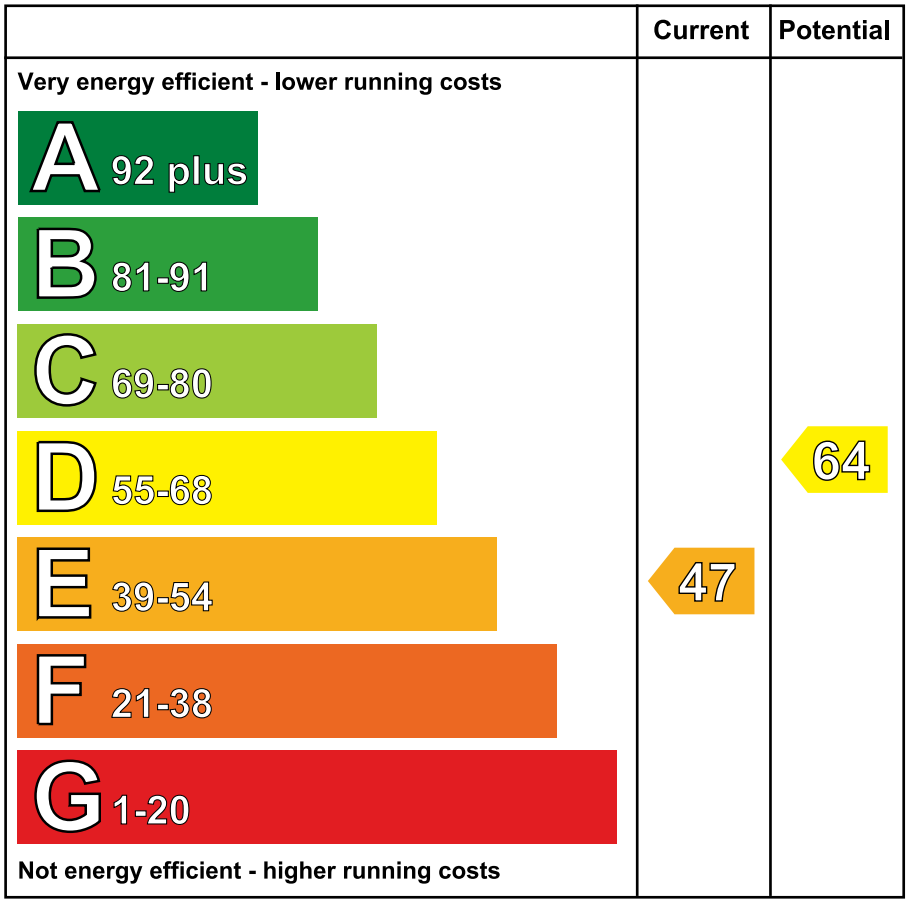
Energy Performance Certificate

Northern Ireland

7, Knockagh Road
LISBURN
BT28 1UR

Date of assessment:	13 October 2014
Date of certificate:	13 October 2014
Reference number:	9865-2997-0604-9394-8351
Type of assessment:	RdSAP, existing dwelling
Accreditation scheme:	Stroma Certification
Assessor's name:	Mr Jim Rennicks DEA
Assessor's accreditation number:	STRO010754
Employer/Trading name:	Jim Rennicks
Employer/Trading address:	5 Hawthornden Lodge, Belfast, Co Antrim, BT4 3PG
Related party disclosure:	No related party

Energy Efficiency Rating



Technical Information

Main heating type and fuel:	Boiler and radiators, oil
Total floor area:	94 m²
Primary energy use:	310 kWh/m² per year
Approximate CO_2 emissions:	75 kg/m² per year
Dwelling type:	Semi-detached house

Benchmarks

Average for Northern Ireland: D57

The primary energy use and CO_2 emissions are per square metre of floor area based on fuel use for the heating, ventilation, hot water and lighting systems. The rating can be compared to the benchmark of the average energy efficiency rating for the housing stock in Northern Ireland.

Estimated energy use, carbon dioxide (CO_2) emissions and fuel costs of this home

	Current	Potential
Primary energy use	310 kWh/m² per year	208 kWh/m² per year
Carbon dioxide emissions	7.0 tonnes per year	4.7 tonnes per year
Lighting	£92 per year	£57 per year
Heating	£1,108 per year	£778 per year
Hot water	£384 per year	£224 per year

The figures in the table above have been provided to enable prospective buyers and tenants to compare the fuel costs and carbon emissions of one home with another. To enable this comparison the figures have been calculated using standardised running conditions (heating periods, room temperatures, etc.) that are the same for all homes, consequently they are unlikely to match an occupier's actual fuel bills and carbon emissions in practice. The figures do not include the impacts of the fuels used for cooking or running appliances, such as TV, fridge etc.; nor do they reflect the costs associated with service, maintenance or safety inspections. Always check the certificate date because fuel prices can change over time and energy saving recommendations will evolve.

To see how this home can achieve its potential rating please see the recommended measures.

About this document and the data in it

The Energy Performance Certificate for this dwelling was produced following an energy assessment undertaken by a qualified assessor, accredited by Stroma Certification, to a scheme authorised by the Government. This certificate was produced using the RdSAP 2012 assessment methodology and has been produced under the Energy Performance of Buildings (Certificates and Inspections) Regulations (Northern Ireland) 2008 (as amended). A copy of the certificate has been lodged on a national register. It will be publicly available and some of the underlying data may be shared with others for the purposes of research and compliance. The current property owner and/or tenant may opt out of having this information disclosed.

If you have a complaint or wish to confirm that the certificate is genuine

Details of the assessor and the relevant accreditation scheme are on the preceding page. You can get contact details of the accreditation scheme from their website at www.stroma.com together with details of their procedures for confirming authenticity of a certificate and for making a complaint.

About the building's performance ratings

The ratings provide a measure of the building's overall energy efficiency and its environmental impact, calculated in accordance with a national methodology that takes into account factors such as insulation, heating and hot water systems, ventilation and fuels used. The average Energy Efficiency Rating for a dwelling in Northern Ireland is band D (rating 57).

Not all buildings are used in the same way, so energy ratings use 'standard occupancy' assumptions which may be different from the specific way you use your home. Different methods of calculation are used for homes and for other buildings. Details can be found at www.finance-ni.gov.uk

Buildings that are more energy efficient use less energy, save money and help protect the environment. A building with a rating of 100 would cost almost nothing to heat and light and would cause almost no carbon emissions. The potential ratings describe how close this building could get to 100 if all the cost effective recommended improvements were implemented.



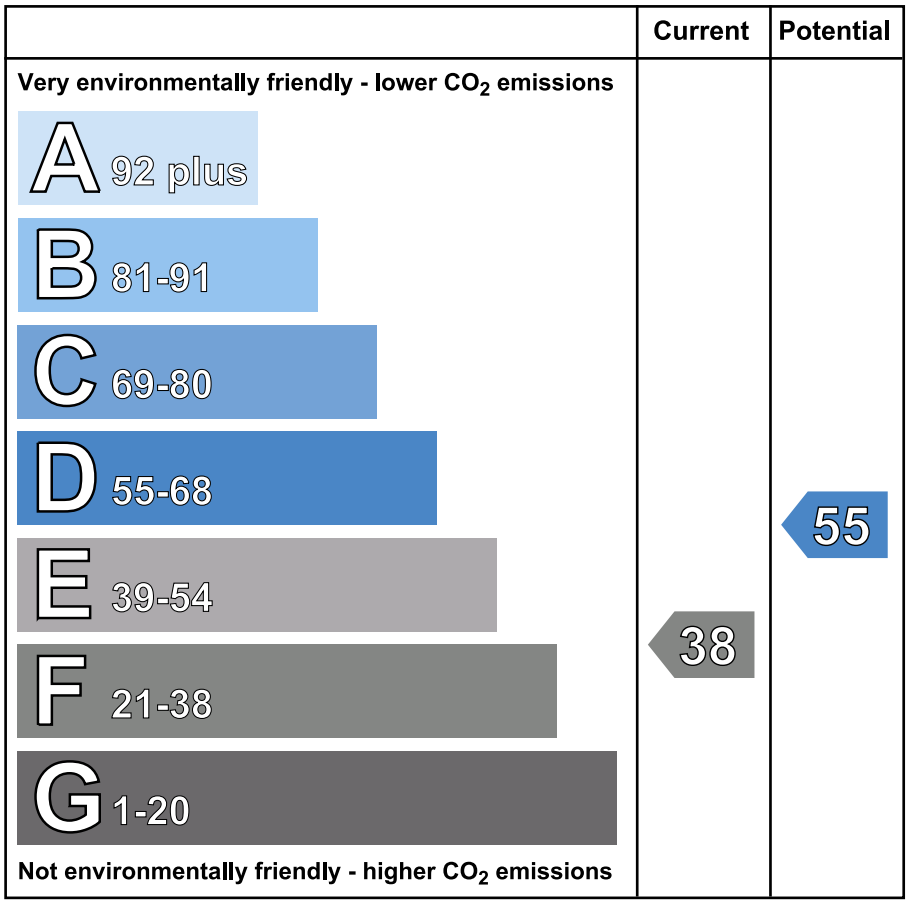
For further advice on home energy efficiency please see **www.nidirect.gov.uk/energy-wise**

About the impact of buildings on the environment

One of the biggest contributors to global warming is carbon dioxide. The way we use energy in buildings causes emissions of carbon. The energy we use for heating, lighting and power in homes produces over a quarter of the UK's carbon dioxide emissions and other buildings produce a further one-sixth.

The average household causes about 6 tonnes of carbon dioxide every year. Adopting the recommendations in this report can reduce emissions and protect the environment. You could reduce emissions even more by switching to renewable energy sources. In addition there are many simple everyday measures that will save money, improve comfort and reduce the impact on the environment. Some examples are given at the end of this report.

Environmental Impact (CO_2) Rating



Visit the Department of Finance website at www.finance-ni.gov.uk to:

- Learn more about the national register where this certificate has been lodged
- Learn more about energy efficiency and reducing energy consumption

Further information about Energy Performance Certificates can be found under Frequently Asked Questions at www.finance-ni.gov.uk and at www.niepcregister.com

Recommended measures to improve this home's energy performance

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Summary of this home's energy performance related features

The table below gives an assessment of the key individual elements that have an impact on this home's energy and environmental performance. Each element is assessed by the national calculation methodology; 1 star means least efficient and 5 stars means most efficient. The assessment does not take into consideration the physical condition of any element. 'Assumed' means that the insulation could not be inspected and an assumption has been made in the methodology based on age and type of construction.

Element	Description	Current performance	
		Energy Efficiency	Environmental
Walls	Cavity wall, filled cavity	★★★★☆	★★★★☆
Roof	Pitched, 75 mm loft insulation	★★★☆☆	★★★☆☆
	Flat, no insulation (assumed)	★☆☆☆☆	★☆☆☆☆
Floor	Solid, no insulation (assumed)	—	—
Windows	Fully double glazed	★★★☆☆	★★★☆☆
Main heating	Boiler and radiators, oil	★★★☆☆	★★★☆☆
Main heating controls	Programmer, no room thermostat	★☆☆☆☆	★☆☆☆☆
Secondary heating	Room heaters, electric	—	—
Hot water	From main system, no cylinder thermostat	★★☆☆☆	★★☆☆☆
Lighting	Low energy lighting in 38% of fixed outlets	★★★☆☆	★★★☆☆
Current energy efficiency rating		E 47	
Current environmental impact (CO_2) rating			F 38

Low and zero carbon energy sources

None

Recommendations

The measures below are cost effective. The performance ratings after improvement listed below are cumulative, that is they assume the improvements have been installed in the order that they appear in the table. The indicative costs are representative for most properties but may not apply in a particular case.

Lower cost measures	Indicative cost	Typical savings per year	Ratings after improvement	
			Energy efficiency	Environmental impact
1 Increase loft insulation to 270 mm	£100 - £350	£62	E 49	E 40
3 Increase hot water cylinder insulation	£15 - £30	£51	E 51	E 41
4 Low energy lighting for all fixed outlets	£40	£26	E 52	E 42
5 Hot water cylinder thermostat	£200 - £400	£44	E 53	E 43
6 Upgrade heating controls	£350 - £450	£214	D 60	E 50
Sub-total		£397		
Higher cost measures				
2 Floor Insulation	£800 - £1,200	£101	D 63	E 54
9 High performance external doors	£500	£30	D 64	D 55
Total		£527		
Potential energy efficiency rating			D 64	
Potential environmental impact (CO_2) rating				D 55

Further measures to achieve even higher standards

The further measures listed below should be considered in addition to those already specified if aiming for the highest possible standards for this home. Some of these measures may be cost-effective when other building work is being carried out such as an alteration, extension or repair. Also they may become cost-effective in the future depending on changes in technology costs and fuel prices. However you should check the conditions in any covenants, warranties or sale contracts, and whether any legal permissions are required such as building regulations, planning consent or listed building restrictions.

7 Change heating to gas condensing boiler	£3,000 - £7,000	£192	C 70	C 71
8 Solar water heating	£4,000 - £6,000	£74	D 67	D 58
10 Solar photovoltaic panels, 2.5 kWp	£9,000 - £14,000	£233	C 80	C 80
Enhanced energy efficiency rating			C 80	
Enhanced environmental impact (CO_2) rating				C 80

Improvements to the energy efficiency and environmental impact ratings will usually be in step with each other. However, they can sometimes diverge because reduced energy costs are not always accompanied by reduced carbon dioxide emissions.

About the cost effective measures to improve this home's performance ratings

Building regulations apply to most measures. Building regulations approval and planning consent may be required for some measures. If you are a tenant, before undertaking any work you should check the terms of your lease and obtain approval from your landlord if the lease either requires it, or makes no express provision for such work. Also check with Energywise or your local council to see if any grants are available.

Lower cost measures

These measures are relatively inexpensive to install and are worth tackling first. The indicative costs of measures included earlier in this EPC include the costs of professional installation in most cases. Some of them may be installed as DIY projects. DIY is not always straightforward, and sometimes there are health and safety risks, so take advice before carrying out DIY improvements.

1 Loft insulation

Loft insulation laid in the loft space or between roof rafters to a depth of at least 270 mm will significantly reduce heat loss through the roof; this will improve levels of comfort, reduce energy use and lower fuel bills. Insulation should not be placed below any cold water storage tank; any such tank should also be insulated on its sides and top, and there should be boarding on battens over the insulation to provide safe access between the loft hatch and the cold water tank. The insulation can be installed by professional contractors but also by a capable DIY enthusiast. Loose granules may be used instead of insulation quilt; this form of loft insulation can be blown into place and can be useful where access is difficult. The loft space must have adequate ventilation to prevent dampness; seek advice about this if unsure (particularly if installing insulation between rafters because a vapour control layer and ventilation above the insulation are required). Further information about loft insulation and details of local contractors can be obtained from the National Insulation Association (www.nationalinsulationassociation.org.uk).

3 Hot water cylinder insulation

Increasing the thickness of existing insulation around the hot water cylinder will help to maintain the water at the required temperature; this will reduce the amount of energy used and lower fuel bills. An additional cylinder jacket or other suitable insulation layer can be used. The insulation should be fitted over any thermostat clamped to the cylinder. Hot water pipes from the hot water cylinder should also be insulated, using pre-formed pipe insulation of up to 50 mm thickness (or to suit the space available) for as far as they can be accessed to reduce losses in summer. All these materials can be purchased from DIY stores and installed by a competent DIY enthusiast.

4 Low energy lighting

Replacement of traditional light bulbs with energy saving recommended ones will reduce lighting costs over the lifetime of the bulb, and they last up to 12 times longer than ordinary light bulbs. Also consider selecting low energy light fittings when redecorating; contact the Lighting Association for your nearest stockist of Domestic Energy Efficient Lighting Scheme fittings.

5 Cylinder thermostat

A hot water cylinder thermostat enables the boiler to switch off when the water in the cylinder reaches the required temperature; this minimises the amount of energy that is used and lowers fuel bills. The thermostat is a temperature sensor that sends a signal to the boiler when the required temperature is reached. To be fully effective it needs to be sited in the correct position and hard wired in place, so it should be installed by a competent plumber or heating engineer.

6 Heating controls (room thermostat and thermostatic radiator valves)

A room thermostat will increase the efficiency of the heating system by enabling the boiler to switch off when no heat is required; this will reduce the amount of energy used and lower fuel bills. Thermostatic radiator valves should also be installed, to allow the temperature of each room to be controlled to suit individual needs, adding to comfort and reducing heating bills provided internal doors are kept closed. For example, they can be set to be warmer in the living room and bathroom than in the bedrooms. Ask a competent heating engineer to install thermostatic radiator valves and a fully pumped system with the pump and the boiler turned off by the room thermostat. Thermostatic radiator valves should be fitted to every radiator except for the radiator in the same room as the room thermostat. Remember the room thermostat is needed as well as the thermostatic radiator valves, to enable the boiler to switch off when no heat is required. It is best to obtain advice from a qualified heating engineer.

Higher cost measures

2

9 High performance external doors
High performance external doors contain insulation and lose heat at about half the rate of conventional external doors.

About the further measures to achieve even higher standards

Further measures that could deliver even higher standards for this home. You should check the conditions in any covenants, planning conditions, warranties or sale contracts before undertaking any of these measures.

Building regulations apply to most measures. Building regulations approval and planning consent may be required for some measures. If you are a tenant, before undertaking any work you should check the terms of your lease and obtain approval from your landlord if the lease either requires it, or makes no express provision for such work. Also check with Energywise or your local council to see if any grants are available.

7 Gas condensing boiler
Changing the heating to use a mains gas boiler that provides both space and water heating will save money, as mains gas is currently cheaper than the fuel being used at present. A condensing boiler is capable of much higher efficiencies than other types of boiler, meaning it will burn less fuel to heat the property, but there may be exceptional circumstances making this impractical. Condensing boilers need a drain for the condensate which limits their location; remember this when considering remodelling the room containing the existing boiler even if the latter is to be retained for the time being (for example a kitchen makeover). This improvement is most appropriate when the existing heating system needs repair or replacement. It is best to obtain advice from a qualified heating engineer. Ask the engineer to explain the options.

8 Solar water heating
A solar water heating panel, usually fixed to the roof, uses the sun to pre-heat the hot water supply. This will significantly reduce the demand on the heating system to provide hot water and hence save fuel and money. The Solar Trade Association has up-to-date information on local installers.

10 Solar photovoltaic (PV) panels
A solar PV system is one which converts light directly into electricity via panels placed on the roof with no waste and no emissions. This electricity is used throughout the home in the same way as the electricity purchased from an energy supplier. The British Photovoltaic Association has up-to-date information on local installers who are qualified electricians. It is best to obtain advice from a qualified electrician. Ask the electrician to explain the options.

What can I do today?

Actions that will save money and reduce the impact of your home on the environment include:

- Ensure that you understand the dwelling and how its energy systems are intended to work so as to obtain the maximum benefit in terms of reducing energy use and CO_2 emissions.
- Check that your heating system thermostat is not set too high (in a home, 21°C in the living room is suggested) and use the timer to ensure you only heat the building when necessary.
- Make sure your hot water is not too hot - a cylinder thermostat need not normally be higher than 60°C.
- Turn off lights when not needed and do not leave appliances on standby. Remember not to leave chargers (e.g. for mobile phones) turned on when you are not using them.
- Close your curtains at night to reduce heat escaping through the windows.
- If you're not filling up the washing machine, tumble dryer or dishwasher, use the half-load or economy programme. Minimise the use of tumble dryers and dry clothes outdoors where possible.
- Check the draught-proofing of windows and replace it if appropriate.
- If you have unused open chimneys consider blocking them off (making provision for a ventilation opening and a cowl on top of the chimney to avoid dampness).