Explanatory Memorandum to The Building Regulations etc. (Amendment) (Wales) Regulations 2022

This Explanatory Memorandum has been prepared by Planning Directorate and is laid before Senedd Cymru in conjunction with the above subordinate legislation and in accordance with Standing Order 27.1

Deputy Minister's Declaration

In my view, this Explanatory Memorandum gives a fair and reasonable view of the expected impact of The Building Regulations etc. (Amendment) (Wales) Regulations 2022. I am satisfied that the benefits justify the likely costs.

Lee Waters MS,
Deputy Minister for Climate Change

24 May 2022

PART 1

1. Description

1.1 The Building Regulations etc. (Amendment) (Wales) Regulations 2022 ("the instrument") amend the Building Regulations 2010 ("the Building Regulations") to provide for a new way of measuring energy efficiency, using a new performance metric; provide for a new cost metric; change the way on-site electricity generation systems are regulated; and introduce regulation on overheating mitigation. They also make provision about ventilation standards when work to which Part L (conservation of fuel and power) applies. They make associated changes to the Building (Approved Inspectors etc.) Regulations 2010, make transitional provision, and make minor changes in respect of self-certification schemes.

2. Matters of special interest to the Legislation, Justice and Constitution Committee

2.1 There is a 6 month time period between making the regulations and their coming into force date. This is to allow industry adequate time to prepare for the new requirements.

3. Legislative background

3.1 Section 1 of the Building Act 1984 Act (the 1984 Act) provides a power to make building regulations for a number of purposes with respect to the design and construction of buildings and the services, fittings and equipment provided in or in connection with buildings. These purposes include securing the health, safety, welfare and convenience of persons in and about buildings, furthering the conservation of fuel and power, preventing waste, undue consumption, misuse or contamination of water, furthering the protection or enhancement of the environment and facilitating sustainable development.

3.2 The 2010 Regulations have, in part, been made pursuant to these powers. The 2010 Regulations impose requirements on people carrying out building work and are supported by Approved Documents, approved and issued under section 6 of the 1984 Act, which set out detailed practical guidance on compliance. The 1984 Act and the 2010 Regulations set out procedures for the supervision and control of building work.

3.3 Most of the Secretary of State's functions conferred by or under the 1984 Act were, so far as exercisable in relation to Wales, transferred to Welsh Ministers on 31st December 2011, by the Welsh Ministers (Transfer of Functions) (No.2) Order 2009 (the 2009 Order), and in relation to excepted energy buildings in Wales, by section 54 of the Wales Act 2017 (c.4)

3.4 These Regulations are being made under the negative resolution procedure

4. Purpose and intended effect of the legislation

4.1 Welsh Government is committed to meeting its target of net zero emissions by 2050. Improving the energy efficiency of dwellings represents a significant opportunity to reduce carbon emissions and support the Government in reaching its target, whilst keeping energy costs down for consumers now and in the future. The performance-based targets set through Part 6 of the Building Regulations are an important means by which the Government can regulate for minimum energy efficiency standards.

4.2 The Government has committed to making changes to the Building Regulations minimum energy efficiency standards and the associated Approved Documents in 2025. A two-stage approach to implementation has been adopted, with a package of changes to the Building Regulations and Approved Documents introduced by these Regulations. These changes are intended to provide a meaningful and achievable increase to the energy efficiency standards for buildings, revise the way in which performance is measured, and support industry to prepare and position itself for the new standards from 2025.

4.3 The changes also address ventilation in new and existing dwellings and the risk of overheating in new residential buildings. Overheating has been highlighted as a key risk for the health and productivity of people and businesses in the UK. It is therefore crucial that we ensure homes and other residential type buildings are able to cope with the warmer climate of the future.

4.4 The package of changes is being delivered partially through this instrument and partially through changes to the Approved Documents.

5. Consultation

5.1 The Welsh Government held a three-stage online consultation on the proposed changes to the Building Regulations and the accompanying statutory guidance. The first stage of the consultation ran from 19 Dec 2019 until 12 March 2020. This stage of the consultation set out proposals relating to the Building Regulations and the accompanying statutory guidance for Part L (Conservation of Fuel and Power) and Part F (Ventilation) of the Building Regulations for new dwellings.

5.2 The second stage of the consultation ran from 25 November 2020 to 17 Feb 2021. This stage of the consultation set out proposals relating to the Building Regulations and the accompanying statutory guidance for existing dwellings, overheating in new dwellings, and changes to align with the Energy Performance of Buildings Directive (EU 2018/844).

5.3 The third stage of the consultation ran 25 October 2021 to 17 January 2022. This stage set out proposals relating to new and existing non-domestic buildings and overheating in new residential-type buildings.

5.4 In general, there was broad agreement to all of the proposals in the consultations. There have been some amendments to the proposals following the feedback to the consultations. This includes placing the requirement for self-regulating devices[1] within the Approved Document, and not within the Building Regulations. There is also a technical change to Schedule 3 of the Building Regulations to update the list of competent person schemes (self-certification schemes and exemptions from requirement to give a building notice or deposit full plans). A competent person scheme is a scheme that installers can register with to self-certify that their building work complies with the Building Regulations.

PART 2 – REGULATORY IMPACT ASSESSMENT

6. Options

6.1 This assessment considers the impact of proposed changes to Part L, Part F, and new Part O of the building regulations. The options considered include

- Option 1 - counterfactual – continue to use requirements set by the 2014 Building Regulations (BR2014)
- Option 2 – preferred option – adopt the changes to the standards to improve energy efficiency, ventilation and mitigate overheating in dwellings set out below

New Dwellings – policy changes

Part L standards for New Dwellings

6.2 The changes to the notional specification (setting the target to achieve improvement in energy efficiency standards in new dwellings) include:

- improved Fabric;
- photovoltaics (PV);
- wastewater Heat Recovery;

6.3 In addition, three other specific changes to Part L are assessed:

- requiring all new homes to have air tightness tests;
- removing the fuel factors – removing the relief for high-carbon heating systems (such as oil and Liquid Petroleum Gas (LPG));
- requiring all new homes to have self-regulating devices[1].

Part F standards for New Dwellings

6.4 Two specific changes to Part F are assessed:

- Naturally Ventilated Systems (NVS) – the proposed policy change is to simplify the guidance for NVS;

[1] A self-regulating device is a device or system that automatically controls the output of heating and/or cooling emitters to independently control the temperature in each room

- Mechanical Extract Ventilation (MEV) Systems – the proposed policy change is for the size of background ventilators to be increased from 2500mm2 to 5000mm2 equivalent area in habitable rooms for MEV systems.

Part O standards for New Residential buildings[2]

6.5 Part O will introduce a new standard comprising the following requirement to mitigate overheating risk in new dwellings. This will include:

- Dwellings being designed and constructed in such a way as to provide reasonable mitigation from the risk of summertime overheating; and
- Any mitigation measures being safe, secure and reasonably practical for occupants.

Existing Dwellings – policy changes

Part L standards for Existing Dwellings

6.6 Improvements are considered with regard to the following elements:

- Extensions;
- Windows;
- Doors;
- Conservatories;
- Conversions;
- Boiler Plus;
- SRDs.

Part F standards for Existing Dwellings

6.7 Background Ventilation - where building work involving energy efficiency measures are likely to significantly reduce the air permeability of the existing dwelling, the policy recommends ventilation as required for new homes.

Analytical Approach

6.8 This section sets out the principal steps and key considerations used to estimate the impact of both policy options.

6.9 The assessment only applies to dwellings. It also does not consider non-domestic buildings. Non-domestic buildings will be assessed separately.

6.10 The methodology is comparable to that recently used to assess the impact of similar policy changes to Part L and F of the building regulations in England.

6.11 In summary, the assessment:

- estimates the additional costs to house builders/ occupiers of both policy options, over and above the current situation (as defined by BR2014), termed the counterfactual;

[2] The policy applies to new residential buildings. This includes new dwellings as well as other residential-type buildings where people sleep on the premises e.g. student halls of residence and care homes. The analysis has been done for new dwellings only as these make up the majority of all new residential-type buildings

- then estimates the additional benefits likely to derive from each policy option, over and above the current situation;
- and then deducts the additional costs from the additional benefits to arrive at the net policy cost.

Types of costs considered in the assessment

6.12 This analysis assesses the following costs of the proposed options for a 'typical dwelling' compared to the counterfactual (BR2014):

- capital costs;
- maintenance costs;
- replacement costs.

6.13 When assessing costs, the following considerations were adopted:

- costs include capital, maintenance and replacement costs;
- all costs are at current prices;
- costs are estimated for the life of the building;
- cost estimates are provided by AECOM;
- changes in costs over time, due to anticipated future learning, are taken into account. The analysis uses the same learning rate assumptions as used for the England Part L analysis.[3]

Types of benefits considered in the assessment

6.14 Three types of benefit are assessed in the analysis:

- energy Usage - reduced energy usage as a result of improved energy efficiency;
- two environmental benefits - reduced carbon emissions and air quality improvements;
- health impacts - improved health of occupants of dwellings as a result of improved ventilation and reduced overheating.

6.15 The benefits are calculated as follows:

- energy usage – estimated by AECOM for gas, grid electricity and electricity generated by dwelling / exported to grid;
- energy, greenhouse gas emissions and air quality costs – valued using the HMT Greenbook Supplementary Guidance: Valuation of energy use and greenhouse gas emissions for appraisal (updated October 2021);
- improved health – additional life years valued at £70,000 per quality adjusted life year, as per Green Book Guidance (updated March 2022).

Types of residential dwelling considered in the assessment

6.16 The assessment has been undertaken using four standard dwelling types:

- detached House (117m^2 total floor area (TFA));
- semi Detached House (84m^2 TFA);
- terraced House (84m^2 TFA);
- block of Flats (assuming 32 flats per block) (50m^2 TFA 1 bed single aspect apartment and 70m^2 TFA 2 bed corner apartment).

[3] England Part L Domestic IA – Para 7.17

Appraisal period

6.17 Costs and benefits are assessed over a 70-year period (2022-2091) as follows:

- a 10-year policy period (2022-31);
- the impact of which is assessed over the assumed 60-year lifespan of each building built in the 10-year policy period.

Sequence of calculations

6.18 Costs and benefits are first assessed for each of the four new build dwelling types. The costs and benefits of each policy option across Wales are then calculated by multiplying each building type's costs and benefits by the estimated number of new build completions over a 10-year period for each of the dwelling types (see Annex A for new build completion figures used).

Discount rates used

6.19 The results are presented in present value terms using the HM Treasury's standard discount rates. These are as follows:

- Non-Health impacts – 3.5% for the first 30 years and 3.0% for the subsequent years;
- Health impacts – 1.5% for the first 30 years and 1.0% for the subsequent years.

Additional calculations undertaken

6.20 In addition to the calculations undertaken above, this assessment on new homes also takes account of:

- Changes to Part F – increased background ventilator sizing – this is costed by estimating the average cost per dwelling of increased background ventilators multiplied by the number of homes estimated to require the increase;
- Air tightness tests – requiring all new homes to undertake air tightness tests. The cost has been calculated by estimating the average cost of an airtightness test and the number of additional tests required. Benefits have been estimated based on the improved energy savings of buildings that have improved air tightness multiplied by the number of dwellings estimated to currently be untested and having an air tightness of less than the design target of 5 m^3/m^2h.

New Dwellings

Policy standards for new dwellings

Part L - Standards for New Dwellings

6.21 The policy changes to achieve improvement in energy efficiency standards in new dwellings include:

- improved Fabric;
- PV;
- wastewater Heat Recovery;

6.22 In addition, three other specific changes to Part L are assessed:

- requiring all new homes to undertake air tightness tests;

- removing the fuel factors – removing the relief for high-carbon heating systems (such as oil and LPG);
- requiring all new homes to have self-regulating devices.

Part F - Standards for New Dwellings

6.23 Two specific changes to Part F are assessed:

- NVS – the proposed policy change is to simplify the guidance for NVS;
- MEV Systems – the proposed policy change is for the size of background ventilators to be increased from 2500mm2 to 5000mm2 equivalent area in habitable rooms for MEV systems.

Part O - Standards for New Residential Buildings

6.24 Part O will introduce a new standard and will comprise of the following requirement to mitigate overheating risk in new residential buildings:

- Dwellings shall be designed and constructed in such a way as to provide reasonable mitigation from the risk of summertime overheating; and
- Any mitigation measures shall be safe, secure and reasonably practical for occupants.

Impacts – New Dwellings

Part L- improved energy efficiency standards are estimated to result in:

- Additional capital, replacement, and maintenance costs of £358.7m present value (net of the counterfactual):
- Reduced energy costs of £213.4m present value
- Increased social benefits (derived from reduced carbon and improved air quality) of £172.1m present value over the appraisal period;
- **Resulting in a net present value policy benefit of £26.9m**.

Part L - Air Tightness Test requirements will result in:

- An additional capital cost of £0.6m;
- energy savings of £0.1m, and
- Social benefits of £0.2m
- **Resulting in a net present value policy cost of £0.3m.**

Part F – improved natural and mechanical ventilation standards are estimated to result in:

- For NVS – the benefit of this policy change is simplification and improved compliance. As previous Part F revisions assumed 100% compliance, no additional benefit has been accounted for here;
- For MEV systems – the analysis suggests an additional cost of £0.250m (£0.026m EANC). The benefit of this policy change is improved air distribution in the home, leading to improved ventilation and indoor air quality, with associated health benefits. These have not been monetised in this analysis however, due to difficulties and uncertainty in the quantification of these benefits
- **Resulting in a net present value policy cost of £0.250m (but noting that the benefits have not been included in the analysis**

Part O - Mitigating overheating in new residential buildings[4] are likely to result in:

- Additional capital costs - the analysis suggests the policy could result in additional capital cost of £11.74m:
- Reduced energy costs - these measures will result in a reduced energy cost of £2.64m;
- Social benefits - the improvements should also result in social benefits (improved health and reduced carbon) equalling £23.63m;
- **The resulting in a net present value policy benefit of £14.94m.**

Table 5.1: Present Value costs and benefits of proposed changes for all residential new builds (£m)

	Part L	Air tightness	Part F	Part O Overheating
Capital	£ 240.90	£ 0.59	£ 0.25	£ 11.74
renewals	£ 69.69			
maintenance	£ 48.12			
energy	-£ 213.44	-£ 0.08		-£ 2.64
Carbon Price	-£ 143.70	-£ 0.24		-£ 0.41
Air quality price	-£ 28.43	-£ 0.01		
Health impacts				-£ 23.63
Net Cost	-£ 26.87	£ 0.26	£ 0.25	-£ 14.94
Greenhouse Gas Emissions ($MtCO_2e$)	- 0.970	- 0.002		- 0.004

Removing the fuel factors - impacts

6.25 Analysis undertaken for the England Part L changes suggests that, in practice, there may not be any substantive cost difference between retaining or removing the fuel factor if complying with the Part L target.[5]

Cost benefit analysis

6.26 Tables 5.3 show the discounted costs and benefits of the counterfactual, of the policy change and the net benefits, for each component.

Table 5.3: Discounted Costs and Benefits (£m)

		Counterfactual	Policy Option	Net Impact
Part L	Capital	£2,431.96	£2,672.86	£240.90

[4] The policy applies to new residential buildings. This includes new dwellings as well as other residential-type buildings where people sleep on the premises e.g. student halls of residence and care homes. The analysis has been done for new dwellings only as these make up the majority of all new residential-type buildings

[5] England Part L Domestic IA - Para 4.16-4.19 and Para 9.17-9.24

Part L	Energy	£262.28	£48.84	-£213.44
Part L	Renewals	£333.63	£403.32	£69.69
Part L	Maintenance	£146.25	£194.37	£48.12
Part L	Carbon Price	£666.90	£523.20	-£143.70
Part L	Air quality price	£33.60	£5.17	-£28.43
Part F	Capital	-	£0.25	£0.25
Air Tightness	Capital	-	£0.59	£0.59
Air Tightness	Energy	-	-£0.08	-£0.08
Air Tightness	Carbon Price	-	-£0.24	-£0.24
Air Tightness	Air quality price	-	-£0.01	-£0.01
Overheating	Capital and replacement	£9.36	£21.10	£11.74
Overheating	Energy	£2.64	£0.00	-£2.64
Overheating	Carbon Price	£0.41	£0.00	-£0.41
Overheating	Health impacts	£0.00	-£23.63	-£23.63

Existing Dwellings

Policy standards for existing dwelling

Part L Standards for existing dwellings

6.27 Improvements are considered with regard to the following elements:

- Extensions;
- Windows;
- Doors;
- Conservatories;
- Conversions;
- Boiler Plus;
- SRDs.

Part F Standards for Existing Dwellings

6.28 Background Ventilation - where energy efficiency measures are likely to significantly reduce the air permeability of the dwelling, the policy recommends ventilation as for new homes.

Impacts – Existing Dwellings

Part L - improved energy efficiency standards are estimated to result in:

- Additional capital and replacement costs of £97.5m present value (net of the counterfactual);
- Reduced energy costs of £44.5m present value, and
- Increased social benefits (reduced carbon and improved air quality) of £115.9m present value, over the appraisal period;
- **Resulting in a net present value policy benefit of £62.7m.**

Part F - improved ventilation standards are estimated to result in:

- An additional capital cost of £0.9m present value;
- The benefit of this policy change is improved air distribution in the home, leading to improved ventilation and indoor air quality, with associated health benefits. These have not been monetised in this analysis however, due to difficulties and uncertainty in the quantification of these benefits;
- **Resulting in a net present value policy cost of £0.9m (noting that the benefits have not be included in the analysis).**

Table 6.1: Present Value costs and benefits of proposed changes for all existing residential dwellings (£m)		
	Part L	Part F
Capital	£ 95.30	£ 0.87
renewals	£ 2.15	
Maintenance		
Energy	-£ 44.25	
Carbon Price	-£ 111.15	
Air quality price	-£ 4.70	
Health impacts		
Net Cost	-£ 62.65	£ 0.87
Greenhouse Gas Emissions ($MtCO_2e$)	-0.625	-

Transition costs

6.29 Transition costs are incurred by businesses as a result of the time spent by their employees to familiarise themselves with the new technical requirements.

6.30 The familiarisation costs have been calculated using the process developed to estimate the impact of the changes to Part L, F and O in England, which was based on consultations with a small sample of organisations to identify time/cost likely to be incurred. The consultation identified:

- the types of organisations that will be affected by the changes;
- the types of familiarisation activity (training courses, self-study, CPD);
- costs per organisation type;

6.31 The analysis then scaled up these costs across industry based on the number of organisations in Wales.

6.32 Familiarisation costs of £0.7m present value were calculated. Table 7.1 shows the components of this figure.

Table 7.1: Present Value of familiarisation costs for new and existing dwellings (£m)	
	Familiarisation Costs (£m)
Part L	0.258
Part F	0.017
Performance Gap	0.142

Overheating	0.095
SAP	0.174
Airtightness	0.015
Total familiarisation costs for domestic buildings	**0.700**

Competition Assessment

New Buildings

6.33 The policy will impact on housebuilding sector and the section of the construction industry undertaking works on existing domestic buildings along with the supply chains for construction materials used in those projects.

6.34 As a result of higher standards, builders and installers would have to comply with the more stringent targets and as a result would see costs rise. As the increase in costs will affect all builders broadly equally, any competitive effects in the market in Wales are likely to be negligible.

6.35 The standards assume some improvement in fabric and services specifications. If fabric energy efficiency had been improved in isolation, this could have given manufacturers of products which impact on fabric performance (insulation, windows) an advantage over those involved in manufacturing and supplying building services (e.g. boilers, lighting). This is not the case with the approach taken. Furthermore, flexibility is provided in a way that developers can meet the higher performance standards, which should ensure that no one product or manufacturer can dominate any part of the market.

Housing Supply

6.36 This policy is expected to result in increased build cost, which could deter constructors from building as many houses as it may not be possible to pass this cost onto the price of land. This would then have a negative impact on net additional housing.

6.37 We are also aware that the sector will not have had a long lead-in time before this change is introduced and so it is unlikely that these costs will be factored into land purchases in the short term (especially where developers have already purchased sites for future pipeline developments).

6.38 As such, the short-term impact on housing supply viability may be slightly more volatile, but we also believe that the system as a whole is sufficiently robust to be able to absorb unanticipated costs in other ways. For example, developers have options to renegotiate their Section 106 or make changes to planning permissions to absorb these costs.

6.39 In the longer term it is likely that developers will offset higher costs with higher sales prices in areas of high demand.

Innovation

6.40 Particularly with respect to raising the Part L standards, there should be the potential for new firms to enter the market due to the flexibility for builders and installers to choose building technologies to meet these standards. This should encourage innovation among manufacturers.

Small firms impact test

6.41 Most of the impacts of the policy should affect all contractors broadly equally, whether large or small.

6.42 Small businesses in the housing sector principally comprise builders, installers, architects, engineers and other technical specialists. The impacts of a change in building standards are likely to be most significant for builders as any change in costs will affect their cost of business. For other parties, impacts are most likely to comprise a short term need to understand and revise practices to reflect the new requirements, however this is unlikely to be above the level that would be typically expected as part of ongoing professional development.

Environmental impact assessment

6.43 The main assessment described in this report assess the impact on the environment.

Social impact assessment

6.44 Some health benefits are likely to derive from reduced energy use. Health and economic benefits are expected to derive from reduced overheating.

6.45 There are improvements in indoor air quality, and consequently occupant's health and well-being, from the proposed changes to Part F. Improved indoor air quality arises as a result of better air distribution between rooms and simplified guidance should deliver greater compliance and reduce the risk of under-ventilation.

6.46 There are also potentially beneficial improvements in health and quality of life from the effect of increased energy efficiency on thermal comfort.

Rural impact assessment

6.47 Assessing rural impacts means determining whether the impacts on rural areas will be different to those for urban areas, and whether there are specific local or regional effects.

6.48 The main difference for rural areas will be the removal of the fuel factors. These factors provide some relief to those not connected to the gas grid, mainly in rural areas. The fuel factor means that the carbon emissions target is increased for more carbon intensive fuels for heating fuel making it less demanding. However, this is not consistent with the Welsh Government commitment to address the Climate Emergency.

6.49 The result of removing the fuel factor will be an increase in build costs to build to higher fabric and/or service standards. It is likely that the result will be that most new homes off the gas grid will be built using low carbon

heating. Industry have indicated that this is already the case for many new homes being constructed off the gas grid, which are using heat pumps rather than LPG or oil.

Diversity, inclusion and human rights

6.50 It is not envisaged that the proposals will have any negative impact on human rights. It is not envisaged that the proposal will have any negative impact on equality in Wales (including equality issues concerning age, disability, faith, gender, race, sexual orientation or transgender), or a negative impact on diversity, social inclusion or human rights, including the rights of children.

Children's Rights Impact Assessment

6.51 It is envisaged that the proposals will have no impact on the rights of children.

Welsh language

6.52 It is not envisaged that the proposals will have an impact on the Welsh language.

Privacy Impact Assessment

9.1 It is envisaged that the proposals will have no impact on privacy.

Post implementation review

6.53 The Welsh Government has committed to review the Part L regulations with a new standard in 2025. That review will include an analysis of the effect of the amendments made by this subordinate legislation.