the Trust with the tendering process, and Garland UK Approved Contractors, Future Roof, was appointed to carry out the quality **R-MER CLAD** installation works. A vapour control layer was installed, followed by 2mm galvanised steel top-hat profiles, and a bar and bracket system with adjusted bracket height, to accommodate the 150mm additional insulation. Finally, the R-MER CLAD metal profile was installed to seal and securely waterproof the site from the elements.

Once the R-MER CLAD system was in place, the Approved Installer, ERS, installed the custom Solarise system, which comprised 70 Solarwatt Classic 2.0 Photovoltaic panels at a 15° inclination across the southeast and northwest roof orientations. The lightweight Solarwatt panels deliver high energy yields, even in challenging weather conditions.



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A bespoke mounting system was used to fit the unique profiles of the R-MER CLAD system. This ensured the solar panels were firmly anchored while distributing the load evenly, preventing damage to the roof sheets. A Solis inverter was chosen for its excellent conversion efficiency and robust monitoring capabilities, offering high reliability and service life for the school.

Outcome

Rob Wall was the single point of contact throughout the project, providing twice weekly site visits throughout the roof refurbishment and solar installation and supplying detailed progress reports to all parties via Garlands' cloud-based **RAMP (Roof Asset Management Programme)** system.

The roof refurbishment saw Carr Junior School significantly improve its overall thermal efficiency, achieving a 0.18 U-value. In addition, with the Solarise system in place, the school has successfully reduced its carbon footprint and is expected to negate up to 12 tonnes of CO2 emissions yearly.

Specifying the R-MER CLAD system saw significant environmental savings for the Trust, where the encapsulation process (rather than complete removal) mitigated 4.7 tonnes of waste to landfill. The metal R-MER CLAD system is 100% recyclable, meaning that when the roof reaches the end of its natural life, the school has another opportunity to recycle the panels and avoid further unnecessary waste in landfills in the future.

On completion, Rob Wall supplied the Southbank Multi Academy Trust with Garland's industry-leading **20 year Single-Point Guarantee** for the R-MER CLAD system and a 15 year product and 20 year performance guarantee for the Solarise system.

With the Solarise system now in place, the South Bank Multi Academy Trust will see a return on investment for the solar installation in just over 4 years.



Existing condition of the roof



The team at Garland UK did a fantastic job! The new metal sheet roof and solar panel installation addressed our concerns about the building's ageing roof and provided a sustainable energy solution for the school.

We're particularly impressed with the service we received from Rob Wall – his professionalism and clear communication throughout the project were invaluable. The school is already seeing the benefits of the improved roof and solar panels, and we're confident this project will achieve the Trust's long-term sustainability and cost savings goals.



- Oliver Johnson
Director of Estates at the
South Bank Multi Academy Trust



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