Case studies of Volther hybrid collector
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Crossway
Crossway project Description

Integrated PVT system designed with pellet boiler for top up heat, MVHR (Heat recovery ventilation) for thermal recovery and heat distribution and PCM buffer storage to store excess thermal energy. Crossway is a Grand Designs project - officially Kent's first Zero-Carbon House and Newform Energy's first major undertaking.

SES PVT panels producing:

System size 27m² 2.95kW (pk)
Annual output electrical 3,408kWh
Annual output thermal  12,064kWh

System Outputs (with losses):

Electrical 2,873kWh/annum
Thermal  9,627kWh/annum

Buffer Storage:

400lt solar tank + salt PCM store.

Evo Aqua Pellet Boiler uses:

22kg of pellets/annum

NED Air MVHR Unit:

32W fan power on normal setting. Heat recovery efficiency
Sunnybank
Sunnybank Project description

Integrated PVT solution with a Genvex Combi 185 EC MVHR/Air Water Heat Pump and an 1850lt buffer cylinder.

The project is situated in Scotland on the borders and is the first to use the new Volther Hybrid PowerTherm PVT panels.

PowerTherm PVT panels:

System size 31.4m² 3.41kW (pk)

Annual output electrical 3,751kWh
Annual output thermal 13,289kWh

System Outputs (with losses)

Electrical 3,162kWh/annum
Thermal 10,946kWh/annum

Thermal Storage:

185lt Integrated solar tank (integral to the Genvex Unit) together with a 1,850lt thermal store.

Genvex Combi 185 EC MVHR / Air to Water heat pump / cylinder

The Combi is a combined heat recovery ventilation appliance. It is equipped with high efficient supply and extract air fans, together with a counter-flow heat exchanger with an efficiency of up to 95%. The air source heat pump heats the supply air and domestic hot water, prioritising the hot water. The hot water cylinder can as an option be connected to a second heat source, e.g. solar panels. The unit is delivered with a F5 supply and extract air filter and Optima 310 control.
Chetwode
**Project description: Commercial Hybrid PVT installation**

The largest Hybrid PVT installation in the UK to date and the first to use the new Vother PowerVolt panels. The installation has a combination of PowerTherm and PowerVolt, making this installation a world first by using both types of Hybrid collector.

The heat from the system is being used for the building with excess heat being vented through a 30kW fan assisted heat dump.

Panel Type: Hybrid PVT  
24 x PowerVolt 175/460 (unglazed)  
24 x PowerTherm 155/680 (glazed)

Array size  
68.52m²

Peak Electrical  
7.92kW

Peak Thermal  
27.38kW

System Design Temperature 60°C

**Panel Outputs**

Electrical 9,216kWh/annum  
Thermal 19,801kWh/annum

**System Outputs (with losses)**

Electrical 7,988kWh/annum  
Thermal 13,821kWh/annum
St Marys- Installation completed

Project description: Volther PowerTherm PVT installation.

The use of PVT for this project was in order to conform with the Merton rule which insists any new building being built in the borough produces a % of its energy from onsite generation.

Merton Council’s acceptance of the technology for this application sets a precedent in the UK.

PowerTherm PVT panels:

System size 21.35m² 2.3kW (pk)

Annual output electrical 2,988kWh
Annual output thermal 8,897kWh

System Outputs (with losses)

Electrical 2,242kWh/annum
Thermal 7,100kWh/annum
Istanbul
Commercial Hybrid Project- in Istanbul

Project description: Volther PowerTherm PVT installation for Varyap.

The use of PVT for this project was in order to demonstration with the Varyap rule which insists any new building being built in the borough produces a % of its energy from onsite generation.

Varyap acceptance of the technology for this application sets a precedent in the Turkey.

PowerVolt PVT panels:

- System size 25.35m² 3.3kW (pk)
- Annual output electrical 3,988kWh
- Annual output thermal 9,992kWh
Antalya Kumluca
Kumluca Project Description

Integrated PVT system designed with pellet boiler for top up heat, MVHR (Heat recovery ventilation) for thermal recovery and heat distribution and PCM buffer storage to store excess thermal energy. Kumluca is a first hybrid project in the Turkey.

**SES PVT panels producing:**

System size 27m² 3.55kW (pk)

Annual output electrical 3,808 kWh
Annual output thermal 14,064 kWh

**System Outputs (with losses):**

Electrical 2,473 kWh/annum
Thermal 9,324 kWh/annum

**Buffer Storage:**

400lt solar tank + salt PCM store.