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Gas Networks Ireland

Case Study

‘A’ Rated homes with natural gas

Sustainable and energy efficient with low running costs.

Located at Fox Wood, Waterford, this development easily meets all Part L requirements using natural gas combined with affordable, renewable technology.

Fox Wood Development, Kilbarry, Co. Waterford

Gas Boiler/ Photovoltaic (PV) Panel System:

- Has low running costs for the homeowner
- A cost effective solution to meeting Part L
- PV is a plug and play system
- Is easy to operate and maintain
- Tried and tested gas boiler
- Highly efficient renewable technology
- A2 rated homes

Natural Gas

Commitment to continuous improvement

Frisby Homes have been at the forefront of quality house building in Waterford for over 35 years. Fox Wood is Frisby’s latest project in Waterford, combining the very latest Building Standards with quality construction. The development is ideally located minutes from a host of attractions and local amenities.

By investing in highly efficient gas boilers complete with renewable technologies and very high standards of building fabric, Frisby Homes have constructed sustainable, comfortable and energy efficient new homes using natural gas and photovoltaic (PV) panels.

Homes at Fox Wood phase two boast an A2 BER Rating which contributes to significantly lower running costs.

“When prospective homeowners discover the houses have natural gas, there are never any questions about the heating system.”

James Frisby, Frisby Homes

92% efficient boiler

Ariston Clas HE gas boiler operates at 92% efficiency. This highly efficient boiler has zone control for 3 heating zones and works in combination with a weather compensator.

5 high efficiency solar photovoltaic panels

Photovoltaic systems convert solar radiation into free electricity. This kind of panel works all year round not just on sunny days.

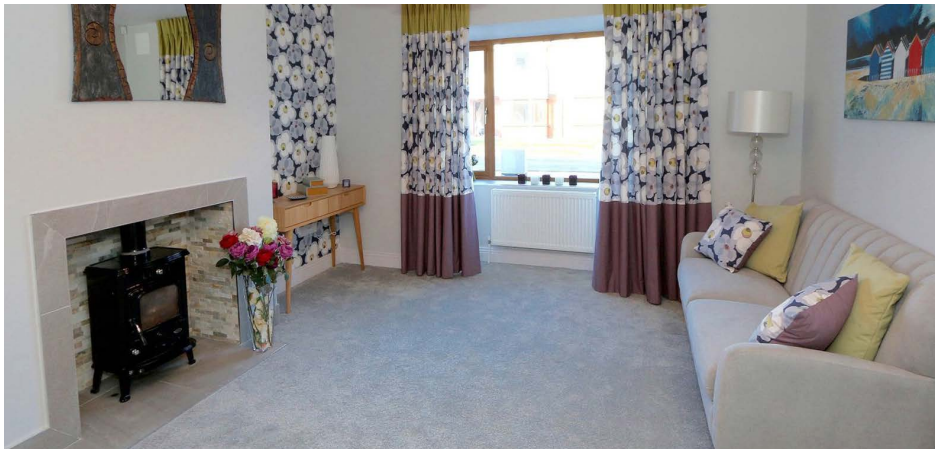
95 litre stainless steel water cylinder

A 95 litre water cylinder with high levels of insulation makes this one of the most economical systems on the market.

System Features

- **92% efficient boiler and weather compensator**
- **5 solar PV panels**
- **95 litre stainless steel cylinder**
- **High levels of insulation with double glazed argon filled windows**

Fox Wood meets all Part L requirements using natural gas



The following input values are used in this example

Building Fabric: Compliant with U-Value Requirements

Floor: 125mm of PIR insulation	U-Value of 0.138 W/m^2.K
Walls: 360mm Cavity 100mm XT/CWP	U-Value of 0.17 W/m^2.K
Roof: 400mm of Rock wool	U-Value of 0.11 W/m^2.K
Windows: Double-glazed windows	U-Value of 1.40 W/m^2.K

Heating System: ≥90% efficient boiler

Main Heating System

92% efficient gas fired condensing boiler with standard size radiators. This means the heating system is installed using traditional elements, so there is no need for the use of expensive aluminium radiators.

Heating Controls and Water Storage

Time and temperature zone controls are achieved by a simple time-clock and thermostats within the system. This in conjunction with a 95 litre stainless steel water cylinder, including insulation of 30mm thickness, makes this solution one of the most economical systems on the market.

Secondary Heating System

The 6kW fuel burning stove is a great focal point in the living room.

Ventilation: Natural Ventilation throughout the house

The double glazed, argon filled, passive house standard windows further reduce heat loss and all wet rooms include a simple extract fan. Current air tightness testing method determined air filtration to be just over 0.19 air changes per hour of floor area. This is accomplished using 'A' rated tapes and sealants, therefore eliminating draughts and heat loss.

Renewable Energy Contribution: ≥10 kWh Thermal Renewable Energy per metre squared per year

The houses on this development require 5 solar PV 280W panels.
Fox Wood easily complies with the thermal renewable energy contribution requirement of 10 kWh per metre squared per year with a thermal equivalent of 28.54 kWh per metre squared per year.

Performance Coefficients:

Carbon Performance Coefficient (CPC) <0.46 [0.282]
Energy Performance Coefficient (EPC) <0.4 [0.315]

Natural gas as the primary heating system combined with PV panels comfortably meets Part L Building Requirements for EPC <0.4 and CPC <0.46.
In this development values of 0.282 for CPC and 0.315 for EPC were achieved.

What is Photovoltaic Technology?

Photovoltaic (PV) panels generate electrical power by converting solar radiation into free electricity. The photovoltaic system provided by Construction PV consists of solar panels collecting light energy from the sun that is then converted to supply electricity to the home. The solar panels are modular in their approach and can be either integrated into or mounted on the roof.

Free energy

The solar energy provided by PV panels is free energy. This free energy contributes to the running of electrical appliances in the house and therefore reduces the homeowner's electricity bill. Excess PV energy can also be diverted to the hot water tank thereby reducing overall running cost.

Meets Part L compliance easily

The combination of natural gas, renewable technology and high standards of insulation means this development surpasses all of the Part L Building Regulation requirements in using a cost effective approach. With natural gas, homeowners are guaranteed a fully proven 'A' rated solution.

Natural Gas – A unique selling point:

For the builder

A house with natural gas is a home. It is instantaneous, easy to control and versatile. When the levels of insulation used are combined with natural gas and PV panels, the Fox Wood homeowner has a complete system that is on a par with the most economical solutions available. A modern solution for a modern home.

For the homeowner

Owners of these homes will be able to come in, switch the heating on and enjoy instant and controllable space heating and hot water. This energy solution is cost effective, clean, efficient and user- friendly which is exactly what homeowners want.

"You can heat your home for less than €1 per day . . . With high efficiency gas boilers, high levels of insulation and air tightness, ideal levels of comfort are maintained."

James Frisby, Frisby Homes

Insulation

Higher levels of insulation ensures greater thermal comfort and lower bills.

Windows and air tightness

Double glazed argon filled windows.

'A' Rated Air Tightness Tapes and Sealants are installed around all windows, doors and openings, eliminating draughts and heat loss.

Weather Compensator

A weather compensator is a device or feature which adjusts the temperature of the water circulating through the heating system according to the temperature measured inside the building.

"Our passion has always been to provide the best possible product. Our commitment to continuous improvement has kept customers and generations of families returning to buy their homes from us. We have a team of loyal staff and tradesmen that are all passionate about low energy and airtight homes."

James Frisby, Frisby Homes

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