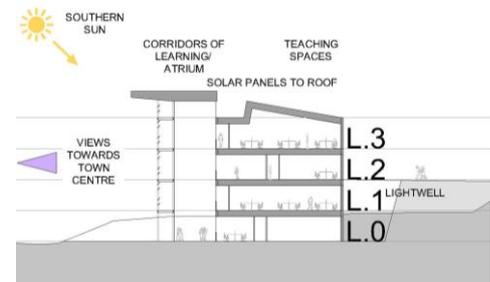




## Certified building - Passive House



**Building type** school | campus | university  
**Location** UK - Enniskillen (Northern Ireland)

**Description** A New Further Education College Campus building of 8,200m<sup>2</sup> to the Passive House Premium and BREEAM Outstanding standards. The building will accommodate 800 full time equivalent students and 120 staff. The building fabric has been designed with steady-state heat loss calculations indicating 9.09 W/m<sup>2</sup> and the heating to the building varies from underfloor to the atrium via ground source heat pump. The large spaces such as the central hall will be heated via air handling, in teaching spaces will be activated by occupancy sensors. Primary heating for ventilation air will be from the biomass CHP waste heat system and after heat recovery the residual fresh air heating demand for the entire building will be 38kW. The building will have low water dual flush WCs, rainwater recovery from the roof for toilet flushing, automatic taps with quick response shut-off. The roof allows photovoltaic panels with a capacity of 160 kWp. Battery storage of 100kWh storage array has been included in the design to allow limited short term storage

**Treated Floor Area according to PHPP** 6596.3 m<sup>2</sup>  
**Construction type** Mixed construction

### Thermal Envelope

Mixed construction U-value = 0.15 W/(m<sup>2</sup>K)

Basement floor / floor slab Concrete slab insulated with rigid thermal insulation U-value = 0.15 W/(m<sup>2</sup>K)

Roof U-value = 0.15 W/(m<sup>2</sup>K)

Frame U<sub>w</sub>-value = 0.85 W/(m<sup>2</sup>K)

Glazing Triple glazing unit, low-e and argon filled. U<sub>g</sub>-value = 0.00 W/(m<sup>2</sup>K) g-value = 0 %

Entrance door Aluminium glazed door U<sub>d</sub>-value = 0.0 W/(m<sup>2</sup>K)

### Mechanical systems

Ventilation

Heating biomass CHP.

Domestic hot water Direct electric water heater

### PHPP values

Air tightness<sub>n50</sub> = 0.6/h

Annual heating demand 7.87 kWh / (m<sup>2</sup>a) calculated according to PHPP

Heating load 10.23 W/m<sup>2</sup>

Primary energy requirement 44 kWh / (m<sup>2</sup>a) on heating installation, domestic hot water, household electricity and auxiliary electricity calculated according to PHPP