

Glass and Glazing Federation

TECHNICAL REPORT

Quarter 1 of 2022 with updates to 18th April 2022







GRENFELL UPDATE

- Laminated glass still remains on AD B list of Combustible
- Testing concluded in Q4 of 2020 with a report produced Glass & Glazing Federation – Laminated Safety Glass Report - Response to SI1230/Regulation 7
- Department's own tests now being carried out at the University of Ulster in conjunction with Efectis
- Feedback on tests expected soon

Grenfell & Doc. B Update



BUILDING SAFETY BILL

The draft Building Safety Bill

- Now going through its 2nd Reading in the House of Lords
- · Establishes the Building Owner and Contractors' responsibilities in ensuring that products used and their installation meet the
- · Managed by the newly formed Building Safety Regulator
- · This department will head a task force to create guidelines and the means of regulating this bill.
- · Currently they are looking at adding an additional 1000 Building Control Officers to cover England.
- · Each existing and new BCO must have accreditation for reporting on building works e.g. brickwork; electrical; windows

GGF TECHNICAL

Heat and Buildings Strategy

HEAT & BUILDINGS STRATEGY

On 19th October 2021 the Government published their long awaited Heat and Buildings Strategy which was to provide the Country's guide on reaching Net Zero alongside a Retrofit Strategy.

This has already proven to be controversial with many critics claiming it to fall short of providing the necessary guidance and funding to achieve our Net Zero target.

Our concerns about the lack of information, guidance and benefits of Energy Efficient windows within the Strategy have been voiced to

Building Safety Bill

Heat & Building Strategy



Summary of Approved Document F **Ventilation for New Dwellings**

The AD allows for three types or systems of ventilation for new

System 1 is referred to as Natural Ventilation and allows for background ventilation to be used (Trickle Vents). This can only be used in dwellings regarded as less airtight.

Less airtight is defined by: -

a) Calculation at design stage with air permeability higher than 5 cubic metres of air per hour per square metre of floor area at 50 pascal of pressure. (5m³/hm² at 50Pa)

b) Established by air tightness test after build as higher than 3 cubic metres of air per hour per square metre of floor area at 50 pascal of

N.B. These calculations would be done by the Architect or Structural Engineer not by the window installer

· Public consultation still awaited - was expected end of October 2021

- · Some upgrades to door chains, viewers & mailboxes
- . The use of Class P1A laminated glass on one skin of IGU in all accessible windows - regardless if keyed handles
- · Substantial demand for this product (i.e. around 2.5million m2 per year)
- · Scope of this Document will be extended to include domestic replacement windows and doors

BUILDING REGULATIONS - WALES & SCOTLAND



Building Regulations - Wales

Response to Consultation document for AD L,F & S is now published The GGF responded to this consultation in similar fashion to England. The new Approved Documents are not yet published.

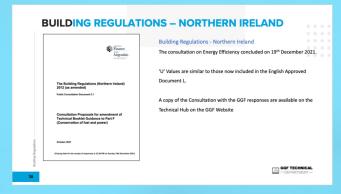
Building Regulations - Scotland

The Scottish Government has released their Scottish Energy Standards public consultation covering similar areas to English L, F & S. The GGF has completed a response and issued this to members for their comments. This is also available from the website on the Technical Hub. A summary of the targets within the Consultation are summarised as follows: -

English AD L, F & O

English AD Q

Building Regs - Scotland



ENGLISH PLANNING CHANGES

- · The Government's proposed planning reform made sweeping
- White Paper relaxed planning approvals
- Michael Gove says it needs "complete rethink"
- Could be substantially watered down
- With major planning reforms removed
- Zonal planning system could be scrapped
- Mandatory housebuilding targets for local authorities

NO UPDATE ON THIS SINCE LAST TECHNICAL REPORT

CONFORMITY MARKING

- CE acceptance will end on 31st December 2022 UKCA marking will still replace CE marking
- · Problems highlighted by GGF & CPA still remain
- · Insufficient testing facilities in the UK
- Historic UK testing through AVCP3s not accepted by Europe · Historic EU testing through AVCP3s not accepted by UK
- · Full details of issues viewable/downloadable from Technical Hub

Building Regs - NI English Planning

Conformity Marking



AFFILIATE ASSOCIATIONS

United Nations International Year of Glass 2022- GfE are a sponsor of the International Year of Glass' and its kicking off 9-11 February with an official opening ceremony at the Palace of Nations, Geneva. The Year will celebrate the essential role glass has and will continue to have in Society.

A 2 day opening event at the Palace of Nations in Geneva will feature 30 world class speakers. The event will be streamed worldwide on Zoom - places in the Hall will be at a premium! Talks will highlight the latest thinking on how GLASS can aid the development of more just and sustainable societies alongside the most recent scientific and technical breakthroughs. It it will also be an important medium for art and its history.

GGF TECHNICAL

CEN TC 129 - Glass in Building EN Technical Committee 33 - Doors, windows As most members are aware, progress on European Standards has been severely hampered due to the HAS Consultants deeming them to be non-compliant. This is a legal rather than technical issue. In response, documents to assist Technical Committees to develop harmonised standards.

ISO & CEN STANDARDS

CEN-CENELEC Guide 36 'Guidance on the rules for drafting and presentation of candidate harmonized product standards'

CEN-CENELEC guidance 'Core rules for drafting harmonised standards for construction products'

By following this document, it does not guarantee that the standard will be cited, but only that its chances of achieving a HAS assessment of being 'Compliant' and consequently a citation entry on the OJEU are higher.

GGF PUBLICATIONS coming soon Datasheets currently under review, creation or update are as

Windows & Doorsets - Light Transmittance

Windows & Doorsets - Thermal performance

Windows & Doorsets - Durability

Windows & Doorsets - Fase of operation

Windows & Doorsets - Categories of use

Visual Quality of uPVC windows - now complete

Visual Quality of Aluminium windows

Visual Quality of Georgian Bars and Leaded lights within

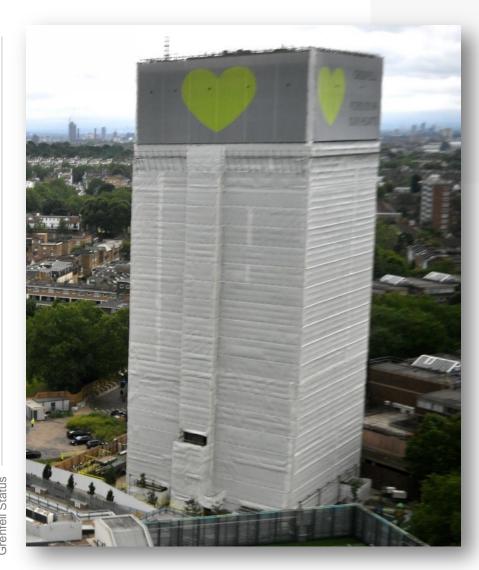
Insulating Glass Units - now complete Recommendations for fitting mirrors

Glass for Europe

ISO, CEN & BSI

Datasheets & Website





GRENFELL UPDATE

- Laminated glass still remains on AD B list of Combustible
 Materials
- Testing concluded in Q4 of 2020 with a report produced
 Glass & Glazing Federation Laminated Safety Glass
 Report Response to SI1230/Regulation 7
- Department's own tests now being carried out at the University of Ulster in conjunction with Efectis
- Feedback on tests expected soon



Building Safety Bill

EXPLANATORY NOTES

Explanatory notes to the Bill, prepared by the Ministry of Housing, Communities and Local Government, are published separately as Bill 139-EN.

EUROPEAN CONVENTION ON HUMAN RIGHTS

Secretary Robert Jenrick has made the following statement under section 19(1)(a) of the Human Rights Act 1998:

In my view the provisions of the Building Safety Bill are compatible with the Convention rights.

Bill 139 58/

BUILDING SAFETY BILL

The draft Building Safety Bill

- Now going through its 2nd Reading in the House of Lords
- Establishes the Building Owner and Contractors' responsibilities in ensuring that products used and their installation meet the required level of safety.
- Managed by the newly formed Building Safety Regulator
- This department will head a task force to create guidelines and the means of regulating this bill.
- Currently they are looking at adding an additional 1000 Building Control Officers to cover England.
- Each existing and new BCO must have accreditation for reporting on building works e.g. brickwork; electrical; windows and doors



Building Safety Bill

EXPLANATORY NOTES

Explanatory notes to the Bill, prepared by the Ministry of Housing, Communities and Local Government, are published separately as Bill 139-EN.

EUROPEAN CONVENTION ON HUMAN RIGHTS

Secretary Robert Jenrick has made the following statement under section 19(1)(a) of the Human Rights Act 1998:

In my view the provisions of the Building Safety Bill are compatible with the Convention rights

Bill 139 58/2

BUILDING SAFETY BILL

- A set of new documents, 7 in total have been published which are intended to provide Parliament with more detail of their intentions for secondary legislation.
- Products Regulations 2022 which will regulate the safety of construction products being placed on the whole of the UK market.
- There is sections in the new UK CPR which refer to 'safetycritical construction products' including how standards may be developed for safety-critical products, and also setting out obligations for economic operators. These will be new British Standards and linked to existing standards.



Building Safety Bill

EXPLANATORY NOTES

Explanatory notes to the Bill, prepared by the Ministry of Housing, Communities and Local Government, are published separately as Bill 139-EN.

EUROPEAN CONVENTION ON HUMAN RIGHTS

Secretary Robert Jenrick has made the following statement under section 19(1)(a) of the Human Rights Act 1998:

In my view the provisions of the Building Safety Bill are compatible with the Convention rights

Bill 139 58/

BUILDING SAFETY BILL

- Additionally there are parts which cover false or misleading claims about the performance of construction products and provisions for enforcement.
- The draft regulations make provision for lawfully CE marked construction products to be placed on the Northern Ireland market and for qualifying Northern Ireland goods to be placed on the GB market.



Building Safety Bill

EXPLANATORY NOTES

Explanatory notes to the Bill, prepared by the Ministry of Housing, Communities and Local Government, are published separately as Bill 139-EN.

EUROPEAN CONVENTION ON HUMAN RIGHTS

Secretary Robert Jenrick has made the following statement under section 19(1)(a) of the Human Rights Act 1998:

In my view the provisions of the Building Safety Bill are compatible with the Convention rights

Bill 139 58/2

BUILDING SAFETY BILL

The supplementary documents are:

- The Higher-Risk Buildings (Prescribed Principles for Management of Building Safety Risks) Regulations 2022
- The Higher-Risk Buildings (Descriptions and Supplementary Provisions) Regulations 2021
- The Buildings (Appointment of Persons, Industry Competence and Duty holders) (England) Regulations 2021
- The Building (Higher-Risk Buildings) (England) Regulations 2022
- The Building (Restricted Activities and Functions)(England)
 Regulations 2022

All of these documents can be found on gov.uk or on the Technical Hub





Heat and Buildings Strategy

Presented to Parliament by the Secretary of State for Business, Energy and Industrial Strategy by Command of Her Majesty

October 2021

CP 388

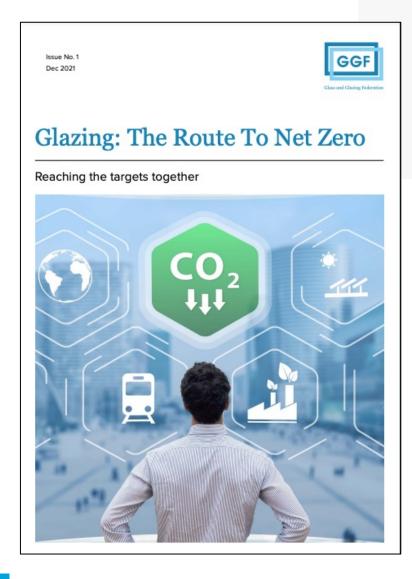
HEAT & BUILDINGS STRATEGY

On 19th October 2021 the Government published their long awaited Heat and Buildings Strategy which was to provide the Country's guide on reaching Net Zero alongside a Retrofit Strategy.

This has already proven to be controversial with many critics claiming it to fall short of providing the necessary guidance and funding to achieve our Net Zero target.

Our concerns about the lack of information, guidance and benefits of Energy Efficient windows within the Strategy have been voiced to Government.





GLAZING: THE ROUTE TO NET ZERO

To assist the GGF and its members in putting forward the case for replacement windows and doors being included in the Heat & Building Strategy, we have published **Glazing: The Route to Net Zero** which clearly lays out the benefits in using Energy Efficient fenestration products to help Government reach their Net Zero targets for 2050.

This was sent to all member companies and all MPs. Additional copies can be downloaded from the website.





Summary of Approved Document F Ventilation for New Dwellings

The AD allows for three types or systems of ventilation for new build.

System 1 is referred to as Natural Ventilation and allows for background ventilation to be used (Trickle Vents). This can only be used in dwellings regarded as less airtight.

Less airtight is defined by: -

- a) Calculation at design stage with air permeability higher than 5 cubic metres of air per hour per square metre of floor area at 50 pascal of pressure. (5m³/hm² at 50Pa)
- b) Established by air tightness test after build as higher than 3 cubic metres of air per hour per square metre of floor area at 50 pascal of pressure. (3m³/hm² at 50 Pa)
- N.B. These calculations would be done by the Architect or Structural Engineer not by the window installer GGF TEC

Building Regulations -

BUILDING REGULATIONS - ENGLAND



Ventilation for New Dwellings

In the situation where **System 1** applies, the following table must be used **(Table 1.7 in AD F)**

Room Type	Minimum Equivalent Area of background ventilators for dwellings with multiple floors.	Minimum Equivalent Area of background ventilators for single storey dwellings
Habitable Room (see Note 2 & 3)	8,000mm ²	10,000mm²
Kitchen (see Note 2 & 3)	8,000mm²	10,000mm²
Utility Room	NO MINIMUM	NO MINIMUM
Bathroom (see Note 4)	4,000mm²	4,000mm²
Sanitary Accommodation	NO MINIMUM	NO MINIMUM

The use of this table in not appropriate in the following situations or conditions and expert advice must be sought.



ONLINE VERSION HM Government The Building Regulations 2010 **Ventilation APPROVED DOCUMENT Volume 1: Dwellings** Requirement FI: Means of ventilation Regulations: 39, 42 and 44 2021 edition – for use in England **ONLINE VERSION**

Ventilation for New Dwellings

- 1a) If the dwelling has only one exposed facade (e.g. within a multi-storey building)
- 1b) If the dwelling has at 70% of its openings on the same facade.
- 1c) If a kitchen has no windows or external facade where a ventilator could be installed.
- 2) Where a kitchen and living room accommodation are not separate rooms (i.e. open plan), no fewer than three ventilators of the same equivalent area as for other habitable rooms should be provided within the open plan space
- 3) The total number of ventilators installed in the dwelling's habitable rooms and kitchen/s should be no fewer than five, except in one bedroom properties where there should be no fewer than 4.
- 4) If a bathroom has no window or external facade through which a ventilator can be installed, the minimum equivalent area specified should be added to the ventilator sizes specified in nearest adjoining rooms. (i.e. 8,000mm² increased to 12,000mm² and 10,000mm² increased to 14,000mm²)



Ventilation for New Dwellings

System 2 is continuous mechanical extraction allows for a minimum of 4,000m2 of equivalent area of background ventilators for each habitable room and at least the same number of ventilators as bedrooms plus another two (i.e. a one bedroom dwelling should have 3 ventilators, a 2 bedroom dwelling should have 4 ventilators and so on)

System 3 is a mechanical ventilation system with heat recovery with no provision/requirement for background ventilators.

ONLINE VERSION

HM Government

The Building Regulations 2010

Conservation of fuel and power

APPROVED DOCUMENT

Volume 1: Dwellings

Requirement L1: Conservation of fuel and power Requirement L2: On-site generation of electricity Regulations: 6, 22, 23, 24, 25, 25A, 25B, 26, 26A, 26C, 27, 27A, 27C, 28, 40, 40A, 43, 44 and 44ZA

2021 edition – for use in England

ONLINE VERSION

AD L: Energy Efficiency – New Dwellings

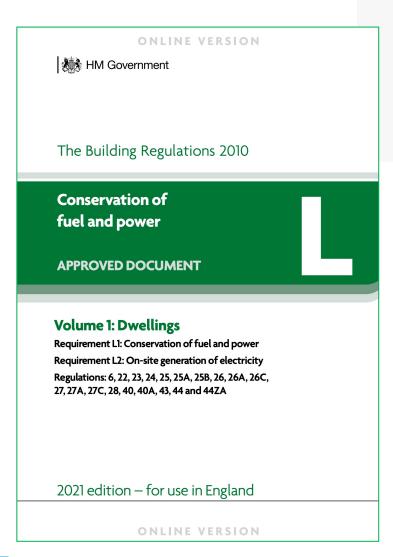
The Notional dwelling 'U' Values for Windows and Doors are laid out in Table 1.1 of the Approved Document L

Description	'U' Value	
Windows	1.2W/m2K	
Doors with glazed area	1.2W/m2K	
greater than 60%		
Other doors	1.0W/m2K	

Important Note: The calculation method in Section 4 now includes reference to the Industry standard window size and design i.e. fixed next to opener with a single dividing mullion 1230mm wide x 1480mm high. The reference to BS EN 14351 has been removed.

Building Regulations





AD L: Energy Efficiency – New Dwellings

The lowest specification 'U' Value allowable referred to as the Limiting 'U' Values are shown in Table 4.1.

Description	'U' Value	
Windows	1.6W/m2K	
Doors	1.6W/m2K	

New addition to Regulations

Windows and doors installed into new build are required to be sealed with air sealing tape around the structural openings. Compressible seals or gun sealant may be used to supplement taping.

Photographic evidence from the time of install may be required for proof of compliance.



AD O: Overheating - New Dwellings

The Approved Document O is a new regulation introduced to mitigate the risk of overheating and is **only applicable to new dwellings**.

The aim is to limit Solar Gain and remove excess heat.

The document separates England into two categories i.e. High Risk and Moderate Risk.

Appendix C of the document contains a list of postcodes that should be considered High Risk.

All other areas are considered Moderate Risk. As a means of reducing solar gain, the document contains a series of tables which sets limits on the allowable glazed area by orientation and also by introducing a provision for shading.



AD O: Overheating - New Dwellings

Table 1.1: Buildings or parts of buildings with cross-ventilation should not exceed these maximum glazing areas

	High risk location		Moderate risk location	
Largest glazed facade orientation	Max. area of glazing (% floor area)	Max. area of glazing in the most glazed room (% floor area of room)	Max. area of glazing (% floor area)	Max. area of glazing in the most glazed room (% floor area of room
North	15	37	18	37
East	18	37	18	37
South	15	22	15	30
West	18	37	11	22



AD O: Overheating - New Dwellings

Table 1.2: Buildings or parts of buildings with no cross-ventilation should not exceed these maximum glazing areas

	High risk location		Moderate risk location	
Largest glazed facade orientation	Max. area of glazing (% floor area)	Max. area of glazing in the most glazed room (% floor area of room)	Max. area of glazing (% floor area)	Max. area of glazing in the most glazed room (% floor area of room
North	15	26	15	26
East	11	18	18	26
South	11	11	15	15
West	11	18	18	11



AD O: Overheating - New Dwellings

Residential buildings in the high risk location should, in addition to the maximum glazing areas in Table 1.1 and Table 1.2, provide shading for glazed areas between compass points North-East and North West via the South.

Shading should be provided by one of the following means.

- a) External shutters with means of ventilation
- b) Glazing with a maximum g value of 0.4 and a minimum light transmittance of 0.7
- c) Overhangs with 50 degrees altitude cut-off on due south-facing facades only.

Removing excess heat

The document offers guidance on the removal of excess heat by means of ventilation. An openable window or door is considered adequate to remove excess heat as long as it complies with the minimum requirements for opening in Table 1.3

GGF TECHNICAL

—DEPARTMENT—



Building Regulations - England

AD O: Overheating - New Dwellings

Table 1.3: Buildings or parts of buildings with cross-ventilation should equal or exceed these minimum free areas

	High risk location	Moderate risk location
Total minimum free area	The greater of the following: a) 6% of the floor area b) 70% of the glazing area	The greater of the following: a) 9% of the floor area b) 55% of the glazing area
Bedroom minimum free area	13% of the floor area of the room	4% of the floor area of the room

Note: The total minimum free area is the free area for the whole dwelling house, residential unit, shared communal room or common space including any bedrooms.



AD O: Overheating - New Dwellings

Table 1.4: Buildings or parts of buildings with no cross-ventilation should equal or exceed these minimum free areas

	High risk location	Moderate risk location
Total minimum free area	The greater of the following: a) 10% of the floor area b) 95% of the glazing area	The greater of the following: a) 12% of the floor area b) 80% of the glazing area
Bedroom minimum free area	13% of the floor area of the room	4% of the floor area of the room

Note: The total minimum free area is the free area for the whole dwelling house, residential unit, shared communal room or common space including any bedrooms.



AD O: Overheating - New Dwellings

Table 1.4: Buildings or parts of buildings with no cross-ventilation should equal or exceed these minimum free areas

	High risk location	Moderate risk location
Total minimum free area	The greater of the following: a) 10% of the floor area b) 95% of the glazing area	The greater of the following: a) 12% of the floor area b) 80% of the glazing area
Bedroom minimum free area	13% of the floor area of the room	4% of the floor area of the room

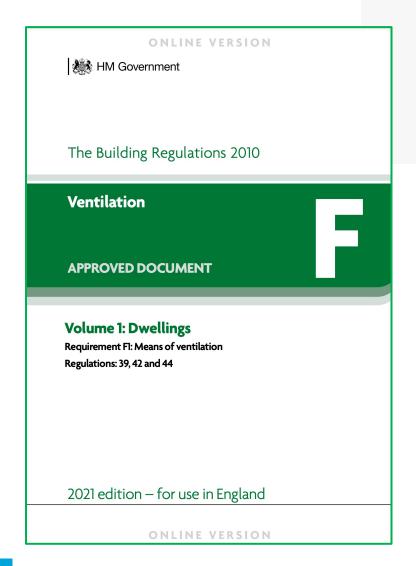
Note: The total minimum free area is the free area for the whole dwelling house, residential unit, shared communal room or common space including any bedrooms.



AD F: Ventilation for Existing Dwellings

Assessing background ventilation (Trickle Vent) requirements when installing replacement windows & doors.

Members should refer to Table 3.1 and Diagram 3.1 which detail where windows are replaced in conjunction with other efficiency measures and states that in some cases the dwellings will or may require extra ventilation. The extra ventilation may be provided via background ventilation (Trickle Vents) as well as other measures. If no other energy efficient improvement works are being carried out, the requirements are as follows: -



AD F: Ventilation for Existing Dwellings

Assessing background ventilation (Trickle Vent) requirements when installing replacement windows & doors.

Section 3.14: Existing windows with background ventilators (Trickle Vents)

If the existing windows have background ventilators, the replacement windows should include background ventilators.

The new background ventilators should comply with both of the following conditions: -

- a) Not be smaller than the background ventilators in the original window.
- b) Be controllable either automatically or by the occupant.

If the size of the original background ventilator is not known then use the guidelines in Section 3.15.

GGF TECHNICAL

— DEPARTMENT—



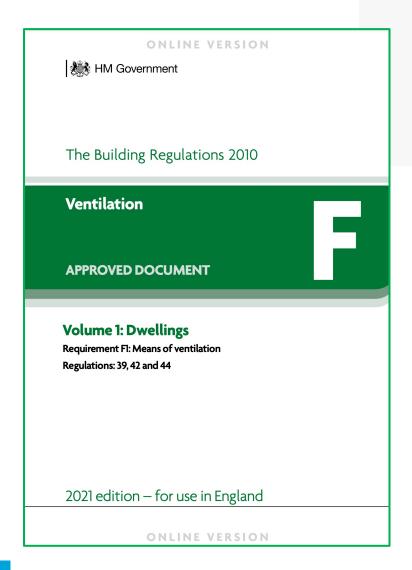
AD F: Ventilation - Existing Dwellings

Assessing background ventilation (Trickle Vent) requirements when installing replacement windows & doors.

Section 3.15: Existing windows without background ventilators (Trickle Vents)

Replacing the windows is likely to increase the airtightness of the dwelling. If ventilation is not provided via a mechanical ventilation with heat recovery system, then increasing the airtightness of the building may reduce beneficial ventilation in the building. In these circumstances, it is necessary to ensure that the ventilation provision in the dwelling is no worse than it was before the work was carried out.



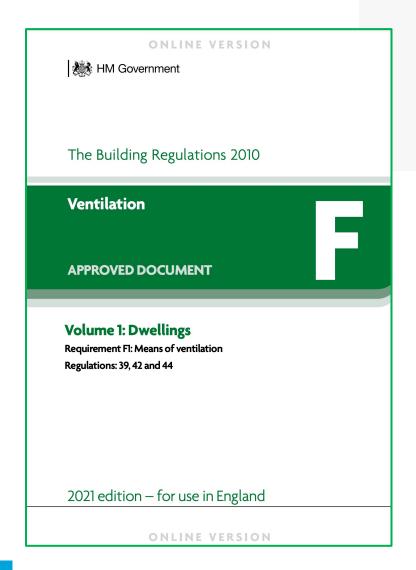


AD F: Ventilation - Existing Dwellings

Assessing background ventilation (Trickle Vent) requirements when installing replacement windows & doors.

This may be demonstrated in any of the following ways: -

- a) Incorporating background ventilators in the replacement windows equivalent to the following: -
- i) Habitable rooms minimum 8,000mm² equivalent area (EA)
- ii) Kitchen minimum 8,000mm² equivalent area (EA)
- iii) Bathroom (with or without a toilet) minimum 4,000mm² equivalent area (EA)

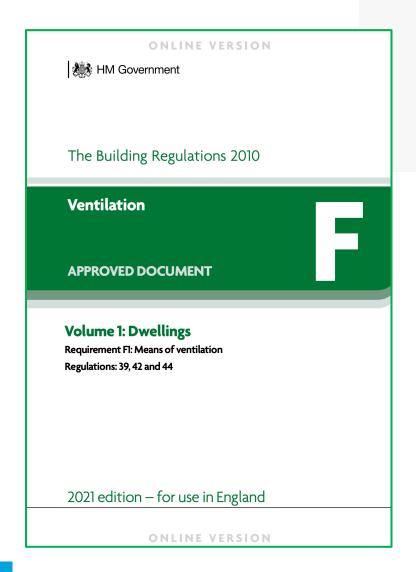


Building Regulations - England

AD F: Ventilation - Existing Dwellings

Assessing background ventilation (Trickle Vent) requirements when installing replacement windows & doors.

- b) If the dwelling will have continuous mechanical extract ventilation, install background ventilators in any replacement windows which are not in a wet room, with a minimum equivalent area of 4,000mm2 in each habitable room.
- c) Other ventilation provisions, if it can be demonstrated to a Building Control body that they comply with the requirements within paragraph 3.2
- d) If it is not technically feasible to adopt the minimum equivalent areas set out in paragraph 3.15, the background ventilators should have equivalent areas as close to the minimum value as is feasible.



Building Regulations - England

AD F: Ventilation - Existing Dwellings

Assessing background ventilation (Trickle Vent) requirements when installing replacement windows & doors.

It is worth noting the following details within the Approved Document: -

If the Energy Efficiency works involve only replacing windows, then the guidance in 3.14 to 3.16 may be followed as means of demonstrating compliance.

Within Table 3.1 under replacement of windows and doors, if the replacements are less than 30% of the total existing windows or door units, this would be regarded as a Minor Energy Efficiency measure. More than 30% is a major Energy Efficiency measure.

If the method in Diagram 3.1 below results in the work being categorised as Category A, it is likely that the energy efficiency measures have not reduced the ventilation provision of the dwelling below the requirements of F1(1) so no further ventilation provision is necessary.



AD F: Ventilation - Existing Dwellings

Other considerations for background ventilation

1.34 Background ventilators should be at least 1700mm above floor level, to reduce cold draughts, but still be easy for the occupant to reach.

NOTE: Background ventilators are intended to normally be left open.

- **1.52** All rooms with external walls should have background ventilators. If a habitable room has no external walls, paragraphs 1.42 to 1.44 should be followed.
- **1.53** If the dwelling has more than one exposed façade, the area of background ventilators on each façade should be similar, to allow cross-ventilation.
- **1.54** If an exposed façade is close to an area of sustained and loud noise (e.g. a main road), then a noise attenuating background ventilator should be filled.
- **1.55** If fans and background ventilators are fitted in the same room, they should be at least 500mm apart.

ONLINE VERSION

HM Government

The Building Regulations 2010

Conservation of fuel and power

APPROVED DOCUMENT

Volume 1: Dwellings

Requirement L1: Conservation of fuel and power Requirement L2: On-site generation of electricity Regulations: 6, 22, 23, 24, 25, 25A, 25B, 26, 26A, 26C, 27, 27A, 27C, 28, 40, 40A, 43, 44 and 44ZA

2021 edition – for use in England

ONLINE VERSION

AD L: Energy Efficiency - Existing Dwellings

3.2 'U' Values, Window Energy Ratings (WER) and doorset energy ratings (DSER) of replacement windows and doors must be both: -

- No worse than that of the element being replaced
- Meet the limiting standards in Table 4.2 (Lowest specification of 'U' Value or WER/DSER allowable)

Description	'U' Value	WER/DSER
Windows	1.4W/m²K	В
Doors with glazed area greater than 60%	1.4W/m²K	С
Other doors	1.4W/m²K	В



- Public consultation still awaited was expected end of October 2021
- Some upgrades to door chains, viewers & mailboxes
- The use of Class P1A laminated glass on one skin of IGU in all accessible windows – regardless if keyed handles or not.
- Substantial demand for this product (i.e. around 2.5million m2 per year)
- Scope of this Document will be extended to include domestic replacement windows and doors



BUILDING REGULATIONS – WALES & SCOTLAND



Building Regulations - Wales

Response to Consultation document for AD L,F & S is now published.

The GGF responded to this consultation in similar fashion to England.

The new Approved Documents are not yet published.

Building Regulations - Scotland

The Scottish Government has released their Scottish Energy Standards public consultation covering similar areas to English L, F & S. The GGF has completed a response and issued this to members for their comments. This is also available from the website on the Technical Hub. A summary of the targets within the Consultation are summarised as follows: -



Back



Section 6 Energy Dwellings Scotland

The proposal puts forward two options for improvement,

Option one being **Improved** and option two being **Advanced**.

Improved proposes to change the Notional Building U value specification for windows to 1.2.

Advanced proposes to change the Notional Building U value specification for windows to 0.8.

The **Improved** specification has doors at 1.2 and the **Advanced** specification shows the U value of doors as 1.0

The limiting maximum U values for windows and doors are proposed at 1.4 for the **Improved** specification and 1.2 for the **Advanced**

Limiting maximum U values as mentioned are proposed for new and existing dwellings.

There is no scope for WER or DSER within the proposal.





BUILDING REGULATIONS – WALES & SCOTLAND



Building Regulations - Wales

Response to Consultation document for AD L,F & S is now published.

The GGF responded to this consultation in similar fashion to England.

The new Approved Documents are not yet published.

Building Regulations - Scotland

The Scottish Government has released their Scottish Energy Standards public consultation covering similar areas to English L, F & S. The GGF has completed a response and issued this to members for their comments. This is also available from the website on the Technical Hub. A summary of the targets within the Consultation are summarised as follows: -



Back

BUILDING REGULATIONS – SCOTLAND



Section 3.14 Ventilation Scotland

The proposal includes new detail for the provision of purge ventilation that mirrors that of the English regulations and includes a more detailed explanation of its purpose.

Minimum openable area of **1/10th of floor area** for windows that have an opening angle between 15 and 30 degrees.

Minimum openable area of 1/20th of floor area for windows that have an opening angle greater than or equal to 30 degrees.

The provision for background ventilators has been updated when used in conjunction with continuous mechanical extract.

The proposal is that a minimum equivalent area of **5000mm** be applied to each apartment in the dwelling.



BUILDING REGULATIONS – SCOTLAND



Overheating risk new dwellings in Scotland

The proposal offers two methods for assessing and mitigating overheating risk.

- The Simplified Method
- Dynamic Thermal Analysis Method

The Simplified Method asks for measures to limit unwanted solar gain and to offer effective ventilation.

Limiting solar gain is dealt with by limiting the area of glazing allowed or by introducing shading via shutters, low g value glazing or Louvres.

The effective ventilation in the vast majority of dwellings will be adequately met via the purge ventilation requirements within the Ventilation proposals.

The Dynamic Thermal Analysis method uses the buildings characteristics to calculate the overheating risk. This method is best suited to conversions or more complex dwellings.



The Building Regulations (Northern Ireland) 2012 (as amended)

Public Consultation Document C.1

Consultation Proposals for amendment of Technical Booklet Guidance to Part F (Conservation of fuel and power)

October 2021

(Closing date for the receipt of responses is 23.59 PM on Sunday 19th December 2021)

Building Regulations - Northern Ireland

The consultation on Energy Efficiency concluded on 19th December 2021.

'U' Values are similar to those now included in the English Approved Document L.

A copy of the Consultation with the GGF responses are available on the Technical Hub on the GGF Website



The Building Regulations (Northern Ireland) 2012 (as amended)

Public Consultation Document C.1

Consultation Proposals for amendment of Technical Booklet Guidance to Part F (Conservation of fuel and power)

October 2021

(Closing date for the receipt of responses is 23.59 PM on Sunday 19th December 2021)

Building Regulations - Northern Ireland

Overview

Launched in October 2021 and closed 19th December 2021 Affects Parts F1 and F2 of the building regulations 3 options being consulted on

Option 1: do nothing;

Option 2: require nearly zero energy buildings (NZEB) buildings to better the current Target carbon dioxide Emissions Rate (TER) outputs by 25%, in the case of new dwellings, and 15%, in the case of new non-domestic buildings; and

Option 3: require NZEB buildings to better the current Target carbon dioxide Emissions Rate (TER) outputs by 40% in the case of new houses, 25% in the case of new flats, and 15%, in the case of new non-domestic buildings.

Government preferred option is option 3

Improvements proposed are U value reductions, air tightness testing changes and improvements to the thermal bridge assessments.

The consultation has 20 questions in total





The Building Regulations (Northern Ireland) 2012 (as amended)

Public Consultation Document C.1

Consultation Proposals for amendment of Technical Booklet Guidance to Part F (Conservation of fuel and power)

October 2021

(Closing date for the receipt of responses is 23.59 PM on Sunday 19th December 2021)

<u>Technical Booklet F1 – Dwellings</u>

Table 3.1 from Part F1 details U value and WER for **existing dwellings** as below. Same as existing values in 2012 Technical Booklets

Table 3.1 Standards for controlled fittings			
Fitting	Standard		
Window, roof window or rooflight	WER Band C or better (see paragraph		
	3.46); or U-value = 1.6 W/m2.		
Doors with > 50% of internal face glazed	U-value = 1.8 W/m2.K		
Other doors	U-value = 1.8 W/m2.K		
Note: Window Energy Rating (WER)			



The Building Regulations (Northern Ireland) 2012 (as amended)

Public Consultation Document C.1

Consultation Proposals for amendment of Technical Booklet Guidance to Part F (Conservation of fuel and power)

October 2021

(Closing date for the receipt of responses is 23.59 PM on Sunday 19th December 2021)

Table 2.2 from Part F1 details limiting U values for **new dwellings** as below. New values in red.

Table 2.2 Limiting U-values (W/m2 .K)			
Elements	(a) Area-weighted average U- value	(b) Maximum U-value at any point	
Wall	0.30 0.18	0.70 0.6	
Floor(1)	0.25 0.18	0.70 0.6	
Roof	0.20 0.16	0.35 0.3	
Party wall	0.20 0.0	0.70 0.6	
Windows, roof windows, glazed rooflights, curtain walling and pedestrian doors	2.00 1.4	3.30 3.0	

Note (1) Where the source of space heating is underfloor heating, the maximum floor U-value should be 0.15 W/m2K.





The Building Regulations (Northern Ireland) 2012 (as amended)

Public Consultation Document C.1

Consultation Proposals for amendment of Technical Booklet Guidance to Part F (Conservation of fuel and power)

October 2021

(Closing date for the receipt of responses is 23.59 PM on Sunday 19th December 2021)

Building Regulations - Northern Ireland

Other new additions to the Technical Booklet for **new dwellings** below

2.32A- To reduce heat losses and help limit excessive heat gain, the limiting extent of external doors and glazed openings in a dwelling should be no greater than 25% of the floor area of the dwelling.

2.32B- As an alternative to the requirements of Table 2.2 column (a) and paragraph 2.32A, fabric standards and the extent of openings may be varied by adopting a whole building calculated trade-off approach (see calculation provided in paragraph 3.12). The area-weighted average U-value of all the elements in the dwelling should be no greater than that of a dwelling of the same shape and size that complies with Table 2.2 column (a) and paragraph 2.32A.

Building Regulations —

BUILDING REGULATIONS – NORTHERN IRELAND



The Building Regulations (Northern Ireland) 2012 (as amended)

Public Consultation Document C.1

Consultation Proposals for amendment of Technical Booklet Guidance to Part F (Conservation of fuel and power)

October 2021

(Closing date for the receipt of responses is 23.59 PM on Sunday 19th December 2021)

<u>Technical Booklet F2 – buildings other than dwellings</u>

Table 2.3 from Part F2 details U value for **new buildings other than dwellings** as below. Changes highlighted in red.

Table 2.3 Limiting U-values (W/m ₂ .K)		
Element	(a)Area-weighted average U-value (5)	(b)Maximum U-value at any point
Wall	0.35 0.21	0.70 0.6
Floor-ground and exposed	0.25 0.21	0.70 0.6
Roof-pitched	0.16	0.3
Roof-flat	0.25 0.2	0.35 0.3
Party wall	0.20	0.70 0.6
Windows, roof windows, rooflights(1) and curtain walling	2.20 1.6 ₍₂₎₍₃₎	3.30 3.0
Curtain walling	1.8(2)(3)	3.0
Pedestrian doors	2.20 1.6	3.00
Vehicle access and similar large doors	1.50	4.00
High-usage entrance doors	3.50	6.00
Roof ventilators (including smoke vents)	3.50	6.00
Swimming pool basin (walls and floor) ₍₄₎	0.25	-
Pedestrian doors Vehicle access and similar large doors High-usage entrance doors Roof ventilators (including smoke vents)	2.20 1.6 1.50 3.50 3.50	3.00 4.00 6.00 6.00

Notes: (1) The relevant rooflight U-value for checking against these limits is that based on the developed area of the rooflight, not the area of the roof aperture. The developed area of a rooflight is explained in NARM Technical Document NTD 2 (2010) Assessment of thermal performance of out-of-plane rooflights.

- (2) Excluding display windows and similar glazing. There is no limit on design flexibility for these exclusions but their impact on CO₂ emissions must be taken into account in calculations.
- (3) Where a building has high internal heat gains, a less demanding area-weighted average U-value for the glazing may be an appropriate way of reducing overall CO₂ emissions and hence the BER. Where this can be demonstrated, the area-weighted average U-value for windows can be relaxed from the values given above. However, values should not exceed 2.7 2.2 W/m₂.K.
- (4) See paragraphs 2.25 and 2.26.
- (5) Reasonable provision would also be achieved if the total heat loss through the roof, wall and floor elements did not exceed that which would be the case if each of the area weighted average U-value (Um) for these elements set out in Column (a) were achieved individually, subject to the values in column (b) and any other requirements remaining applicable.



Building Regulations ——

BUILDING REGULATIONS – NORTHERN IRELAND



The Building Regulations (Northern Ireland) 2012 (as amended)

Public Consultation Document C.1

Consultation Proposals for amendment of Technical Booklet Guidance to Part F (Conservation of fuel and power)

October 2021

(Closing date for the receipt of responses is 23.59 PM on Sunday 19th December 2021)

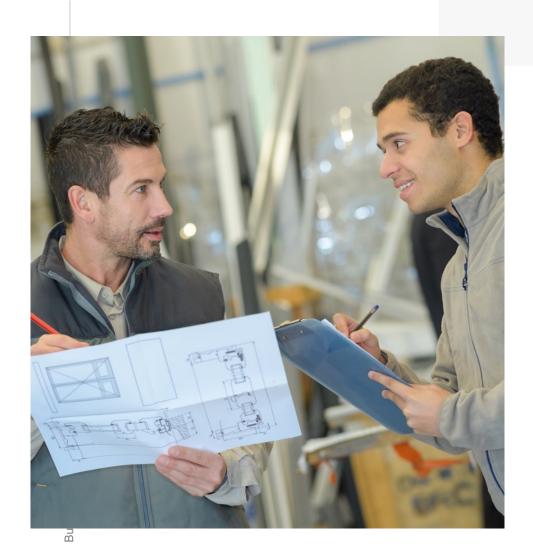
Building Regulations - Northern Ireland

Table 3.2 from Part F2 details U value and WER for **existing buildings other than dwellings** as below. Same as existing values in 2012 Technical Booklets

Table 3.2 Standards for controlled fittings	
Fitting	Standard
Windows, roof windows and glazed rooflights(1)	1.8 W/m ₂ .K for the whole unit
Alternative option for windows in buildings that are essentially domestic in character(2)	A window energy rating ₍₃₎ of Band C
Plastic rooflight ₍₄₎	1.8 W/m ₂ .K
Curtain walling	See paragraph 3.59
Pedestrian doors where the door has more than 50% of its internal face area glazed	1.8 W/m ₂ .K for the whole unit
High-usage entrance doors for people	3.5 W/m ₂ .K
Vehicle access and similar large doors	1.5 W/m ₂ .K
Other doors	1.8 W/m ₂ .K
Roof ventilators (including smoke extract ventilators)	3.5 W/m ₂ .K
Notes: (1) Excluding display windows.	

- (2) For example, student accommodation, care homes and similar uses where the occupancy levels and internal gains are essentially domestic in character.
- (3) See Technical Booklet F1 for more detail on window energy rating.
- (4) The relevant rooflight U-value for checking against these limits is that based on the developed area of the rooflight, not the area of the roof aperture. The developed area of a rooflight is explained in NARM Technical Document NTD 2 (2010) Assessment of thermal performance of out-of-plane rooflights.





BUILDING REGULATIONS

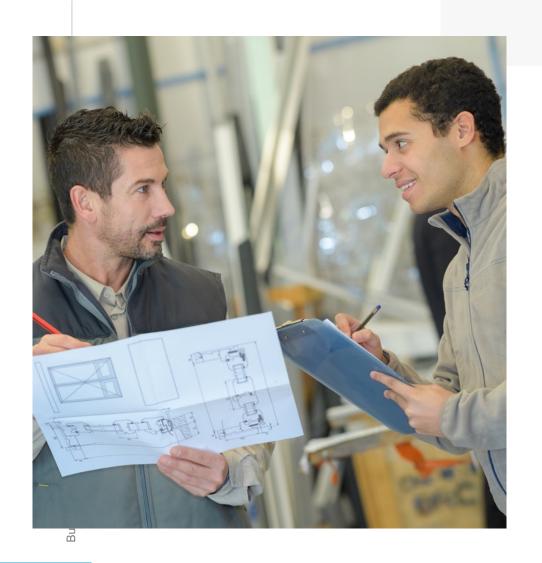
Building Regulations - Republic of Ireland

There have been no updates or changes to Irish Building Regulations since the last Technical Report.

Back







ENGLISH PLANNING CHANGES

- The Government's proposed planning reform made sweeping changes
- White Paper relaxed planning approvals
- Michael Gove says it needs "complete rethink"
- Could be substantially watered down
- With major planning reforms removed
- Zonal planning system could be scrapped
- Mandatory housebuilding targets for local authorities removed

NO UPDATE ON THIS SINCE LAST TECHNICAL REPORT



CPR & CE Marking



CONFORMITY MARKING

- CE acceptance will end on 31st December 2022
- UKCA marking will still replace CE marking
- Problems highlighted by GGF & CPA still remain
- Insufficient testing facilities in the UK
- Historic UK testing through AVCP3s not accepted by Europe
- Historic EU testing through AVCP3s not accepted by UK
- Full details of issues viewable/downloadable from Technical Hub.





CONFORMITY MARKING

- New guidance published on 10th March
- UK Conformity Assessment Bodies: using a subcontractor
- Applicable to all UK CABs including UK Approved Bodies & UK
 Notified Bodies (for the NI Market)
- UK CABs can now sub-contract another body to carry out testing including outwith UK (EU-27) including overseas subsidiaries.
- Decision on Conformity must be by UK CAB
- Not applicable for historic EU testing through AVCP3s
- Proposal for AVCP3 resolution now with the Paymaster General with a decision expected within the next month



Affiliate Association

PROPOSED EUROPEAN CPR



- European Commission have now published proposals for a revised CPR
- Published on 30th March and now going through the legal procedures
- That starts with another Public Consultation over 8 weeks and finishing on 3rd June 2022
- The proposal is based is based on the original Option D.

The aim is to achieve a well-functioning single market for construction products and to contribute to the objectives of the green and digital transition



Affiliate Associations



The Main Changes to EU -CPR

PROPOSED EUROPEAN CPR

- A new obligation for manufacturers to provide a declaration of conformity (compliance with product requirements) in addition to the declaration of performance
- A new empowerment for the Commission to adopt technical specifications where the standardization system is not delivering on time and of sufficient quality and to set product requirements
- New environmental, functional and safety product requirements for construction products.
- Provide a list of general sustainability requirements defined by product family through Commission acts or harmonosed standards
- Strengthen enforcement powers of market surveillance authorities.
- Provide a clearer definition of the scope and inclusion of reused and 3D-printed construction products and prefabricated houses.







The Main Changes to EU -CPR

PROPOSED EUROPEAN CPR

- Establish a 'harmonised zone', a clearer division of Member States' roles and a mechanism to gather information on to exchange proactively on Member States' regulatory needs or measures and address those in the respect of the single market objectives.
- Introduce and improve simplification and exemption provisions for micro-enterprises.
- Extending the role of the product contact points for construction to support economic operators.
- Establish a new Commission system allowing any natural or legal person to share complaints or reports related to possible breaches of the Regulation.
- Align with the Ecodesign for Sustainable Products
 Regulation on climate and environmental sustainability and
 on the Digital Product Passport.



PROPOSED EUROPEAN CPR



The Main Changes to EU -CPR

Products Regulation

Of particular note is a new Annex V – Assessment and verification systems (AVS). This contains additional actions within the systems for both manufacturer and Notified Body.

It empowers the Commission to supplement and amend the Regulation by means of delegated acts to determine the applicable assessment and verification system for product families and to counter systematic non-compliances of notified bodies or manufacturers by introducing additional steps in the assessment or verification systems.

It also includes a new additional System 3+ defining the Notified Body's control of environmental sustainability assessment.

A comparison of tasks between as current AVCP and as proposed AVS has been summarised by CPA and the document is downloadable from GGF Technical Hub.

Affiliate Associations

GLOSS FOREUROPE

AFFILIATE ASSOCIATIONS

United Nations International Year of Glass 2022- GfE are a sponsor of the International Year of Glass' and its kicking off 9-11 February with an official opening ceremony at the Palace of Nations, Geneva. The Year will celebrate the essential role glass has and will continue to have in Society.

A 2 day opening event at the Palace of Nations in Geneva will feature 30 world class speakers. The event will be streamed worldwide on Zoom - places in the Hall will be at a premium! Talks will highlight the latest thinking on how GLASS can aid the development of more just and sustainable societies alongside the most recent scientific and technical breakthroughs. It it will also be an important medium for art and its history.



Affiliate Associations —

AFFILIATE ASSOCIATIONS



Glass for Europe CPR guide — Glass for Europe's CPR guidelines have been criticized by market surveillance authorities in Germany. Critics were moved to the need of listing all performances in the CE marking and to the declaration of durability. Germany does not follow Glass for Europe's argumentation that durability should be declared for all the standards and that a reference to the electronic DoP is sufficient to comply with the CPR.

GfE agreed that the recommendations included in Glass for Europe's guidelines should be clarified.

EU proposal for updating CPR available from the Technical Hub



Affiliate Associations

AFFILIATE ASSOCIATIONS



Smart CE marking - The process to create a new WG was launched. Work will start in 2022. Working group is complete but they're looking for volunteers. UK cannot join as it is extremely unlikely the UK will adopt Smart CE Marking. The commission is discussing QR codes etc onto products to link directly to DOP's and CE Mark.



Affiliate Associations

AFFILIATE ASSOCIATIONS



UKCA – Lengthy discussions took place surrounding the UK government extending the coexistence of the CE and UKCA marking until 2023. No updates were reported about a possible Mutual Recognition Agreement (MRA) on conformity assessment covering the results of third-party conformity notified bodies. The situation remains the same. Participants reported that all companies are facing difficulties to place new products in the UK market as it is impossible to find a laboratory able to test specific characteristics. Participants discussed the possibility of declaring NPD when there is no means to test new products due to the absence of "approved bodies" based in the UK.

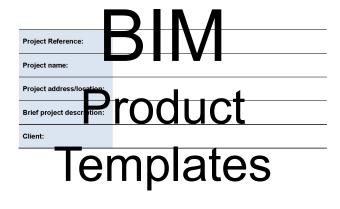
GfE UKCA Marking Guidance 'Preliminary Guidance on UKCA Mark' https://glassforeurope.com/preliminary-guidance-on-ukca-mark/





v2.0 – February 2016

BIM Management Plan



Revision Date Prepared by Approved by Comments

AFFILIATE ASSOCIATIONS

Along with the Guild of Architectural Ironmongers, the British Woodworking Federation and other interested bodies, the GGF have been involved in a project for the production of BIM or product data templates

Fenestration Relevant Authority meeting held 18/11/21 via video call

Product Data Template (PDT) update

Working Group have created the first full doorset Product Data Template.

The template was updated with amends and confirmed as final draft and will now go for approval.

Individual work streams are now in place to create PDTs including the GGF working party currently working through window hardware **Lexicon methodology Consultation**

Comment resolution now complete and amendments have been agreed. Document will be published Q1 2022.

Looking for early adopters through the course of 2022 and will be carrying out case studies

If you wish to be involved in future meeting please contact Kevin Jones









ISO TC 160 – Glass in Building & ISO TC 162 – Doors, Windows & Curtain Walling



CEN TC 129 – Glass in Building &

CEN Technical Committee 33 - Doors, windows, shutters, building hardware and curtain walling

As most members are aware, progress on European Standards has been severely hampered due to the HAS Consultants deeming them to be non-compliant. This is a legal rather than technical issue. In response, CEN- CENELEC have developed two guidance documents to assist Technical Committees to develop harmonised standards.

<u>CEN-CENELEC Guide 36</u> 'Guidance on the rules for drafting and presentation of candidate harmonized product standards'

<u>CEN-CENELEC guidance</u> 'Core rules for drafting harmonised standards for construction products'

By following this document, it does not guarantee that the standard will be cited, but only that its chances of achieving a HAS assessment of being 'Compliant' and consequently a citation entry on the OJEU are higher.





ISO & CEN STANDARDS



ISO TC 160 – Glass in Building & ISO TC 162 – Doors, Windows & Curtain Walling



CEN TC 129 – Glass in Building &

CEN Technical Committee 33 - Doors, windows, shutters, building hardware and curtain walling

In light of the future of CPR and due to no standards being notified in the OJEU. It may be that some standards may be removed and if so, CE marking of the products covered would no longer be possible.

There is also a possibility that there will be 2 standards for products. One covering the EUs legal requirements and one for manufacturers and purchasers which cover the technical aspects. It is expected that without significant change, no hENs will be cited within the next 2 to 5 years.

The work on taking account of the HAS consultants' comments has been side lined. The commission has stopped all 'communication' between TCs and the consultants.

Any changes to these Standards will be notified to members through the Technical Hub



Standards

BSI STANDARDS

BSI Working Group – B/520

BSI Working Group B/520 - Glass in Building

DSI.

Standards in review and to be updated.

Work is progressing with the revision of BS 6262: *Code of practice for glass in building*. The following decisions have been made: The contents of Parts 2 and 3 relating to acoustics, spectrophotometric properties and fire are to be delayed.

Recommendations on "glass for overhead applications" will be dealt with during the incorporation of BS 5516-2: *Patent Glazing and Sloping Glazing for Buildings Part 2: Code of Practice for Sloping Glazing.*

The following standards are up for systematic review: BS 5051-1:1988 Bullet-resistant glazing -- Specification for glazing for interior use. Still required for plastics glazing sheet materials. BS 5544: 1978 Specification for anti-bandit glazing (glazing resistant to manual attack). Still required for plastics glazing sheet materials

BS 6262: 1982 *Code of practice for glazing for buildings.* Required until BS 6262 -5 is finalised.





bsi.

BSI Working Group B/538 - Windows and Doors

Standards in review and to be updated.

BSI STANDARDS

BSI Working Group B/538 – Windows & Doors Standards under review as notified

BS EN 13116:2001

Curtain walling. Resistance to wind load. Performance requirements

Update type: Confirmed, Current

BS EN 13659:2004+A1:2008

Shutters. Performance requirements including safety

Update type: Revised, Superseded, Withdrawn

BS EN 14019:2016

Curtain Walling. Impact resistance. Performance requirements

Update type: Confirmed, Current

BS EN 16034:2014

Pedestrian doorsets, industrial, commercial, garage doors and openable windows. Product standard, performance characteristics. Fire resisting and/or smoke control characteristics

gUpdate type: Current, Under review

Standards

bsi.

BSI Working Group B/538 - Windows and Doors

Standards in review and to be updated.

BSI STANDARDS

BSI Working Group B/538 – Windows & Doors Standards under review as notified

BS 1245:2012

Pedestrian doorsets and door frames made from steel sheet. Specification

Update type: Current, Under review

BS 4873:2016

Aluminium alloy windows and doorsets. Specification Update type: Confirmed, Current

BS 6375-1:2015+A1:2016

Performance of windows and doors. Classification for weathertightness and guidance on selection and specification

Update type: Confirmed, Current



BSI Working Group B/538 - Windows and Doors

Standards in review and to be updated.

BSI STANDARDS

BSI Working Group B/538 – Windows & Doors Standards under review as notified

BS 644:2012: Timber windows and doorsets. Fully finished factory-assembled windows and doorsets of various types. **Specification**

Update type: Current, Under review

BS 6462:1985: Specification for mechanical performance of peg-type casement stays and face-fixed wedge-action fasteners

Update type: Current, Under review

BS 8213-1:2004: Windows doors and rooflights. Design for safety in use and during cleaning of windows, including doorheight windows and roof windows. Code of practice

Update type: Current, Under review

BS 8529:2017: Composite doorsets. Domestic external doorsets, Specification

Update type: Current, Under review



GGF Publications

GGF PUBLICATIONS coming soon

Datasheets currently under review, creation or update are as

SECTION 4 April 2020 Contents Data Sheet 4.6.4: Channel Shaped Glass - Cooted Channel Shaped Glass; Introduction Data Sheet 4.6.5: Channel Shaped Glass - Glazing and performance of Channel Shaped Glass 2. Definitions and Description 3. Glass types 4. Dimensions For the purpose of this GGF Data Sheet the following 5. Methods of measurement 6. Appearance/Viewing conditions 21. Basic soda lime silicate glass products Bibliography physical and mechanical properties together with the list of products can be found in EN 572-1 Glass. In annealed wired and unwired forms, thermally toughened and coated forms. Translucent, clear or tinted soda lime silicate glass, wired or unwired, obtained by continuous casting and rolling. which is formed into a channel shape during the This part, GGF Data Sheet 4.6.1: Channel Shaped Glass manufacturing process. (see EN 572-7) defines channel shaped glass and its types and gives 2.3. Wired channel shaped glass · the terminology to be used to specify a channel shaped i.e. across the width, B, which runs in the direction of the . the procedures, measurement and test methods for the length, H. Additional wires may also be in the flanges. (see determination of dimensional parameters and appearance/visual quality; · the range of available channel shaped glass types, thicknesses and thickness tolerances Channel shaped glass within which a permanent surface Further GGF Data Sheets in the 4.6 series are as follows: heating and cooling process in order to give it greatly Data Sheet 4.6.2: Channel Shaper Glass - Anneoled Wired and increased resistance to mechanical and thermal stress and Unwired Channel Shaped Glass; prescribed fragmentation characteristics. (See also 2.41& Data Sheet 4.6.3: Channel Shaped Glass - Thermolly Toughened Soda Lime Silicate Channel Shaped Safety Glass, "EN 572-1 2012 Glass in building - Bosic sodo lime silicate glass products - Port 1 Definitions and general physical and mechanical properties EN 572-7: 2012 Glass in building – Blasic soda lime silicate glass product –Part 7: Wired or unwired channel shaped glass 40 Rushworth Street, London SE1 0RB Tel: 020 7939 9100 Fax: 0870 042 4266 GGF

follows: -6.6 Windows & Doorsets - Light Transmittance 6.7 Windows & Doorsets - Thermal performance 6.8 Windows & Doorsets - Durability 6.9 Windows & Doorsets - Ease of operation Windows & Doorsets - Categories of use 6.10 6.11 Visual Quality of uPVC windows – **now complete** 6.12 Visual Quality of Aluminium windows 4.2.4 Visual Quality of Georgian Bars and Leaded lights within

Insulating Glass Units – **now complete**

Recommendations for fitting mirrors

4.8





GGF WEBSITE

- Summary of all services in a "Concertina" style menu
- **Latest News and Events**
- **Consultation Documents**
- Standards currently Under Review and Out for Comment
- **Quarterly Technical Report**
- Quick Links to relevant documents and webpages
- Links to all Technical Group Pages





cations

GGF

GGF TECHNICAL



Thank you for your attention Any Questions

