Bloomfield Care Centre

Bloomfield Care Centre Rathfarnham, Dublin 16

Located on a 10 acre site overlooking Dublin. Bloomfield Care Centre is a purpose built health care facility, it has been designed to the highest standards, with the assistance of expert advisers. The completion of stage 2 of the development (which received substantial support from the HSE) is a significant landmark for Bloomfield. The centre has been caring for the elderly since it opened in 1812 and this new (4,408 square metre) extension accommodates an additional 76 extended care beds, a specialized day care centre, occupational therapy and physiotherapy units, together with teaching and conference facilities. The new development utilises sustainable energy initiatives such as rainwater harvesting and received grant aid from Sustainable Energy Ireland (SEI) for its gas-powered electricity generation facility. Whilst the existing boilers, kitchens and laundry were changed over from L.P.G to Natural Gas, two new Micro C.H.P units were located in the basement car park to provide electricity and hot water for the development. Frank Daly of Kinviro Limited suppliers of the Dachs CHP says "We believe the system will deliver in the region of €7,000 per annum in cost savings and 20 tonnes per annum of CO_2 savings".

Mechanical services
Kirby Mechanical

Consulting engineers
Delap & Waller

CHP suppliers
Kinviro Ltd

NATURAL GAS

BORD GÁIS NETWORKS

Combined Heat & Power

Combined Heat & Power (CHP) is the simultaneous generation of heat and electricity from the same piece of equipment. In much the same way as heat is captured from the engine of a car when the fan heater is turned on, heat that is usually lost in the power generation process is captured and used to make hot water for example. By capturing this energy which is otherwise wasted, CHP provides better running efficiencies (in some cases more than 90%), and generates significant carbon and energy savings for the user of the technology.

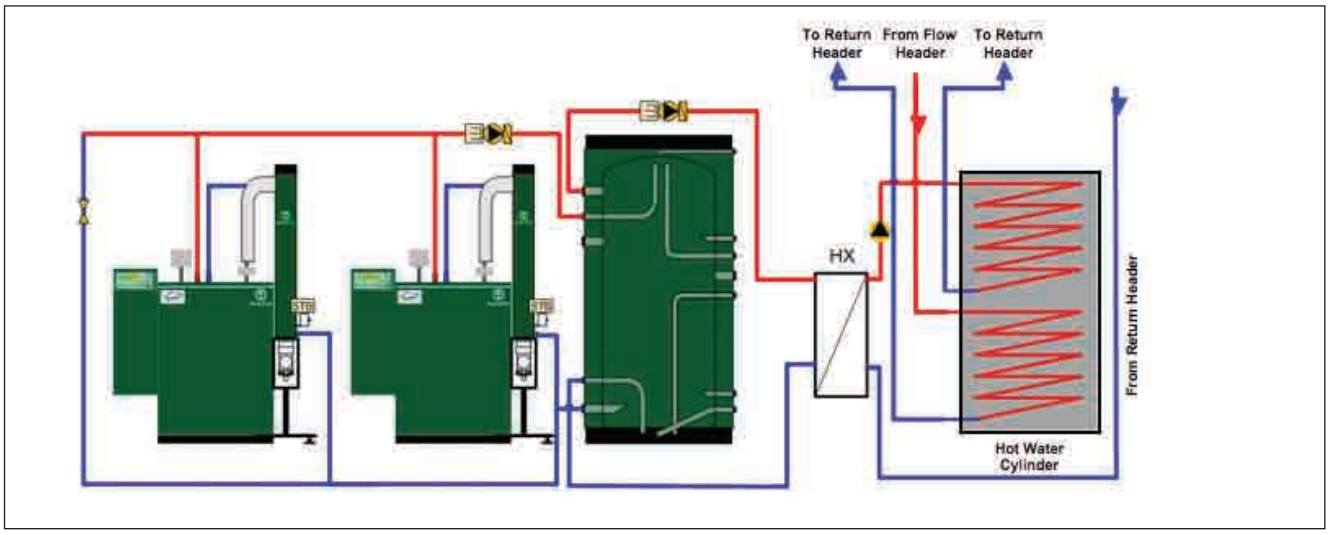
CHP Units

CHP is most suited to sites that have significant and continuous demands for heat and electricity. Given that nursing homes are 24 hour operations with significant demand for hot water, they are ideal applications for CHP. It was therefore decided that a CHP system be included as part of the new extension at Bloomfield care centre.

The CHP system that was chosen was the Dachs micro CHP. The Dachs, manufactured by German company SenerTec, is a 5.5kWe CHP unit, with a thermal output of 12.5kW, and an overall efficiency of 88%. However, in Bloomfield, condensing units (or flue gas economisers) were installed so that further heat could be extracted from the flue gases of the gas fired engine within the Dachs system boosting the overall efficiency of the installation.

Two Dachs units were installed and operated in parallel, giving a constant 11kWe of electricity and between 25kWt and 30kWt of heat to Bloomfield Care Centre. The two units feed into a buffer tank which in turn feeds a large hot water cylinder via a heat exchanger, after which it feeds into the heating system.

The hot water cylinder is backed up by a feed from the heating system in the event the CHP units are down for maintenance. (see the schematic below).



Electrical output [kw]	5.5
Thermal output [kw]	12.5
fully condensign [kw]	14.8
Max water flow temperature	83°
Max water return temperature	70°
Voltage / frequency	3~230v/400v 50HZ
Weight	530Kg
Noise	52dBA
Service interval	3,500Hrs
Efficiencies	
Electrical	27%
Thermal	61 - 71%
Overall fuel efficiency	88 - 99%

Dachs G/F:

1: MSR2 (Controller)

2: Generator

3: Engine

4: Flue gas heat exchanger/ silencer

5: Gas multibloc

6: Ignition

7: Gas volume regulator

Main Kitchen & Kosher Kitchen (above)

Laundry Room with Miele Dryers

Boiler Room with Chappee NX4 / 410 Boilers

Suppliers:

C.H.P.
Kinviro Limited
PO Box 20
Greystones.
Co. Wicklow
Tel: 01 443 3825
Fax: 01 484 5952
Web: www.kinviro.ie

Chappee Boilers
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GSDC 3009g1