

Case Study: Kingsmead Primary School



Solar Hot Water

Schools and homes use lots of hot water for washing and bathing. The sun, even in Britain's climate, can deliver 30-70% of this energy need. At Kingsmead Primary School, four large roof-mounted Solartwin panels pre-heat the school's hot water for washing and bathing.

Uniquely simple to install in homes, Solartwin is used all over UK. Solar Twin Ltd now installs nearly 10% of all UK solar water heating panels, using an award winning solar water heating technology. Homes, schools and pools all over UK all benefit from Solartwin's solar hot water installations.

"Compared to previous forms of solar, Solartwin is uniquely simple to fit in both schools and homes. Its 100% solar electric water pumping system improves its environmental footprint by not requiring any mains electricity at all for its operation. This innovation is crucial to cutting global warming and helps to meet energy targets more easily, with less "energy clawback". Being a parent and having been a teacher myself, I'm delighted that the next generation of Cheshire children will be learning in a sustainable environment thanks to Solartwin" says Managing Director, Barry Johnston.

Other Solartwin Schools projects in Cheshire are:

Wistaston Green Primary School - Main Building
Beeston Outdoor Education Centre - Laundry Block
Chester Catholic High School - Science Classroom for the Future

Kingsmead Primary School Renewable Energy Technology Datasheet:

Renewable energy type: solar	Pump type: 24V variable speed
Application: solar water heating	Power supply: 100% PV (solar electric)
Water use: washing and bathing	Calorifier: 750 litre indirect
Number of panels 4	Backup fuels: 1/ biomass 2/ gas
Angle of tilt: 30 degrees	Target annual solar fraction: 30%
Panel total aperture: 11.2 sqm	Global warming target: save 1000 kg CO2 p.a.
Panel type: freeze-tolerant	Manufactured in: England

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Solartwin water heating *indirect* plumbing

at Kingsmead Primary School
single cylinder twin coil application
with four PV pumped Solartwin panels
schematic plumbing diagram: essential features only

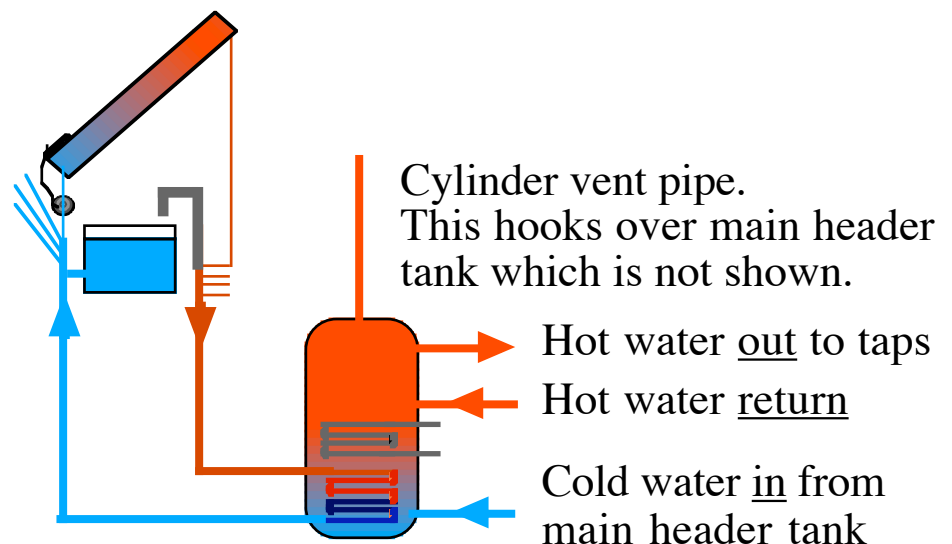
Our installation has its own small header tank, drawn in blue.

A variable speed PV (solar electric) pump feeds each panel.

Only one of four solar hot water panels is shown here.

All four panels run "in parallel". Each has its own PV panel and PV pump running side by side.

Each 2.8 square metre Solartwin panel contains about 2 litres of water. When the sun shines, this water heats up. It is pumped to the cylinder's lower heat exchanger and back again. The panel has freeze-tolerant silicone pipes inside. They don't crack when they freeze. Silicone pipes also carry water to and from the panel (the fine lines).



A big 750 litre solar hot water cylinder holds - and heats - tap water. It has two heat exchangers in it instead of only one, as is usual. The upper heat exchanger delivers heat from "backup heating" boilers. These are fuelled by burning either biomass (wood) or mains gas.

The lower heat exchanger is for *indirect* Solartwin pre-heating. The heat exchanger moves solar heat from the panel into the cylinder. The temperature varies widely - in the range of 15-75C, or even more. How hot depends mainly on how bright the sun shines. It also depends on how much hot water is used each day.

Solartwin *100% solar pumped solar hot water for UK's schools!*