



DAMARA HOUSE, ST PATRICKS CENTRE

Case Study of Performance of the Eco Life Smart Hybrid Heating Hub, Insulation and Lighting Upgrades

Summary

St Patrick's Centre is located on the Kells Road, Kilkenny. It provides residential care, respite and day services to people with profound and severe intellectual disabilities.

St Patricks Centre are concerned about their energy footprint and are promoting and moving towards a sustainable energy practice.

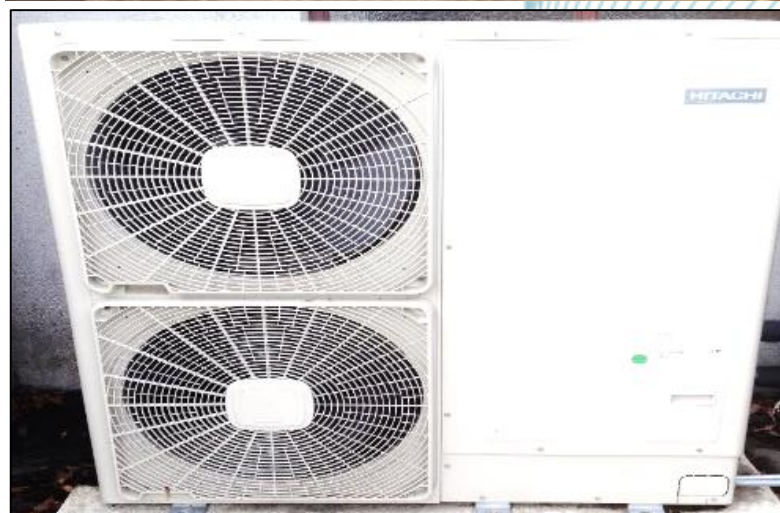
In October 2014, St. Patricks completed energy upgrades in the main buildings on the Kells Road and in the Damara House.

Project Actions

The works completed in Damara House included the following;

- 100mm pumped cavity wall Insulation.
- 300mm attic Insulation.
- Upgraded all lighting to LED's.
- Replaced oil boiler with an Eco life Smart Hybrid Heating System comprising of a 16kW heat pump, 2 x 30kW condensing oil boiler and a 1,000 litre buffer tank and monitoring system

Finance	Internal
Additional funding	SEAI BEC 2014 (50%)
Costs	€31,190
Savings:	€10,217
Payback:	€3.05 years
Overall Savings	58%



Completed Hybrid heating system: Condensing boilers and a heat pump

Measure	Project cost	Annual Cost Savings	% Cost Savings	Simple payback
Insulation Upgrades	€5,675	€800	7%	7 years
Lighting - LEDs	€7,945	€1,400	58%	5.6 years
Eco Life Smart Hybrid Heating Hub	€17,570	€8,017	77%	2.2 years

Completed Measures



High efficiency air source heat pump



Boiler upgrade- 90%+ seasonal efficiency



LED lighting retrofit



300mm+ Attic insulation



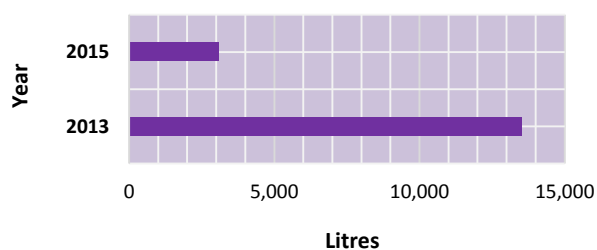
Low u- value pumped wall cavity insulation

Benefits

- Pumped cavity Insulation- 35% of heat losses through the walls of a poorly insulated building. Where possible, pumping the cavity with low u- value insulating material can therefore be cost effective.
- Boiler Upgrade- modern type condensing boiler will achieve a seasonal efficiency of over 90% meaning that for every €1 spent on oil or gas, an equivalent of €0.90+ will be given back in heat as opposed to ~ €0.70 for older type units.
- LED lighting- provides same light output as traditional lighting systems at a fraction of the cost and has long lifespan which reduces maintenance costs.
- Attic insulation- 25% of heat losses through the roof of an uninsulated building. Roof insulation is cheap and easy to install
- Eco life Smart Hybrid Heating Hub- One of the most efficient heating technologies, uses a heat pump and high efficiency boilers to provide hot water and space heating. The system produces hot water on demand through coils that are sized to suit the application and not in a cylinder. This allows for lower operating temperatures since water is not being stored. Eco life through the re-design of the heating system have been able to reduce the flow temperatures into the radiators and this in turn allows the heat pump to run more efficiently by utilising a thermal store (buffer tank). It is therefore for this reason that substantial savings are made.

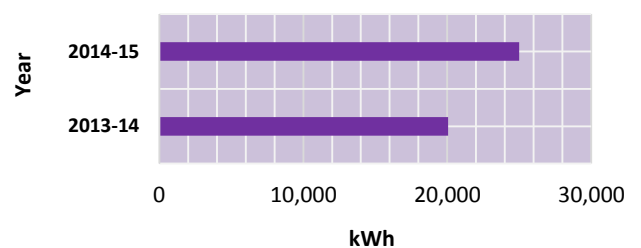
Results...

Oil usage consumption comparison before and after upgrades



Oil usage in 2015 has decreased by 77% in comparison to 2013. This equates to an annual cost saving of €8,017

Electricity consumption comparison before and after upgrades



Electricity usage in 2014/15 has increased by 24% in comparison to the same period in 2013/2014. This equates to an annual cost increase of €594

Getting Involved....

The application process for the 2016 energy efficiency and renewable energy projects has just been launched with a project budget of €18.5 Million. CKEA are working hard to develop another award winning project involving SMEs, local community groups, local authorities and homeowners. For more information on BEC 2016 please contact CKEA.

Email: admin@ckeai.ie Telephone: 056 779 0856