

Case Study Croydon - St. Joseph's College



FUNKY RENEWABLES LTD.

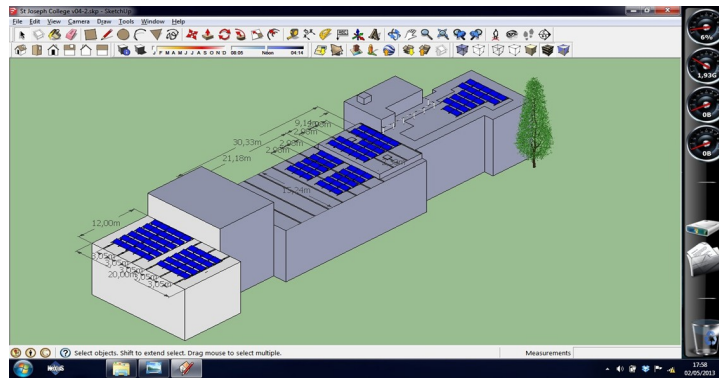
School's lightweight roof gets heavy - weight solar solution

This project was a technically challenging installation as the school has a two-phase electrical supply, limiting options for larger PV systems. The roof structure has a very low loading capacity due to the hollow core concrete slabs forming the roof, built in the 1960s. We were also unable to penetrate the roof surface by fixing anchors into the steel substructure, as they would jeopardise water tightness. We worked closely with roof mounting specialist Schletter and together with our engineers came up with a workable solution of a low ballasted, floating mounting system. By using a low angled ten degrees AluGrid Schletter mounting system we could keep loading forces within acceptable parameters. Working with reliable partners during the

planning phase was crucial to ensure the installation is safe and complies with the various parts of the British regulatory framework.

In designing the system the

parts of the roof. To understand the effects of shading from the viewing platform, we built a 3D model to analyse the best layout using Google's Sketch-up. It is important to take each



team had to make the maximum use of the available roof space and design a system within the safe available load bearing capacity of the roof. The school's roof includes a viewing platform, which extends four metres up on

roof's characteristics into account and design the system accordingly. By keeping the angle shallow, at ten degrees, we were able to minimise the ballast weight required due to lower wind loading.

Project details	
Client	St. Joseph's College, South London
Cost	£ 51,000 (incl. VAT)
Annual income from	
Feed-in tariff	£ 3,190
Exported electricity	£ 330
Electrical savings	£ 2,228
In total	£ 5,748
Payback in years	8 1/2



Let's start with a clean slate..



Now let's get rid of these troublemakers..



Time for a little bit of action.



Teamwork is a huge priority for us..



As is laying out the perfect installation.



But ultimately it's our attention to detail which guarantees our customer's satisfaction.

Key kit	
Panels	Canadian Solar Polycrystalline 250W with 15.4% yield
Mounting	Schletter AluGrid
Inverters	4 x SMA Mini Centre 7000HV



The school is pro-renewable, participates in national and international projects on sustainability and climate change with its students and staff.

When this happens, a bypass diode on the affected panels passes the current from the remaining panels and the voltage of the string drops. The arrangement we came up with causes both strings to drop by the same amount, so there is very little loss from the voltages being mismatched and the inverter remains able to track the electrical sweet spot. The system is bigger than

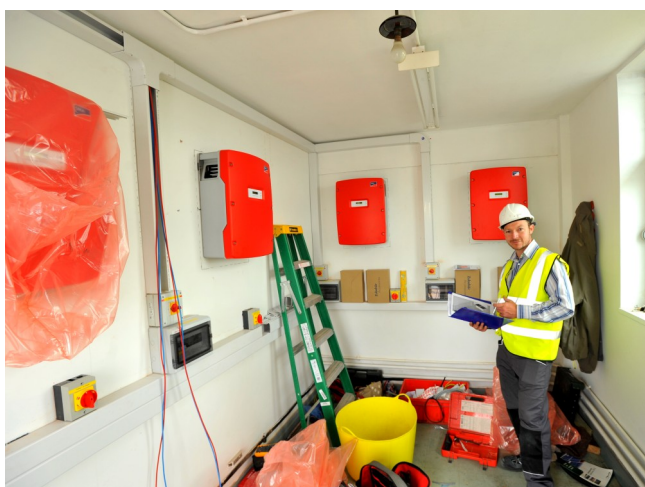
the 16 amps per phase limit for systems, which are simply connected, and the DNO informed. However, keeping the power below 17kW per phase allowed a simpler system submitting outline details and asking permission from the DNO, which was obtained without difficulty. Using 17 amps per phase gives a limit of 35kW for systems such as the school's. Additionally, if the

power is above 30kW then more complex metering arrangements may apply, where the meter takes readings every half hour and in effect "phones home". This would commit the customer to ongoing charges for metering. By reducing the power to just below the 30kW limit we were able to spare the customer this additional expense.

Annual Output
23,400 kWh

Install Lifespan
35 - 40 Years

The school is now saving around **ten** tones of CO₂ per year or **350-400** tones over the lifetime of the system.



The customer was generally very accommodating and so were we, working in the holiday period and for the final commissioning (post-lightning protection install) during the weekend.

Contact Us



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