CONCERTED ACTION
ENERGY PERFORMANCE OF BUILDINGS

EPBD implementation in the United Kingdom - Northern Ireland

Status in December 2016

AUTHORS

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NATIONAL WEBSITES

www.finance-ni.gov.uk/topics/building-regulations-and-energy-efficiency-buildings

1. Introduction

This report provides information about the implementation of the EPBD in Northern Ireland. It updates the previous reports published in 2010, 2012 and 2016. The implementation of the EPBD in the other three UK jurisdictions (England, Wales and Scotland) is addressed in separate reports.

The implementation of the EPBD in Northern Ireland is the responsibility of the Department of Finance (DoF) and is implemented through the Building Regulations[1] and the Energy Performance of Buildings Regulations[2].

DoF relies heavily on research and development from other UK jurisdictions (principally England) in the development of its Regulations and technical guidance. This report introduces the most recent requirements. It addresses certification and inspection, the training of Energy Assessors, information campaigns, incentives and subsidies. For more details, visit the website[3].

2. Current Status of Implementation of the EPBD

2.I. Energy performance requirements: NEW BUILDINGS

2.I.i. Progress and current status

Northern Ireland implements the EPBD energy performance requirements through Part F "Conservation of Fuel and Power" of the Building Regulations. Amendments to Part F in 2012 followed England's Regulations and guidance and implemented a performance uplift of 25% on previous standards (Figures 1 and 2). Minor

amendments were introduced in 2014 and 2016 to comply with, or to help clarify, other EPBD requirements.

Changes to Building Regulations will be required to meet 2018 and 2020 NZEB requirements, and to follow England's 2016 zero carbon target. To this end, DoF is updating technical guidance to mirror the English Regulations.

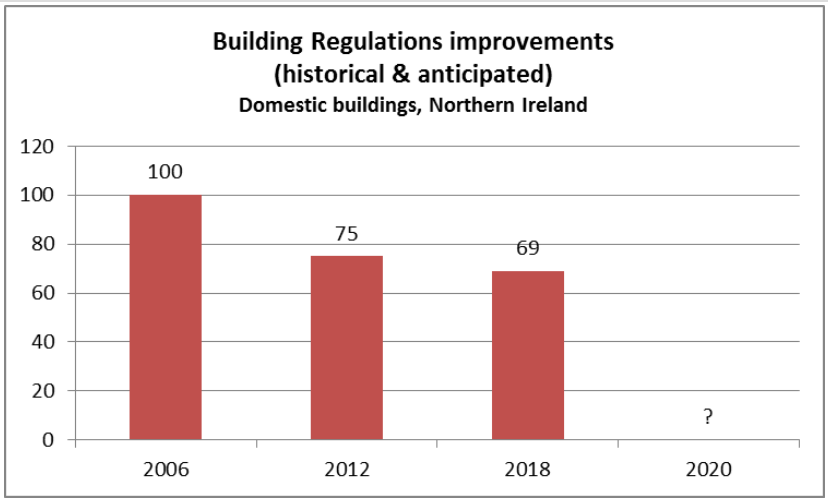

Figure 1. New residential Building Regulations improvements, Northern Ireland.

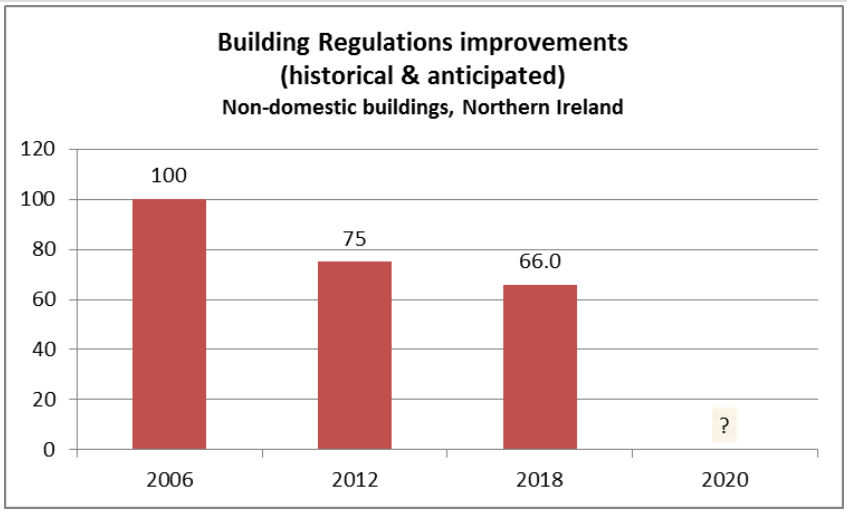

Figure 2. New non-residential Building Regulations improvements, Northern Ireland.

2.I.ii. Format of national transposition and implementation of existing regulations

Technical Booklets F1[4] and F2[5] (Figure 3) support the implementation of the Building Regulations Part F. The booklets include references to best practice guides such as Eurocodes (EN). Five criteria are set for new residential units and non-residential buildings (Table 1):

Criteria	Definitions
1	Ensure the calculated Building CO_2 Emission Rate does not exceed the Target Emission Rate.
2	Meet minimum acceptable standards, including minimum fabric, air permeability, and building services efficiencies standards.
3	Limit the effects of summer solar gains. This references industry best practice e.g. CIBSE TM37 "Design for improved solar shading control".
4	Ensuring quality of construction and commissioning: building envelope, air permeability, commissioning building services and, in non-residential buildings, air leakage testing of ductwork.
5	Provide instructions for energy efficient building operation and maintenance.

Table 1. Requirements for new buildings[6] and certain large extensions to non-residential buildings, Northern Ireland.

The National Calculation Methodology (NCM) implements these criteria. For residential units, the Standard Assessment Procedure (SAP 2009) is used, and for non-residential buildings the Simplified Building Energy Model (SBEM V4.1) or approved Dynamic Simulation Models (DSMs) are used. Both residential and non-residential methodologies use predicted energy consumption and provide an Asset Rating for EPCs on construction, sale and rent.

The use of Accredited Construction Details (ACDs) is permitted. The English ACDs have been adopted in Northern Ireland. Figure 4 gives an example. Airtightness testing is required for most residential and non-residential developments with some exemptions.

Building Regulations applications are submitted to local District Councils for checking and enforcement. Building Control Officers check compliance, which includes site inspections, and they have the power to take enforcement action.

Figure 3. Technical Booklets F1 & F2, Conservation of fuel and power in dwellings & buildings other than dwellings.

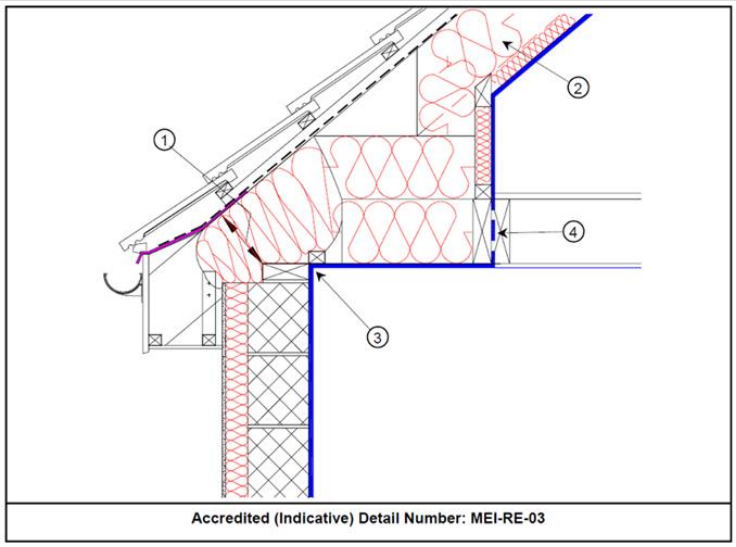

Figure 4. Illustration from ACD for Pitched Roof. Extracted from ACDs for Masonry External Wall Insulation.

Cost optimal procedure for setting energy performance requirements

A UK-wide cost-optimal report, which addresses Northern Ireland, was published in May 2013. See England report for details.

2.I.iii. Action plan for progression to NZEB

The UK national plan titled "Increasing the number of Nearly Zero-Energy Buildings" covers all four UK jurisdictions: England, Wales, Northern Ireland and Scotland. See England report for details.

NZEB statistics are not maintained in Northern Ireland. The following records of EPC A/A+ rated buildings provide an alternative proxy for high performance buildings.

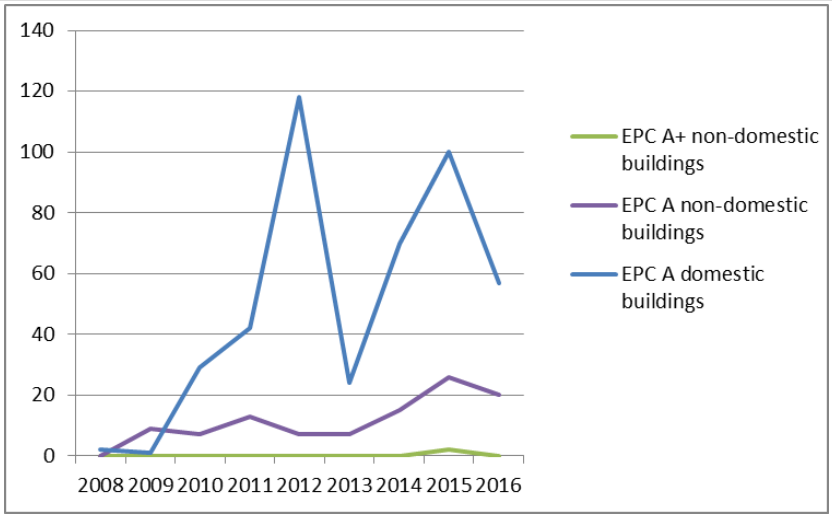

Figure 5. Historical EPCs classes A and A+, Northern Ireland.

2.I.iv. Requirements for systems and / or building components

Northern Ireland adopted England's 2010 "Domestic and Non-domestic Building Services Compliance Guides" to recommend minimum energy efficiency standards. See England report for details.

The commissioning of technical building systems is addressed in the Technical Booklets and the Building Services Compliance Guides. They require commissioning to be done in accordance with industry guidance, e.g., the Chartered Institution's of Building Services Engineers (CIBSE)[7] Commissioning Code M: Commissioning management.

2.II. Energy performance requirements: EXISTING BUILDINGS

The 2014 UK National Energy Efficiency Action Plan (NEEAP)[8] gives a statistical overview of the UK building stock. See England report for details.

The UK has 27 million homes, of which 0.77 million are in Northern Ireland. Figure 6 shows the distribution of about 406,000 residential EPCs. There are over 1.8 million non-residential premises in the UK, of which 73,000 are in Northern Ireland. Figure 7 shows the distribution of about 13,000 non-residential EPCs. EPCs are required under specific circumstances only, so Figures 6 and 7 are not representative of the whole Northern Ireland building stock.

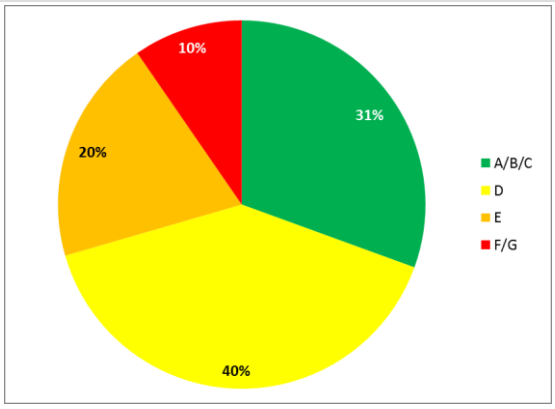

Figure 6. Distribution of residential EPCs (Northern Ireland) to February 2017.

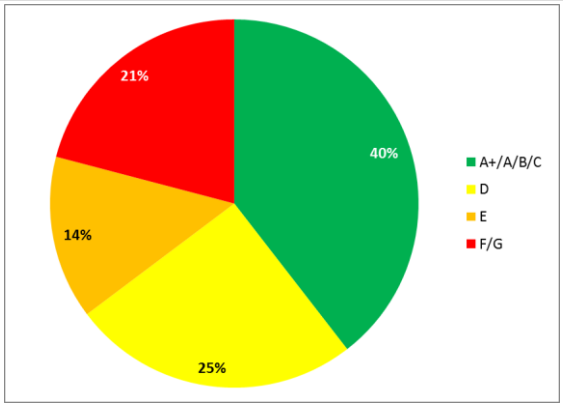

Figure 7. Distribution of non-residential EPCs (Northern Ireland) to February 2017.

2.II.i. Progress and current status of existing buildings

Similarly to England, an elemental approach has been adopted for existing buildings. See England report for details. Under certain circumstances (i.e. buildings >1,000 m^2, where the habitable area is extended, or where fixed building services are installed for the first time, or their capacity is increased) additional energy efficiency measures (i.e. "consequential improvements") must be undertaken[9].

2.II.ii. Plans to improve the existing building stock

The UK National Energy Efficiency Action Plan includes a Building Renovation Strategy in compliance with EED Article 4. The Northern Ireland policies and programmes to deliver this strategy include:

- the "Northern Ireland's Strategic Energy Framework" (2010);
- the "Affordable Warmth and Boiler Replacement Schemes" supporting energy efficiency improvements in fuel-poor households;
- the "Northern Ireland Sustainable Energy Programme" (NISEP), providing grants for energy efficiency and renewable energy for residential and non-residential buildings.

In addition:

- Northern Ireland is developing proposals to provide financial support for energy efficiency improvements. Subject to approvals, this scheme is expected to be launched in 2018.
- DoF is consulting on proposed Rates Relief measures to encourage highly efficient new residential buildings exceeding current building regulations standards and with a view to forthcoming NZEB requirements.
- The Department for Communities is consulting on proposed measures to mirror England's Private Rental Sector Regulations in relation to residential buildings rental.
- "Invest NI" funds the Carbon Trust to deliver the Energy Efficiency Loan Fund. This provides interest-free energy efficiency loans from £3,000 (~3,480 €) to £400,000 (~464,000 €) to Northern Ireland businesses. The size of loans depends on the energy savings potential of particular projects, with loan repayments aligned with the anticipated energy savings. Typically, loans are repaid within 3 to 4 years.
- In relation to Article 5 of the EED, the UK decided to implement the alternative approach allowed by Article 5(6). See England report for details. In Northern Ireland, Energy Efficiency Plans for the Government Office Estate, covering the periods 2011/2014 and 2014/2017 targeted energy savings of 10% and 5% respectively. The Plans focused on three areas: reduction in the footprint of the estate, capital investments in energy efficiency, and behavioural change. A new three-year Plan will be implemented for the period 2017/2019.

2.II.iii. Regulation of system performance, distinct from whole building performance

An approach similar to England was adopted. See England report and Technical Booklets for details. The local District Council (the enforcement authority) must be notified on completion of commissioning so that a Building Regulations Completion Certificate may be issued.

2.II.iv. Encouragement of intelligent metering

An approach similar to England was adopted. See England report and Technical Booklets for details. Technical Booklet F2 (non-residential buildings) references industry best practice[10].

The UK Government aims for all homes to be offered to have smart meters by the end of 2020. A policy decision has not yet been made on the rollout of smart meters in Northern Ireland. Some energy suppliers started installing smart meters in 2014.

2.II.v. Financial instruments and incentives for existing buildings

See UK National Energy Efficiency Action Plan details above.

2.II.vi. Information campaigns / complementary policies

Since the introduction of EPBD requirements in 2008, information campaigns have used diverse outlets including website, advertising (radio, press and information leaflets) (Figure 8), targeted seminars, guidance documents, roadshows, and proactive enforcement. Information is also available from www.finance-ni.gov.uk.

Other initiatives to improve buildings energy efficiency have benefited from publicity campaigns e.g., "Energy Wise" (Figure 9) and "Invest NI"[11] which supports companies to implement resource and energy efficiency improvements.

Figure 8. EPC information leaflet cover[12].

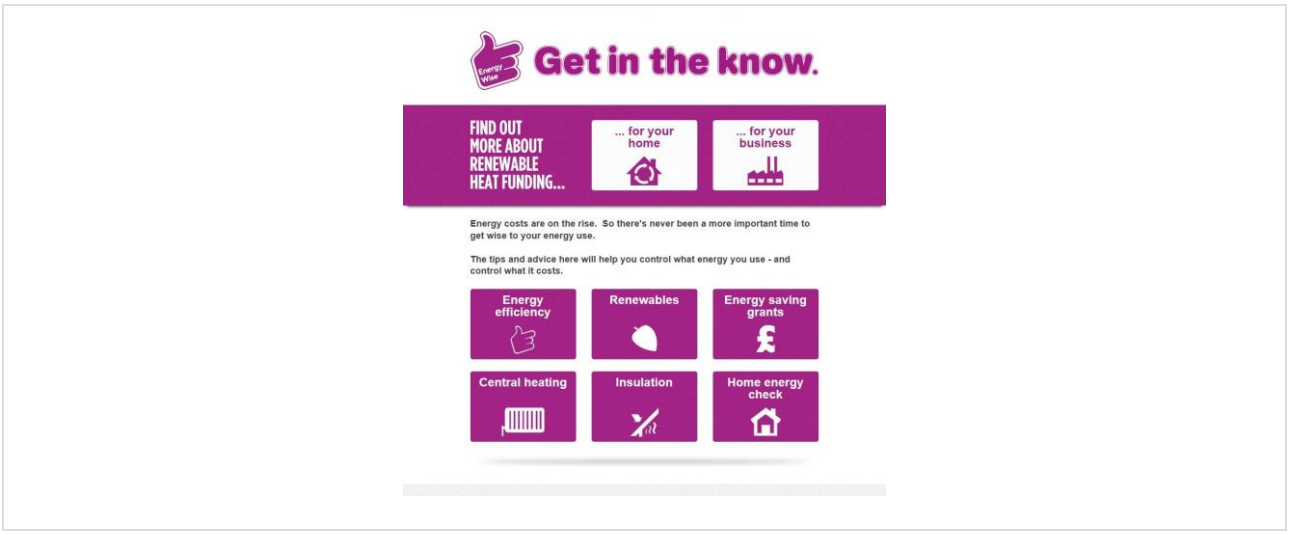

Figure 9. Extract from www.nidirect.gov.uk/energy-wise.

2.III. Energy performance certificate requirements

2.III.i. Progress and current status on sale or rental of buildings and EPCs

Overview and administration

The Northern Ireland approach generally mirrors the England provisions. The same English Accreditation Schemes accredit Energy Assessors to produce Energy Performance of Buildings Regulations outputs, i.e. EPCs and Recommendations Reports. See England report for details.

Regulatory outputs are recorded on the Northern Ireland registers[13] and are publicly available using the building's address, postcode, or the outputs' unique reference number. Selected organisations have access to limited bulk data, and anyone with an EPC can opt-out of having their data publicly available.

Format and content of the EPC

Residential buildings

The EPC shows the "asset rating" (a calculated energy rating) of the current and potential energy efficiency of the building on a scale from A (very efficient) to G (least efficient) (Figure 10). The rating is based on the building's characteristics, its services, a standardised occupancy profile and estimated energy consumption costs. In 2014, the average residential EPC rating is 60, which is in band D.

Figure 10 shows the first page of the EPC for new residential units. The EPC for existing residential units is very similar. The EPC includes a list of cost-effective energy efficiency recommendations, and indicates the potential energy rating if all recommendations were installed.

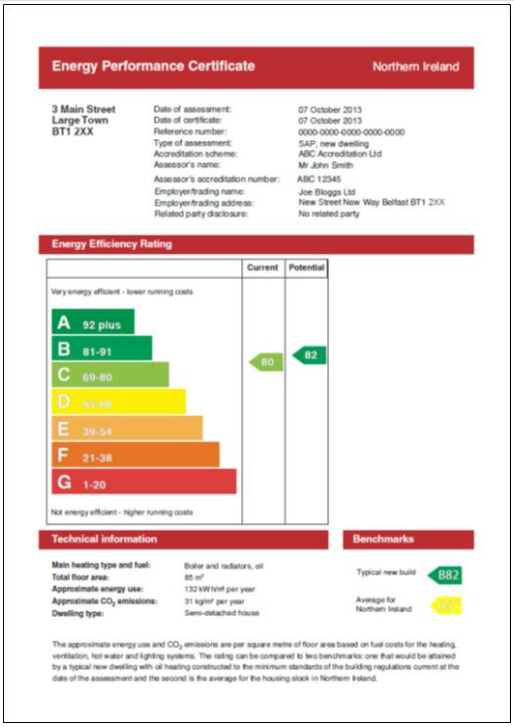

Figure 10. First page of Northern Ireland EPC for new residential units

Non-residential buildings

The EPC for non-residential buildings is identical to England except for the reference to Northern Ireland (Figure 11).

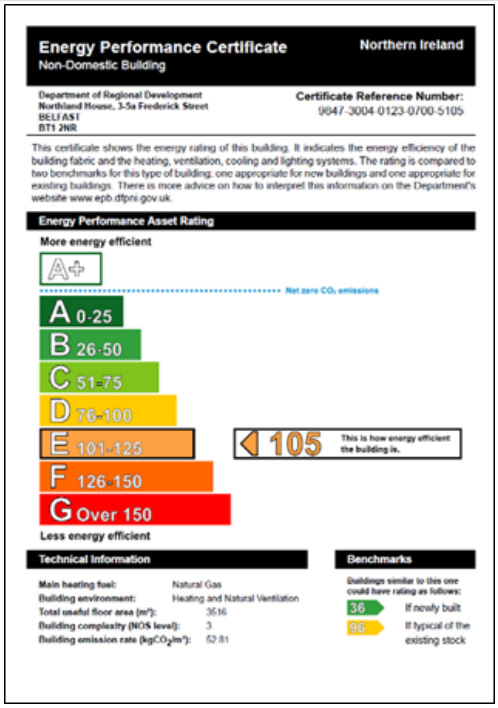

Figure 11. First page of Northern Ireland non-residential EPC.

EPC activity levels

As in England, residential and non-residential EPCs produced on construction, sale and rent are valid for 10 years. All EPCs become legally valid after they are recorded on the national register. Historical data to February 2017 is included in Tables 2 and 3, Figures 12 and 13.

		Domestic EPC lodgements by band						
	Total EPCs	A	B	C	D	E	F	G
Total	406,096	471	30,685	92,875	162,352	80,639	32,497	6,577
Percentage	100%	0.1%	7.6%	22.9%	40.0%	19.9%	8.0%	1.6%

Table 2. Residential EPCs Northern Ireland to February 2017.

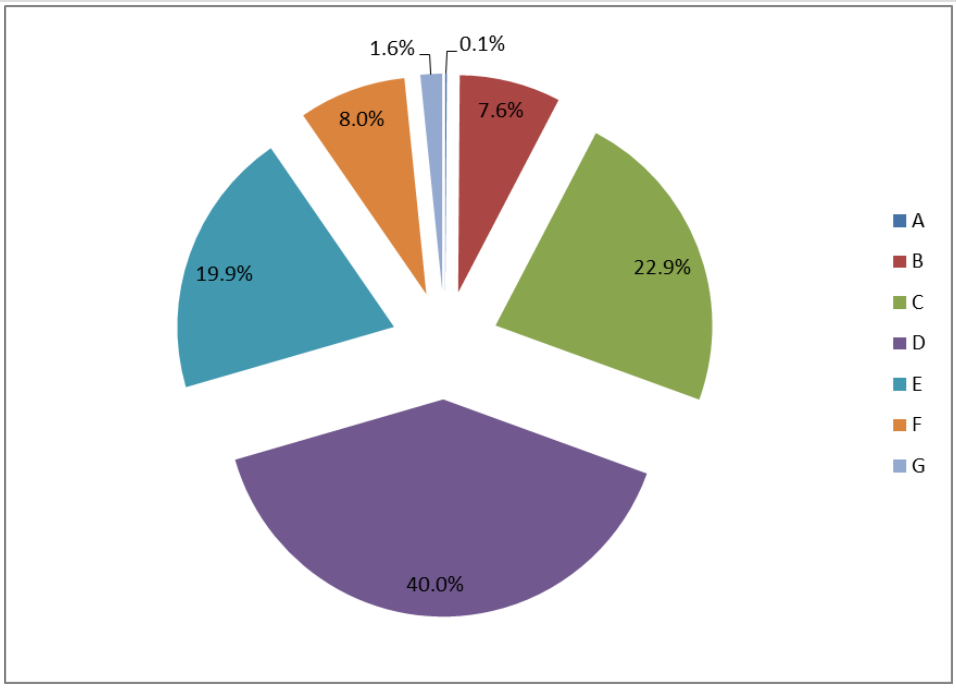

Figure 12. Residential EPCs Northern Ireland to February 2017. Percentages by EPC band.

Non-domestic EPC lodgements by band									
	Total EPCs	A+	A	B	C	D	E	F	G
Total	13,307	2	103	1,280	3,872	3,358	1,910	1,148	1,634
Percentage	100%	0.0%	0.8%	9.6%	29.1%	25.2%	14.4%	8.6%	12.3%

Table 3. Non-residential EPCs Northern Ireland to February 2017.

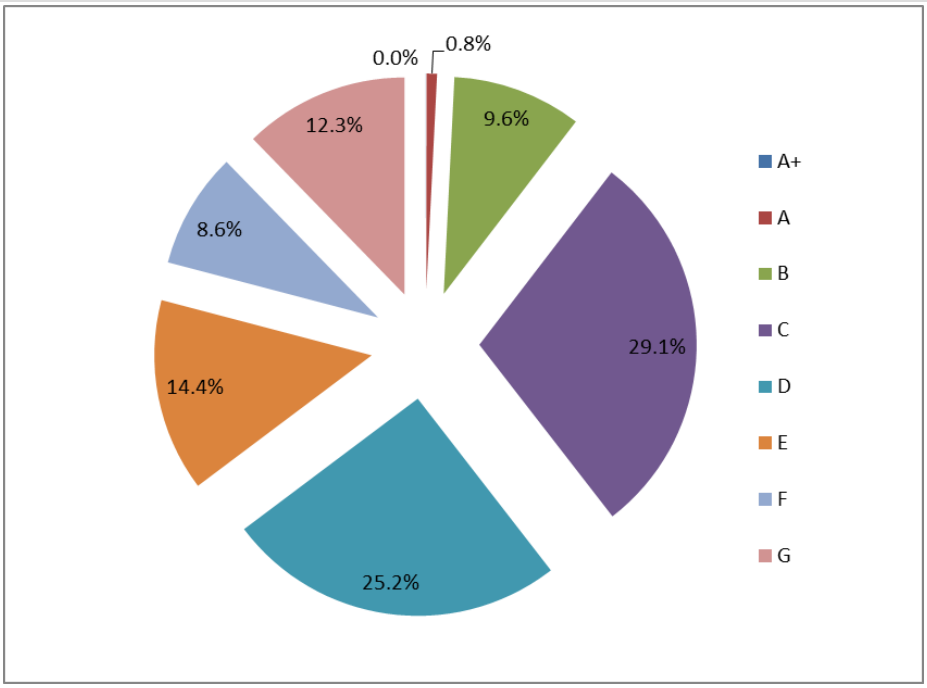

Figure 13. Non-residential EPCs to February 2017. Percentages by EPC band.

Typical EPC costs

EPC costs vary greatly. Indicative starting costs (lowest market costs based on internet search), including the registration fee (payable each time an EPC is recorded on the register), are:

- for a residential EPC: ~£50 (~58 €);
- for a non-residential EPC: ~£200 (~232 €).

Assessor corps

The English National Occupational Standards (NOS) were adopted in Northern Ireland. See England report for details. Table 4 details Energy Assessors with a registered address in Northern Ireland as of March 2017. Assessors accredited to operate in England and Wales are also accredited to operate in Northern Ireland.

Assessor types	Assessor numbers
Domestic EPCs (existing buildings) RdSAP	887
Domestic EPCs (new buildings) SAP	209
Non-domestic EPCs (level 3)	170
Non-domestic EPCs (level 4)	114
Non-domestic EPCs (level 5)	8
Display Energy Certificate (DEC)	97
AC inspection (level 3, simple)	39
AC inspection (level 4, complex)	36
Total Assessors	***1,560***

Notes
RdSAP: Reduced Standard Assessment Procedure
SAP: Standard Assessment Procedure
EPC: Energy Performance Certificate
DEC: Display Energy Certificate
AC: Air-Conditioning
EPC level 3: simple non-domestic buildings
EPC level 4: medium complexity non-domestic buildings
EPC level 5: complex non-domestic buildings
AC level 3: simple packaged AC
AC level 4: complex central AC

Table 4. Energy Assessors' qualifications and numbers Northern Ireland at March 2017.

Minimum Continuous Professional Development (CPD) requirements apply. Typically, assessors must attend 10 to 20 hours CPD/ year. If this requirement is not met, penalties include temporary expulsion from the Accreditation Scheme, which prevents the assessor from producing EPCs.

Enforcement with building owners and real estate actors

District Councils enforce the Regulations. They have powers to require the "relevant person" (i.e. the seller or prospective landlord) to produce copies of the EPC for inspection. In 2013 these powers were extended to include the "relevant person's agent" e.g. Estate or Letting Agents. District Councils operate a three-stage enforcement process: first a letter to encourage compliance, followed by a stronger enforcement letter, and then a penalty charge notice. By January 2017, >5,720 enforcement letters had been issued. The Department of Finance is responsible for enforcement on District Councils' buildings. DoF also funds awareness-raising, a telephone helpline, and general coordination and reporting of compliance activities.

The annual compliance rate for real estate agents is on average 70%. This compliance percentage reflects a combination of both visiting agents on-site and scrutinising properties advertised on websites. The compliance with Display Energy Certificates (DECs) in the audited buildings of four District Councils was 100% at the end of September 2016.

Penalties vary depending on the type of building

For residential properties, the penalty is £200 (~232 €), whereas for non-residential properties, the penalty is 12.5% of the rateable value of the building, subject to a minimum of £500 (~580 €) and a maximum of £5,000 (~5,800 €).

2.III.ii. Quality Assurance of EPCs

English Accreditation Schemes are approved to operate in Northern Ireland. In 2016, there were no Accreditation Schemes approved to operate in Northern Ireland only. Therefore, the English Quality Assurance requirements apply in Northern Ireland. See England report for details.

2.III.iii. Progress and current status of EPCs on public and large buildings visited by the public

Northern Ireland adopted the same approach as England. See England report for details.

Display Energy Certificates (DECs) are required to be displayed in certain public authority buildings which are frequently visited by the public. DECs provide Operational Ratings based on actual energy consumption. DECs are accompanied by a Recommendation Report. In Northern Ireland, DECs must be updated annually, and Recommendation Reports are updated every seven years.

DECs data to February 2017 is included in Table 5 and Figure 14.

	DEC lodgements by band							
	Total	A	B	C	D	E	F	G
Total	14,279	125	1,016	3,848	4,670	2,404	983	1,233
Percentage	100%	0.9%	7.1%	26.9%	32.7%	16.8%	6.9%	8.6%

Table 5. Display Energy Certificates Northern Ireland to February 2017.

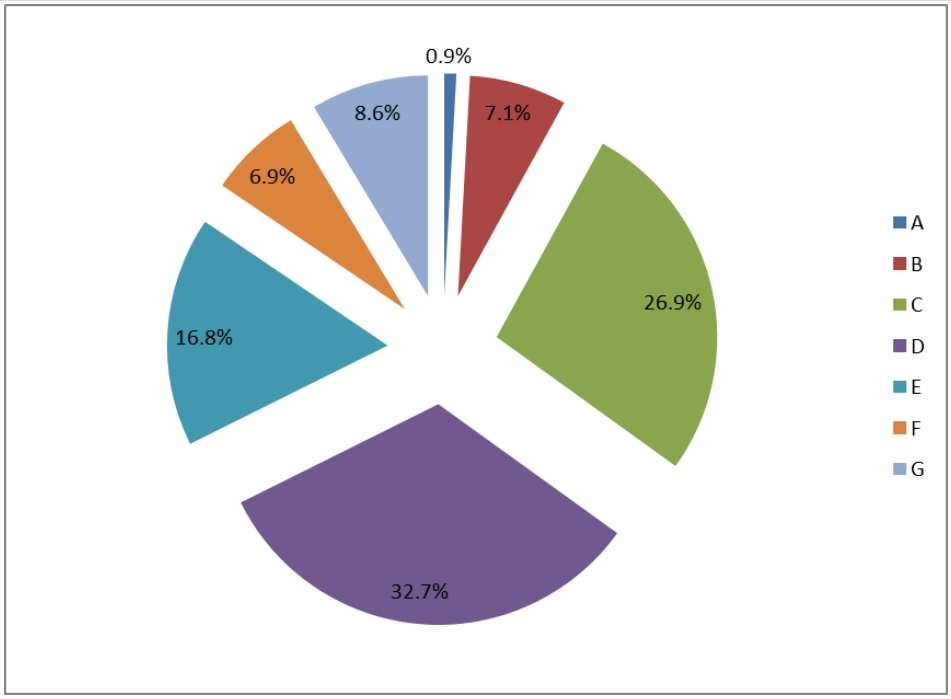

Figure 14. Display Energy Certificates Northern Ireland to August 2014. Percentages by DEC band.

2.III.iv. Implementation of mandatory advertising requirement – status

Since 2013 a property cannot be advertised for sale or rent without an EPC. Estate or Letting Agents must ensure that an EPC is available, or has been commissioned, before the property is marketed.

Any commercial media used to advertise a property (e.g. websites, classified ads) must contain the coloured bar chart energy indicator from the EPC or the EPC energy rating, e.g., EPC F36.

The landlord or seller must ensure a copy of the EPC is shown, free of charge, to interested parties when they first enquire about the property.

2.IV Inspection requirements – heating systems, air conditioning

The UK[14] adopted alternative measures for heating systems and inspections for AC systems. See England report for details. Heating systems measures specific to Northern Ireland include the "Affordable Warmth Scheme"[15] (for advice and insulation/heating measures), a boiler replacement scheme (for low income households), the Northern Ireland Housing Executive advice and information line, etc.

2.IV.i. Report on equivalence of model A and B for Heating Systems

See England report for details.

2.IV.ii. Progress and current status on heating systems

See England report for details.

2.IV.iii. Progress and current status on AC systems

The Northern Ireland arrangements for AC inspections mostly mirror the English provisions. The English Accreditiation Schemes, which accredit AC inspectors, are approved by The DoF so inspectors can operate in Northern Ireland. See England report for details. Provisions specific to Northern Ireland include:

- the mandatory registration of AC inspection reports on the Northern Ireland EPC Register since 2013; to date > 1,800 reports are recorded in total;
- promotional activities for AC inspections including an Energy Wise[16] media campaign with radio coverage, posters and leaflets, workshops and presentations to key stakeholders' groups, etc.

2.IV.iv. Enforcement and impact assessment of inspections

Enforcement and penalties

District Councils are responsible for ensuring that owners of AC systems (>12 kW) possess a valid inspection report, except for their own buildings for which DoF is the enforcement authority. The penalty for failing to possess a valid inspection report is £300 (~348 €).

District Councils have a three-stage enforcement process: first a letter to encourage compliance, followed by a stronger enforcement letter, and then a penalty charge notice. Although ~450 enforcement letters have been issued, DoF is not aware of penalties issued for non-compliance since the coming into force of the AC requirements.

Quality control of inspection reports

See England report for details.

Impact assessment.

Two Regulatory Impact Assessments[17] were undertaken. The costs of mandatory inspections and reporting (every five years for systems >12 kW) were estimated at £600 (~696 €) for centralised systems and £100 (~116 €) for packaged units. Benefits were difficult to quantify and included reduced electricity consumption from improved efficiency (where recommendations were implemented) and from the replacement of older systems. Other benefits, e.g., improved workplace conditions were also expected.

Mandatory recording of AC inspection reports on the register brings together a central source of information, which aims to facilitate compliance checks. Since 2016, the registration fee is £12.82 (~14.87 €), plus the Accreditation Scheme fee.

3. A success story in EPBD implementation

District Councils enforce the Regulations. They have powers to require the building seller or prospective landlord to produce copies of EPCs for inspection. In 2013 these powers were extended to include the "relevant person's agent", e.g., Estate or Letting Agents. District Councils operate a three-stage enforcement process: first a letter to encourage compliance, followed by a stronger enforcement letter, and then a penalty charge notice. By January 2017, almost 6,000 enforcement letters had been issued.

The Department of Finance (DoF) enforces the Regulations on District Councils' buildings. In 2010, DoF funded a dedicated Enforcement Team to facilitate cross-council working, deliver awareness-raising, and ensure consistency across the 11 District Councils following the Local Government reform (previously Northern Ireland was made up of 26 District Councils). DoF carried out audits of four District Councils in 2015 – 2016, which confirmed the effectiveness and benefits provided by the Enforcement Team. The team also provides quarterly reports to DoF detailing Councils' enforcement activities and it helps Councils reduce their administrative burden.

The annual compliance rate for real estate agents is on average 70%. This compliance percentage reflects a combination of both visiting agents on-site and scrutinising properties advertised on websites. The compliance with DECs in the audited buildings of four District Councils was 100% at the end of September 2016. DoF has continued to fund the Enforcement Team to ensure monitoring of enforcement levels.

4. Conclusions, future plans

The UK is divided into four jurisdictions. Northern Ireland is the smallest jurisdiction, with the smallest population, least number of homes, etc. Northern Ireland relies heavily on research and development from other jurisdictions (principally England) for its own Regulations, technical guidance and development of governance arrangements. To date, Northern Ireland has adopted the majority of the English provisions in its transposition of the EPBD.

Northern Ireland has also implemented measures specific to its jurisdiction, including AC inspection information campaigns, and a successful compliance and enforcement approach.

The transposition of the EPBD continues to be reviewed by each UK jurisdiction as part of their respective programmes to achieve national energy efficiency objectives and carbon emissions reduction.

Endnotes

1. The Building Regulations (Northern Ireland) 2012. S.R. 2012 No.192 as amended by S.R.2012 No. 375, S.R. 2014 No. 44 and S.R.2016 No.412 and the Building (Prescribed Fees) Regulations (Northern Ireland) 1997. S.R.1997 No.482 as amended by S.R.2016 No. 60

2. The Energy Performance of Buildings (Certificates and Inspections) Regulations (Northern Ireland) 2008. S.R. 2008 No. 170, as amended by S.R. 2008 No. 241, S.R. 2009 No. 369, S.R. 2013 No.12, S.R. 2014 No.43 and S.R.2016 No.395

3. www.finance-ni.gov.uk/topics/building-regulations-and-energy-efficiency-buildings

4. Technical Booklet F1, Conservation of fuel and power in dwellings, Department of Finance and Personnel, October 2012
5. Technical Booklet F2, Conservation of fuel and power in buildings other than dwellings, Department of Finance and Personnel, October 2012
6. Note that Internal Air Quality (IAQ) is addressed under Technical Booklet K, Ventilation.
7. CIBSE Commissioning Codes: www.cibse.org/knowledge/cibse-publications/cibse-commissioning-codes
8. UK National Energy Efficiency Action Plan, Department of Energy & Climate Change, April 2014
9. Further details at: Section 3 of Technical Booklet F2
10. Further details at: Section 3 of Technical Booklet F2
11. www.investni.com
12. www.buildingcontrol-ni.com/assets/pdf/EPCLeaflet.pdf
13. The residential buildings register is accessed at www.epbniregister.com . The non-residential buildings register (including EPCs and AC inspection reports) is accessed at www.epbniregisternd.com
14. The UK refers to England, Wales, Scotland and Northern Ireland
15. www.nihe.gov.uk/index/benefits/affordable_warmth_scheme.htm
16. www.nidirect.gov.uk/campaigns/energy-wise
17. www.finance-ni.gov.uk/consultations/2012-consultation-energy-performance-buildings-certificates-and-inspection-regulations

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