



1A Cranogue Terrace, Poppintree 12, Ballymun by Ballymun Regeneration Ltd

Ballymun Regeneration Ltd (BRL) is the Dublin City Council Company, set up in 1997, to plan and implement a regeneration programme, which will result in a new town with new and improved facilities for the 30,000 people who will live there. BRL is working with the community to develop and implement the masterplan for the physical, economic and social regeneration of Ballymun. The seven fifteen-storey tower blocks, nineteen eight-story blocks and ten four-story blocks of flats will be demolished and replaced by at least 5,000 new homes in a variety of styles and sizes in five existing neighbourhoods. Natural gas is the fuel of choice for Ballymun Regeneration and 1A Cranogue Terrace is no exception.

1A Cranogue Terrace is a two bedroom apartment serving as a prototype for the future of housing in Ballymun. Fitted with the highest quality home heating system, 1A Cranogue Terrace has been constructed to exceed current building regulations and ensure convenient, economical and environmentally friendly space and water heating for years to come.

Building regulations and building energy assessments mean that today it is important to choose a primary fuel supply which can be easily adapted for use with sustainable heating systems. Modern natural gas heating systems are not only highly efficient but can also be easily used in conjunction with other heat recovery and renewable technologies.

Details of the heating system and natural gas features integrated into 1A Cranogue Terrace follow.

Various Contacts:

Compatible Energy System
Ravenheat in association
with **DPS**

Flue Heat Recovery
EnergyCatcher
Ravenheat

Boiler
CSI 120 Low Nox Combi
Ravenheat

Solar Panels
Zen Drainback
Zen Renewables Ireland

Heat Bank
DPS Ltd

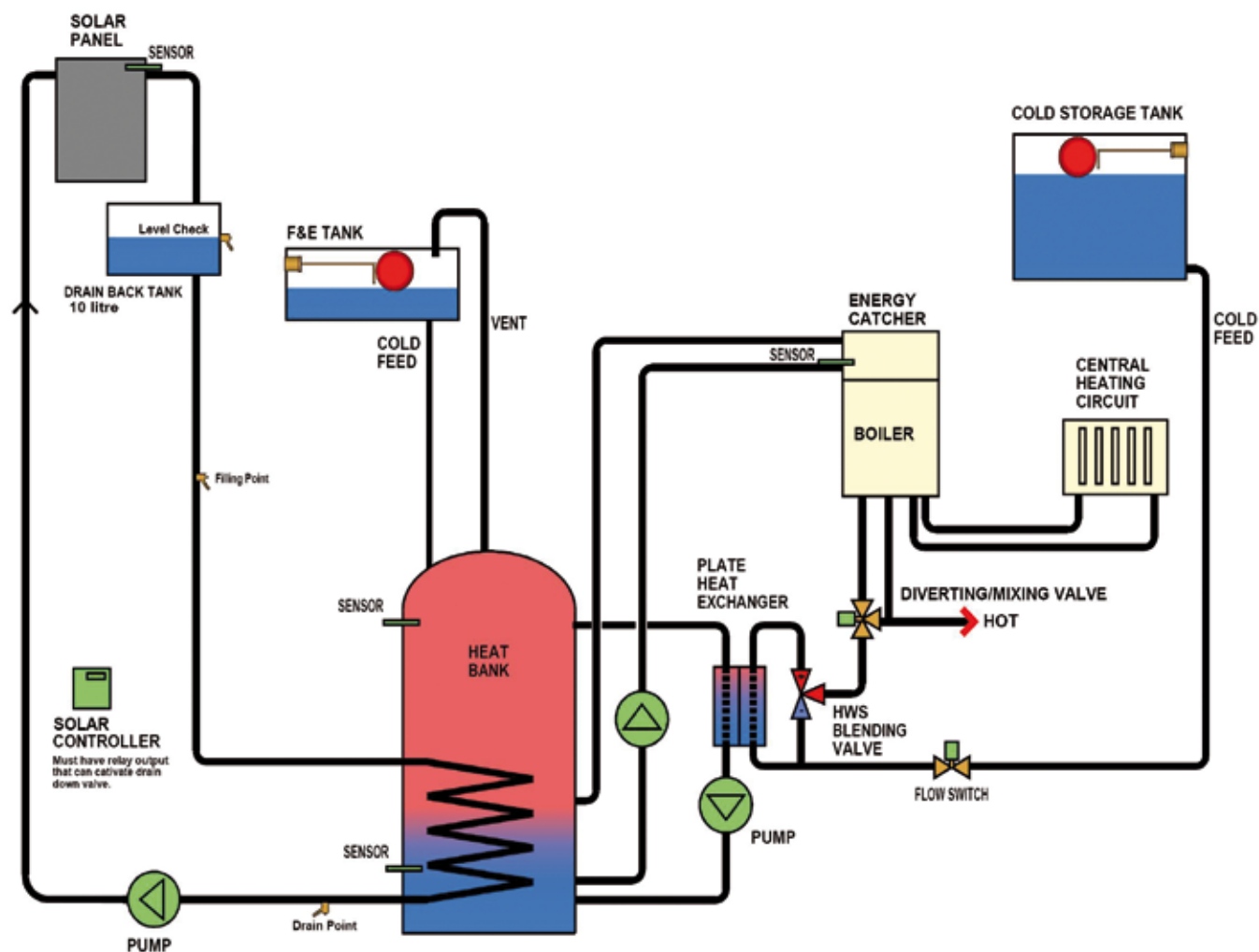


Heating System Layout

The Compatible Energy System by Ravenheat in conjunction with DPS was installed in 1A Cranogue Terrace. This system can be used to easily combine multiple heat sources such as flue heat recovery systems, solar panels, wood burners, and heat pumps with a primary gas fired heating system.

The pre-heat system that 1A Cranogue Terrace employs

uses stored energy to heat up water for domestic use. If the heated water is not quite hot enough for domestic use then it is fed through the combination gas boiler to be topped up to a suitable temperature. This method ensures that a minimum amount of gas is used and the boiler is never used to heat stored water that may be left to go cold, or could otherwise have been heated using a free energy source.



Flue Heat Recovery

1A Cranogue Terrace utilises an innovative heat recovery system to optimise the already impressive efficiency of a modern natural gas condensing boiler.

The Energycatcher is a compact unit that fits onto the Ravenheat CSI 120 and CSI 150 low Nox condensing boilers. The unit integrates on top of the domestic boiler allowing the boiler's flue gases, instead of going straight out through the wall at approximately 60°C, flow over a heat exchanger. The otherwise wasted heat is transferred to the

water in the heat exchanger, which flows by convection into a storage tank reducing the temperature of the flue gases to as low as 23°C.

This system increases boiler efficiency by 5-7% and is compatible to work with renewable technologies. In 1A Cranogue Terrace, gas, the primary fuel supply, is integrated with the Energycatcher and solar panels to create a hybrid environmentally friendly and economical system.

Flue Heat Recovery continued...

Benefits

- ◆ Results in a 5-7% increase in boiler efficiency
- ◆ Minimum carbon saving of 5%
- ◆ Minimum 5% saving on gas bills
- ◆ Energy neutral (requires no electrical connection)
- ◆ No maintenance
- ◆ Compatible to work with solar systems, heat pumps and other renewable technologies
- ◆ Can be used with any SEDBUK Band A condensing gas boiler subject to all round consent.

The Energycatcher has received this years top industry award for innovation from The Society of Gas Industry Awards UK.

The Boiler

The boiler used in 1A Cranogue Terrace was the Ravenheat CSI 120 low NOx high efficiency natural gas condensing boiler.

The CSI 120 Low NOx is a pre mix high efficiency condensing boiler with a domestic hot water flow rate of 13.2 l/m at 35°. It features a fully modulating burner and fan to adapt to a wide variety of heating applications as well as a cylindrical heat exchanger which delivers 90.6% efficiency and has achieved a SEDBUK band A rating. The boiler has an all plastic, push fit flue which comes with a ready fitted clamp on top of the casing which is simply tightened to fix the flue in position. When combined with the Ravenheat Energycatcher the boiler guarantees 95% fuel efficiency and lower NOx and CO₂ emissions. This high efficiency coupled with a 7 day digital timer can add to the existing convenience, financial and environmental benefits of natural gas.

Energycatcher

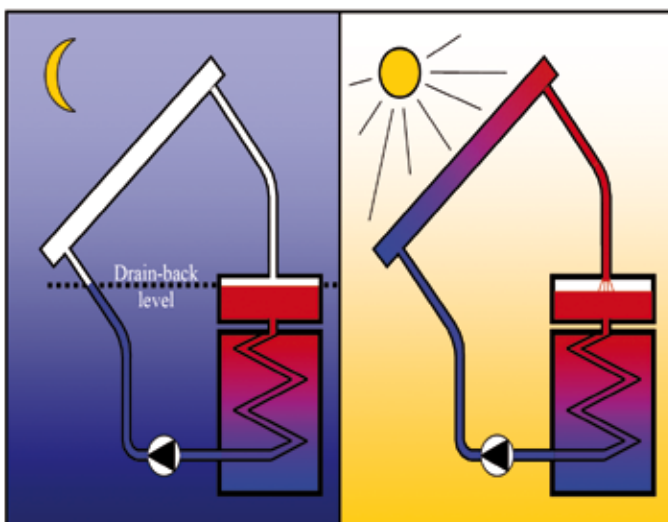
Technical Data:

- ◆ Dimensions: 700mm high x 400mm wide x 300mm deep
- ◆ Electronic ignition
- ◆ The boiler installed at 1A Cranogue Rd offers an output of 120,000 Btu's (25.8kW heating, 32kW DHW)
- ◆ 100mm fan flue top outlet, maximum 8m horizontal or 13m vertical. Alternative flue options up to 43m (twin or 125mm)
- ◆ NOx class 5
- ◆ SEDBUK Rating Band A

CSI 120



Solar Panels



Natural gas has long been established as a cheap, clean, convenient fuel and it is because of this that over 90% of new homes located in natural gas supply areas are connected to natural gas. Natural gas heating systems are easily adaptable to work in conjunction with renewable energy technologies.

The Zen drainback solar solution fitted in 1A Cranogue Terrace, supplied by Zen Renewables, provides a welcome addition to the primary gas fired heating system. Supplying heat for the domestic hot water needs of the house the Zen drainback solar panels satisfy the renewable energy requirement in the 2007 Building Regulations Part L.

Solar Panels continued

The solar panels fitted in 1A Cranogue Terrace are South facing at an angle of 30° giving a roof angle and orientation relative efficiency of 99%. They have an aperture area of 4.2 m² and it is expected that the solar system will cater for approximately 50% of all domestic hot water needs.

Using the drain-back principle the solar collector drains whenever the temperature in the collector falls below a certain temperature or the temperature in the tank exceeds a certain temperature. This safety mechanism prevents a reverse heat flow causing losses in the system and prevents the collector from overheating or freezing. The advantage

to this system is that no chemicals such as anti-freeze or anti-corrosion inhibitors are added to the primary collector circuit.

Zen Renewables received the Product of the Show 2008 Award at the Irish Sustainable Building Show.

Technical Data:

- ◆ Life expectancy 25-30 years
- ◆ No chemicals
- ◆ No maintenance

Thermal Store

The Dublin Heat Bank has been designed to meet local authority requirements for a hot water system that is more efficient and cheaper to run than current installations. A Heat Bank is an advanced thermal store that stores heat energy which can be utilised to provide domestic hot water.

Multiple heat sources such as flue gas heat recovery, solar panels, wood burners and heat pumps can be used to heat the heat bank which in turn uses a plate heat exchanger to heat mains water or water from the cold storage tank to satisfy the domestic hot water requirements of the house.

The Dublin Heat Bank allows easy integration of multiple renewable and heat recovery technologies with a gas fired primary heating system.

Technical Data:

- ◆ Pre-plumbed and wired controls
- ◆ Silent operation
- ◆ Combines multiple heat sources
- ◆ Protection from legionnaire's disease
- ◆ No requirement for an overflow
- ◆ Large range of user specified options
- ◆ Hot water supply temperature of 35-65°C User Set
- ◆ Heat exchanger max output: 100kW (160kW & 320kW available)



Disclaimer

This information is only a guideline to the different products available for use with natural gas in new development construction. Users should ensure that products are suitable for the specific circumstances in which they seek to apply them. Contact the supplier or manufacturer directly for specific information on building requirements and materials needed for installation. Professional advice specific to the project should always be sought. The current Irish Gas Standards and Technical Guidance Documents (Building Regulations) override all contents. Users should ensure they always have the most up to date information.

Contacts:

Flue Heat Recovery
EnergyCatcher

Boiler
CSI 120 Low Nox Combi

Solar Panels
Zen Drainback

Thermal Store
Dublin Heat Bank

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