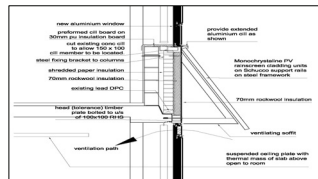
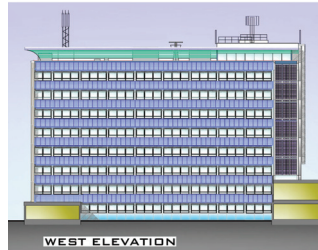


## City College Plymouth Urban Renewables

### Photo Voltaics

PVs are expensive. Ideally they should be included in a retrofit programme achieving a number of goals. At city college Plymouth they were designed to achieve:-

- 55000kWh/pa of electricity generation
- Rainscreen cladding required due to the deterioration of the existing facades. The existing brick facade remained clad with insulation then finished with PV rain screen.
- Solar shading achieved because the PV panels needed to be fitted at an angle for optimum performance



### Wind turbines

At City College Plymouth there are two 6kW wind turbines manufactured by Proven. These are building mounted onto an existing building where the structural design was available. This has been an opportunity to test the success of small urban wind turbines and a final BRITA report will be published soon. This will give final details on:-

- Output – below target due to the micro climate reducing average windspeed
- Shadow flicker – a strobe light projected into buildings adjacent to the turbines. Careful consideration needs to be given to its control
- Vibration – some disturbance of building occupants due to minor building shudder during high winds
- Noise – not resulted in any complaints

### Germany: Stuttgart



Nursing Home  
Filderhof

### Great Britain: Plymouth



City College  
Plymouth

### Norway: Asker



Borgen  
Community  
Centre

### Norway: Hagafoss



Church  
Hol  
Commune

### Denmark: Copenhagen



Cultural  
Centre  
Proev-  
hallen

### Greece: Athens



Evonymos  
Ecological  
Library

### Czech Republic: Brno



Social  
Centre  
"Brewery"

### Lithuania: Vilnius



Main  
Building  
Vilnius  
Gediminas  
University